

PALESTINE POLYTECHNIC UNIVERSITY
COLLAGE OF ADMINISTRATIVE SC. & INFORMATICS
DEP. OF INFORMATION TECHNOLOGY

RABITA MODEL SCHOOLS MANAGEMENT SYSTEM

Research Team

Abdel-Raheem N. Tamimi Anan A. Jabari Fathi A. Salaymeh

Supervisor

Eng. Radwan R. Tahboub

This final project is presented as a continuation for the Bachelor degree
requirements in Information Technology

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Dedication

To our Parents, God extend their life

To the Martyrs spirits

To all we love

We would dedicate this work.

Abed ...

Anan ...

Fathi ...

Acknowledgment

They said, "Who did not thank people, will not thank God".

Project team would like to thank the supervisor of this work Eng. Radwan Rehab Tahboub for his helpful, supervising, and direction.

Special thanks to the programming unit staff at the municipality of Hebron for their support and help.



Abstract

This system is a database application that runs over the web through the intranet of al Rabita model school, which aims to computerize and manage some of the processes that are related to the School, these processes include the student accumulative card, marks and certifications, accounting issues and school affairs.

This system allows the user of the system storing and managing information about the students of the school in a very simple way. The system also allows the user to manage the sections of the classes, and to store the marks of the students and to manage them, and then he can either ask the system to store the certificates – including the school certificates and the Ministry of education standard sheet- or to print them out. Also the system considers managing the accounting processes that are related to the school such as the school tuitions and transportation subscription fees by calculating the required fees from the parents taking in mind the discount processes for the brothers and superior students. In addition the system will provide the user with the needed reports and certificates such as recommendation letters and certifications.

This report describes the development life cycle for this system starting from the system specifications, going through the system functional specifications, system design, system implementation, system testing and finally the system maintenance.

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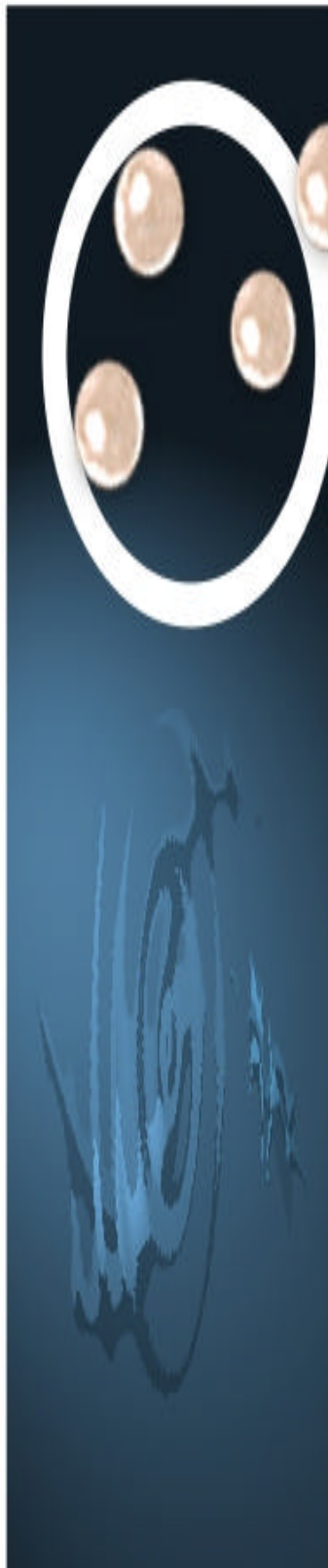
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Chapter 1

System Specification

1.1 Introduction

Since the importance and the fast growth of information and technologies in our life today increased, the need for CBIS is increased too. And since the need for high speed communication and high speed data communication and transmission increased also, the need for web based and internet applications is also increased in parallel.

As said before the system is a database application that runs over the web using through the intranet of the school. Research team used the Oracle 9ⁱ as database and the Oracle Developer 10g as a development tool for the internet.

In this chapter a description for the system specifications will be illustrated and discussed. This includes the objectives of our project, functional and non functional descriptions, feasibility study, resources and cost, and the time schedule for the development process

1.2 System objectives

The system is considered to computerize whole the data of the Rabita Model Schools.

Relating to that the system aim at:

1. Computerizing the accumulative student card.
2. Standing up for all accounting processes that related to the school such as bus subscriptions, student shares, and the interval payment of the school.
3. Issuing the student certification, and posting the marks of the students to ministry standard sheet.
4. Issuing all the school affairs such as reports and certifications.

1.3 Functional description:

In this section we will describe the system's requirements definition and specifications.

1.3.1 Requirement definition:

The system should be able to:

- Store and manage all the data and information related to each student accumulative card in the data base.
- Manipulating all the students' marks for all materials for all classes in the school and issuing certifications.
- Managing all the accounting processes that are related to the student's tuition and buses subscriptions (tuitions), taking in mind the discounts for brothers and superiority (excellence).
- Ability to communicate with MS Excel and exchange the data with it.
- Providing the administration with all the required reports and certifications that are related to the school affaires.

1.3.2 *System requirements specification*

To specify each requirement definition, we put each requirement definition and then its specifications.

1. Be able to store all the data and information related to each student accumulative card in the data base.

- 1.1. The system should be able to receive, store, and manage specific data about the student including his whole name, ID number, passport, nationality, and date of birth, etc.
- 1.2. The system should be able to receive, store, and manage specific data about the parents of the student such as whole name, ID number, and marital status for each parent, the address, nationality, date of birth, job and job address, etc.
- 1.3. The system should be able to receive, store, and manage specific data about the social status of the student such as number of the persons in the family, number of brothers and sisters, level of education for each party, order of the student in his family, etc.
- 1.4. The system should be able to receive, store, and manage specific data about the family's cooperation with the school including the participation of the family in the parents' council activities, school supporting and so on.
- 1.5. The system should be able to receive, store, and manage specific data about the student house, information about the address (taking in mind any changes in the address), the year, type of the house, number of rooms, with whom does the student live with, etc.
- 1.6. The system should be able to receive, store, and manage specific data about the previous schools that the student was joined such as: the name of the school, the supervision authority, department or country, period of joining, reason of transition, etc.

- 1.7. The system should be able to receive, store, and manage specific data about the academic requirements such as: the academic year, the class, the course, the results ("pass, fail, etc."), information about the attendance and so on.
- 1.8. The system should be able to receive, store, and manage specific data about the interests and the activities of the student such as cultural, social, sports, scientific, arts....etc. according to each academic year and class.
- 1.9. The system should be able to receive, store, and manage specific data about the problems and procedures that are happen with students, this data including academic year, class, problem type, problem description, procedure that had been taken and result.
- 1.10. The system should be able to receive, store, and manage specific data about the personal themes of the students such as general look, energy, respect health and clean standard, thinking and logic, creative ability, focusing ability, decision making ability, judgment ability, exploring degree, trust degree, responsibility, respecting organic structure, go head ability and so on.

2. Manipulating all the students' marks for all materials for all classes in the school and issuing certifications.

- 2.1. The system should be able to issuing the school certifications, taking in mind that there are three categories of certifications:
 - 2.1.1 Half semester certification,
 - 2.1.2 Semester certification,
 - 2.1.3 Annual certification.
- 2.2. The system should classify the classes into three categories
 - 2.2.1 Standard certification and standard educational ministry table of marks for the first class to the fourth one.
 - 2.2.2 Standard certification and standard educational ministry table of marks for the fifth class.
 - 2.2.3 Standard certification and standard educational ministry table of marks for the sixth class to the ninth one.

- 2.2.4 Standard certification and standard educational ministry table of marks for the tenth class.
 - 2.2.5 Standard certification and standard educational ministry table of marks for the eleventh class taking in mind the differentiation between the scientific and literary streams.
 - 2.2.6 Standard certification and standard educational ministry table of marks for the twelfth class taking in mind the differentiation between the scientific and literary streams.
- 2.3. For each table of marks, the system should be able to determine, store, and receive data about the academic year, the class, the section, the student name, date of birth, his nationality, the courses marks for the first semester and the second one and the average, taking in mind that the minimum limit of mark for each course is 50% and the maximum limit of mark for that course in 100%..
 - 2.4. For each certification issued, the system should determine the name of the school, the class, the section, and the student name, date of birth, place of birth, nationality, his city or town, department, courses names, their marks, the average, notes for the class supervisor and the school manager. And other related notes.
 - 2.5. The certification that issued must be as the same as the standards form that is accepted by the ministry of education.
- 3. Managing all the accounting processes that are related to the student's tuition and buses subscriptions, taking in mind the discounts for brothers and superiority (excellence).**
- 3.1. The academic tuition for this year 2004 is JD 400 includes the first and second semester which can be paid by installments.(the value of academic tuition can be modified from a configurable table)
 - 3.2. there are two types of discount that the system should handle:
 - 3.2.1 Brothers discount process, which have different cases:

- Student that has one brother, the older brother in the school will pay JD 340, and the other one will pay the full tuition.
- Student that has two brothers, the oldest one in the school will pay JD 320, the second one will pay JD 340, and the last one shall pay the full tuition.
- Four brothers or more, the oldest one shall pay JD 300, the second one shall pay JD 320, the third one shall pay JD 340, and the others shall pay the full tuition.

3.2.2 Superiority discount process, which have different cases that the system should manipulate and process, these cases are:

- The first student with the highest average deserves 50% discount from the academic tuition. The second and the third ones deserve 25% discount.
- In case two students or more get the same grade the discount for each of them will be computed by take the average of the discount percentages.

3.3. The system should process special cases which is a combination of the two above type of discount (brothers and superiority) at the same time.

3.3.1 System should make the brothers discount firstly then the Superiority discount. By processing the following states:

- the oldest brother is superior, firstly the system should processing the brothers discount, then the superiority discount as an example discounting JD 60 from the academic tuition by brothers discount then discounting 50% from the academic tuition by superiority discount, this case if the student has one brother and he has the highest average in his class.
- In the case of the smaller brother is superior, firstly the system should processing the brothers

discount on the oldest brother and superiority discount for smaller brother.

- In the case of that the two brothers are superiors; firstly system should process the brothers' discount and superiority discount on the oldest brother and superiority discount for smaller brother.

3.4. The system should recognize that in each academic year there are four seats for the owner of building, which means full exemption from academic tuition for specific students that are selected by the owner. Here students which are selected by the owner are not included in any type of discounting.

3.5. The system should issuing monthly records according to each class. Each student how much did he/she pay form the academic tuition and how much remains in the date of paying.

3.6. the system should manage the accounting processes for the buses sharing and determine which students have these sharing

3.6.1 The school has three buses that are distributed upon three regions, for each region there is a unique cost in NIS.

3.6.2 System should process special cases of discount from the bus sharing for the brothers as the following:

- Student that has one brother, 15% discount from the oldest brother.
- Student that has two brothers, 20% discount from the oldest brother, 15% discount for the second one and so on.

3.6.3 Case of bus sharing in the return way only, the student receives a discount of 40%. Taking in mind the discount for brothers as shown above.

4. Ability to communicate with MS Excel and exchange the data with it.

4.1. The user will enters data about the students, the teachers, marks, and other information to the database, the system should transfer these

information or data to excel file.(using OLE: Object Linking and Embedding)

5. Providing the administration with all the required reports and certifications that are related to the school affaires.

- 5.1. The user will ask the system about some reports and certifications, and the system will provide him with required report or certification for specific student or teacher.
- 5.2. System will receive from the user name of the student or the teacher then the system will issuing the report or certification that was determined by the user.
- 5.3. the system should be able to provide the administration (user) by the following reports and certifications:
 - Proof student certification
 - Good breeding certification for students and teachers
 - Report about the health status for student
 - Expertness certification for teachers

1.4 Non-functional description

There are some requirements that are not directly concerned with a specific function delivered by the system; these requirements are called nonfunctional requirements. This system has the following nonfunctional requirements:

- The ability to be run over multiple sites and computers; since that the Rabita School has more than one site in different locations. So that each transaction that takes place in one site should be changed in the other site as it was modified or changed in the first one.
- The ability to accept a huge amount of data and accessing it in efficient way, and response to the user as fast as possible for all operations and

tasks. (Minimum 256 Mega byte of RAM in order to insure the good performance of the system).

- Friendly user interface, so that it facilitates the work of the system user as possible, so that any user can access the system without any kind of difficulties (ease of use).
- The ability of the system to recover from failure or rapid user response or input.
- Portability of the system which allows it to be operated on any operating system such as Windows Win32 and Unix OS.

1.5 Function allocation

The main features that will be included in this system are:

- Easy to be used because the friendly interface that is so similar to the original documentation way that was being used previously.
- The system lets the user to transfer from one form to another easily using simple menu and toolbar.
- The main feature of Oracle 9i is grid computing, which means that when the client requests a page that connected to the database which is existing on the database server and other client requests the same page and there is a load over this server, other servers will provide him with the service, i.e. multiple servers for multiple users.
- Providing web forms for the final product.
- Enabling to create reports in a variety of styles that are customizing to meet specific business requirements by compiling text and graphics with quantitative data.

1.6 Constraints

The system should work under the following constraints:

- **Logging mode**
To log on to this system, you should type your user name and pass word. Each user of this system will have a user name and password to insure the security and managing the data in the correct way.
- **Transaction management**
To avoid any kind of overlapping in the transactions-since that the system will work on multiple computers at the same time-, the system will prevent any access on any record that is accessed by another user and telling him that he should wait until the other user finish his work.
- **Users' privileges**
To improve security issues, each user will be given specific user name and password. The system will ask the user about his user name and password to prevent any other users to enter or access the system.

1.7 Feasibility study

This section describes the alternatives, cost benefit, and the whole requirements and needs associated to our system

1.7.1 *Alternatives*

The team project faced the following alternatives to develop this project:

Web-based Vs. Client-server technology

The working team was faced by two options for the development technology, the first one was web-based application, and the second is to develop a client-server application.

Actually the system can be developed using any of the two technologies, but because of the new approaches in the computer technologies to develop an internet applications or intranet application, the project team decided to develop the system as a web-based system. Beside that, the application as described in its non-functional requirements should work on several computers, so we saw that intranet -web-based- application is a good choice to develop this system.

Oracle vs. ASP.NET + SQL server

1) Why Oracle?

- Since we deal with a huge amount of data in this system, and the need to run it on several computers as one of its objectives, the team work decided to use the Oracle 9ⁱ as the database and DBMS for the system. And the development tool was the Oracle developer 10g, since it is the latest technology in developer versions of Oracle, plus it is easy to be run over the internet explorer.
- Oracle databases actually standard for large internet sites, almost all big internet sites run oracle database.
- Oracle's penetration of the database market runs deep and is not limited to .com implementation.
- For the fact Enterprise resource planning application suites, data warehouses, and custom application at many companies and organizations relay on Oracle. Oracle is an effective way for all software applications.
- The work team is familiar with Oracle, and has some skills and experience to deal with Oracle database and developer.
- Oracle can work on either Microsoft operating systems or UNIX machines.
- The Oracle's database and the developer are free to use and development until the delivering of the application to the customer and putting it in use.

2) Why not ASP.NET+ SQL server

- Since it is a new technology, the work team hasn't the skills and experiences with this new technology. Their skills in visual basic.NET or C# and SQL server is less than their skills in Oracle and PL/SQL.
- ASP.NET and SQL server runs only on Microsoft environments or platform. And it can't work on UNIX machines or operating system.
- For ASP.NET and SQL server, you should buy the packages before you start the development.

The next table describes the comparison features between the two technologies:

Comparison features	Oracle+PL/SQL	ASP.NET + SQLserver
Huge amount of data support	✓	✓
Large web sites support	✓	✓
Work team skills & experience	✓	✗
Free development tools	✓	✗
Working under Microsoft platform	✓	✓
working under UNIX machine	✓	✗

Table 1. 1 Technology Comparison

As you see from the table above, the decision was to use the Oracle and Java was the in the right way.

1.7.2 Cost benefit analysis

- In addition to what we had mentioned in the introduction of this chapter about (Why Oracle?) i.e. why using Oracle, you can use oracle products without any licensing issues for development purposes only. So the Oracle's database and the developer are free to use and development until the delivering of the application to the customer and putting it in use. Here the customer who will use the application should pay for the license per user or per CPU to Oracle Company.

- To use the application, you can use only one PC to perform all the development works. This issue gives the work on this project cost effective benefit. So the PC can work as server and client at the same time.

1.7.3 *Evaluation of risks*

Major project risks should be identified and assessed to establish their probability and consequences for the project. For risks which are probable and potentially serious, plans to avoid, manage or deal with that risk when it arises should be made. Risks should be explicitly discussed at each project progress meeting.

The possible risk types are:

- **Technology risks** such as risks which related to the database as an examples transactions management, security, data loss, data damage.
 - ❖ Transaction management was solved by preventing any possible transaction to occur at the same time on the same record.
 - ❖ Security was solved by giving each user his or here privileges and roles, and avoiding him or here from reaching any other user's data. Also creating an authentication mode to guarantee as possible no kind of hacking.
 - ❖ Data loss was solved putting a backup plan to the database to insure it's availability in the case of loss. Such as backing up to other drive and .dump files.
 - ❖ Data damage was solved by creating the possible constraints on the fields and putting the suitable alerts to the user to insure that the suitable data was entered to the suitable field.
- **People risks**

People are divided into two parts, the system developers and the system users. For developers it is impossible to recruit with the skills required. In order to solve this risk and find a solution to avoid it, the team of this project was elected so that they are familiar with the Oracle database and

developer, plus the books resources that they have. For system user, the risk is the difficulty of use and the inability to deal with the new system. To avoid this risk the screens of the system was developed similar as possible to the manual documents that are used in the school, also the team will train the users of the system to access it in the safe way.

- **Tools risks**

To avoid any risk that will derive from any CASE tools, the team project makes different CASE tools available, so in the case of damage in one CASE tool, other one between the hands. such as Rational Rose, JDeveloper.

- **Requirements risks**

To avoid any changes in the requirements which require major design rework, the team project reviewed the requirements with the system users (the school) many times, and the school agreed on that requirements.

- **Estimation risks**

The work team put a plan to accomplish the work in the specified time as possible as they can in order to avoid any delaying or postponements.

1.8 Resources requirements and cost

1.8.1 Hardware requirements

The hardware requirements are classified into two parts:

- **Developer hardware requirements.**

The development process was to need the following components:

1. Four Personal computers, three for the development and the fourth one worked as a database server. These PCs have the following features:

PC classification	CPU	Memory(RAM)	HardDrive(HD)	(NIC)
development	800–1000MHz	256 Mbyte	40 Gbyte	100 Mbps
Server	2500 MHz	256 Mbyte	40 Gbyte	100 Mbps

Table 1. 2 Development PCs Features

2. Network cables (STP).
3. Hub.

The total cost for the HW requirement for the development process is calculated as the following: cost of the tree PCs is \$1500; the cost of the server is \$1000; the cost of network devices is \$33. The total cost is \$2533.

- **User hardware requirements.(typical/recommended)**

The user which is here the school management can perform the work on the system using only one PC as minimum, with the following preferred features:

- ❖ Pentium 4
- ❖ 256 Mbyte of RAM
- ❖ 40 Gbyte Hard drive

For this features the cost of user PC is about \$1000

If the user wants to improve the work and accessing the system from several stations, other PCs will be required with the previous features as needed, taking in mind the network device requirements.

1.8.2 *Software requirements resources*

The software requirements are classified into two parts:

- Development software requirements.

The software packages that are needed to the development of this system are described in the next table.

SW Packages	Cost
windows XP	\$160
Oracle database 9 ⁱ	Free for development
Oracle Developer 10g	Free for development
MS office 2002	\$325
JDeveloper	Free for development
Total cost	\$485

Table 1. 3 Development SW Packages

- User software requirements

The software packages that are needed to the user of this system are described in the table below

SW Packages	Cost
Windows XP	\$160
Oracle database 9 ⁱ 'personal ed.'	\$400 per user
Oracle developer 10g	free
MS office XP	\$325
Total cost	\$885

Table 1. 4 SW Packages Cost

1.8.3 Human resources

Human resources of this system are also classified into two parts:

- System users.
- Developers:

To develop this system through 15 weeks, three persons are required to accomplish all the tasks that needed to complete the work on this system such as data collection, analysis, design, implementation, testing. ..Etc

The next table shows the developers costs per hour, per week, and total cost for the development process

Name	No. of hours/week	Cost/hour	Total
Abdel Raheem Tamimi	35	\$14	\$490
Anan Al Jabari	35	\$14	\$490
Fathi Salayemah	35	\$14	\$490
		Total/week	\$1470
		Total	\$4410

Table 1. 5 Developers' Cost

1.8.4 Books resources

The work on this project was need several books to help the developers in their work in several phases of the development process, these books are described in the table bellow

Book name	Cost
software engineering	\$20
OCP introduction to Oracle 9 ⁱ SQL	\$35
OCP Oracle 9 ⁱ DBA fundamental I	\$35
OCP Oracle 9 ⁱ DBA fundamental II	\$35
OCP Building internet application	\$35
Total books' cost	\$160

Table 1. 6 Book Cost

$$\begin{aligned}
 \text{The total cost for this project} &= \text{HW costs-for user and developers-} + \text{SW costs-for} \\
 &\quad \text{user and developers-} + \text{Books costs} + \text{Human costs.} \\
 &= \$3533 + \$1370 + \$160 + \$4410 \\
 &= \mathbf{\$11473}
 \end{aligned}$$

1.9 Project scheduling

The schedule is estimated depending on the estimation of the project, steps and phases.

In this project the phases of development are distributed among 15 weeks as:

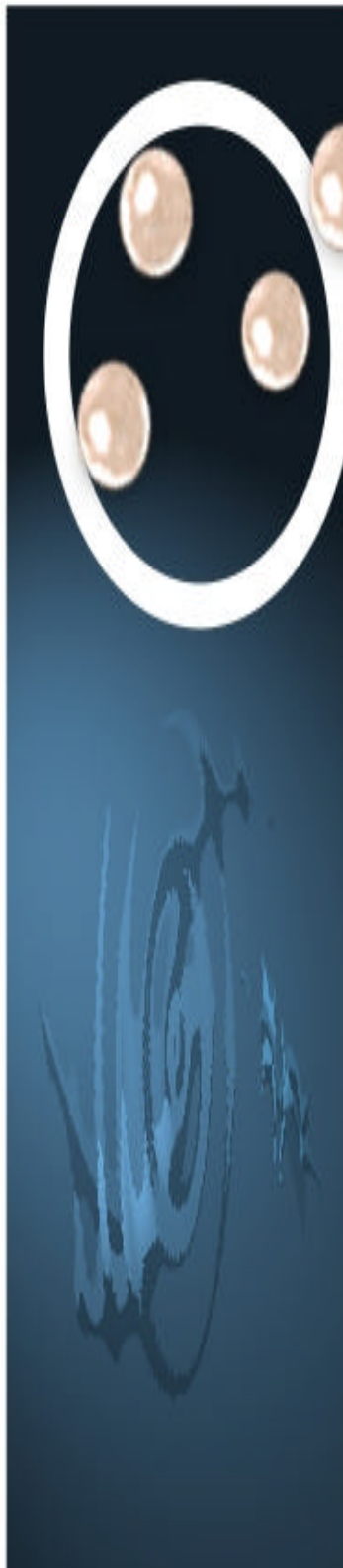
Task No.	Task Description	Estimated time/weeks
T1	Data collection & system definition	2 week
T2	Requirements analysis & specifications	2 weeks
T3	System design	3 weeks
T4	Implementation	4 weeks
T5	Testing	4 weeks
T6	Documentation	All the time
	Total	15 weeks

Table 1. 7 Project Tasks

Here is the Gant chart for the schedule of the time

Time (weeks) Task No.	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
T1															
T2															
T3															
T4															
T5															
T6															

Table 1. 8 Gant Chart



Chapter 2

Software Requirements Specifications



2.1 Introduction

Since it is difficult to establish what exactly what the system should do, the descriptions of the services and constraints are the requirements for the system and the process of analyzing, documenting, and checking these services and constraints. So in this chapter we will deal with the system specification in more details. We will discuss and illustrate the functional description for each function that the system should perform, discussing validation criteria, information description such as: data flow diagram, data dictionary and database models.

2.2 Functional description

In this section, a specifications for each system function is described into a block, the description includes the function name, description, inputs, source, outputs, destination, require, pre-condition, post-condition, and side-effects.

The functional specifications are classified according to the user requirement definition.

1. Manipulating all the students' marks for all materials for all classes in the school and issuing certifications.

1.1 Get full name

Rabita Model School Management System / Mark subsystem

Function Get Full Name

Description this function returns the full name of the student since the name of the student is distributed into four attributes in the table of the student in the database

Inputs the user inputs the number of the student

Source database

Outputs student full name

Requires the student which we looking for must have a unique number

Pre-condition valid student number

Post-condition none

Side-effects none

1.2 calculating average

Rabita Model School Management System/ Mark subsystem

Function Calculating average

Description this function calculate average for each student

Inputs marks of student

Source database

Outputs student average

Requires number of courses for each student should be determine

Pre-condition valid marks should be entered

Post-condition none

Side-effects none

1.3 Transfers from DB to Excel

Rabita Model School Management System/ Mark subsystem

Function Transfer from DB to excel

Description The user will enter data about the students, the teachers, marks, and other information to the database, the system should transfer these information or data to excel file.

Inputs minimum required data fields such as student name and class

Source all inputs from the database

Outputs excel sheet file

Requires Microsoft Access and ODBC

Pre-condition Establish an ODBC between the Oracle DB and the MS Access.

Post-condition no changes should be done on the data in the database.

Side-effects none

1.4 Issuing school certificate

Rabita Model School Management System / Mark subsystem

Function Issuing school certificate

Description this function issuing all type of school certificate such as half semester certificate

Inputs marks of student, Transfer from DB to excel

Source database

Outputs school certificate

Requires number of courses for each student in each class should be determine

Pre-condition valid marks should be entered,

Post-condition none

Side-effects none

1.5 Mark evaluation

Rabita Model School Management System / Mark subsystem

Function mark evaluation

Description this function evaluates the mark of the students after the validation of this mark. Such as excellent, very good, good

Inputs the mark

Source mark entered by user

Outputs evaluation of mark

Requires none

Pre-condition valid mark

Post-condition none

Side-effects none

1.6 Get_num_letter

Rabita Model School Management System/ Mark subsystem

Function Get_num_letter

Description this function returns the value of the mark as a number in letter

Inputs the user input the mark as number

Source database

Outputs mark as a letter

Requires mark must be exist

Pre-condition valid mark number

Post-condition none

Side-effects none

1.7 Next class level

Rabita Model School Management System/ Mark subsystem

Function Next class level

Description This function manipulate transferring student from current class level to the next class level after finishing his/her academic year in that level. Also this function checking the gender of the student at 4th class level, if the gender is male the student transfer to the other school.

Inputs student name, student auto number

Source database

Outputs next class level of the student

Requires student class level, academic year

Pre-condition valid student auto number, valid class level, valid academic year

Post-condition none

Side-effects none

2. Managing all the accounting processes that are related to the student's tuition and buses subscriptions, taking in mind the discounts for brothers and superiority (excellence).

2.1 sum of brothers

Rabita Model School Management System/ Accounting subsystem

Function sum_of_brothers

Description according to the father's ID, and student full name, this function should examine the number of the brothers in the school.

Inputs student full name, father's ID

Source student full name and father's ID from database

Outputs number of brothers

Requires all the students should be entered into the database correctly

Pre-condition all data should be entered about the students in the student card.

Post-condition none

Side-effects none

2.2 Brothers discount

Rabita Model School Management System/ Accounting subsystem

Function Brothers' discount

Description the function should discount the determined percentage according to the user requirements when it recognizes a brother's relation.

Inputs student full name, father's ID, number of brothers

Source student full name and father's ID from database, the numbers of brothers from sum_of_brothers function

Outputs amount of paying for tuition

Requires all the students should be entered into the database, returned value from the sum_of_brothers function

Pre-condition all data should be entered about the students in the student card.

Post-condition no changes on the data in the database

Side-effects none

2.3 Bus discounting

Rabita Model School Management System/ Accounting subsystem

Function buses discounting

Description the function should discount the determined percentage according to the user requirements when it recognizes a brother's relation. And the traveling type forward-backward or backward only

Inputs student full name, father's ID, number of brothers, type of traveling

Source student full name and father's ID from database, the numbers of brothers from sum_of_brothers function, and the type of traveling entered by the user

Outputs amount of paying for bus sharing

Requires all the students should be entered into the database, returned value from the sum_of_brothers function

Pre-condition all data should be entered about the students in the student card.

Post-condition no changes on the data in the database

Side-effects none

2.4 Superiority discount

Rabita Model School Management System/ Accounting subsystem

Function superiority discount

Description This function determines the student is superior or not according to his/her average; if the student is superior a discount process will take place according to his/her degree in his/her class.

Inputs student mark, average

Source mark, student autno from the mark and student schema in the database

Outputs the final value of the tuition value after checking superiority

Requires all the students should be entered into the database, returned discount value for superiority

Pre-condition all data should be entered according to the mark schema.

Post-condition no changes on the data in the database

Side-effects none

2.3 Validation criteria

The following below are the validation criteria for our project:

- Date of birth of the student between 1984 and 1998
- The date of transition from previous school less than the date of joining to the current school
- The id number of student should not exceed ten characters
- Student number should no exceed five digits
- Brothers must have the same father id number
- The academic year should not be less than 2003/2004
- The student should not exist in more than section or class at the same time in the same academic year
- Courses should not be repeated in the same academic plan
- Courses number should not the same for different courses
- Course order number should not repeated for different courses in the same academic year
- Each class should not has more than three section
- The number of the students in each class section should not exceed 32
- Course mark of each student should not exceed 100
- The student can not be exist in two section of the same class at the same academic year
- All information that are related to student pass specific class level and transfer to the next class level are deleted from old level and transfer with student to the next class level
- Mark of middle semester should not exceed 30 for each course
- The tuition school should not exceed the value from configurable table which is JD 400 for this year.
- Each transaction type has a unique transaction number which means the transaction number should not repeated in any other transaction type.

2.4 Information description

Our system as described in its specifications consists of five main subsystems. The figure below illustrates the architectural diagram of our project

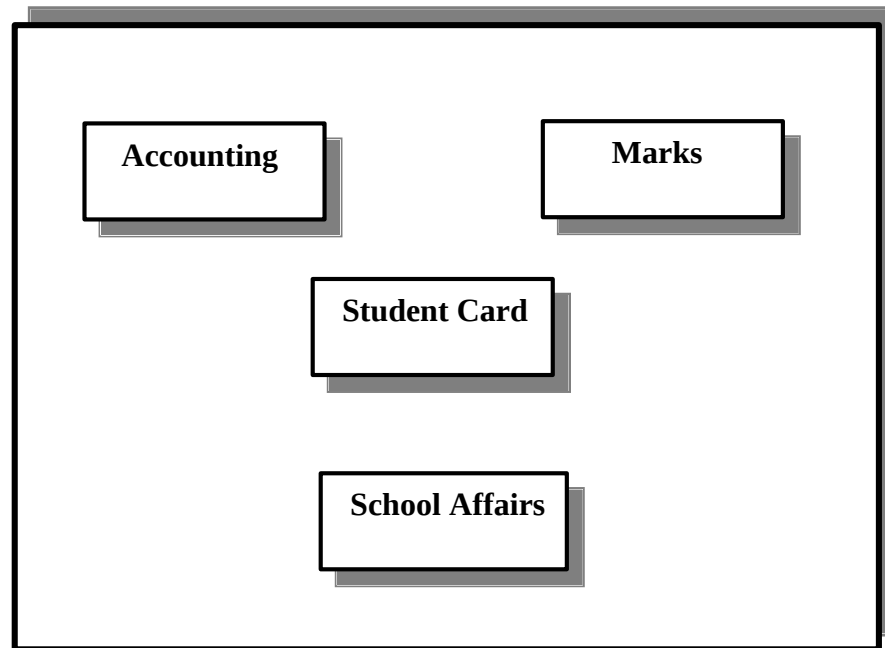


Figure 2. 1 Architectural Diagram

2.4.1 Data flow diagram

In this section, a multiple data flow diagrams are illustrated in order to clarify the processes of the system function and other important tasks that the system should perform.

Mark subsystem data flow diagram:

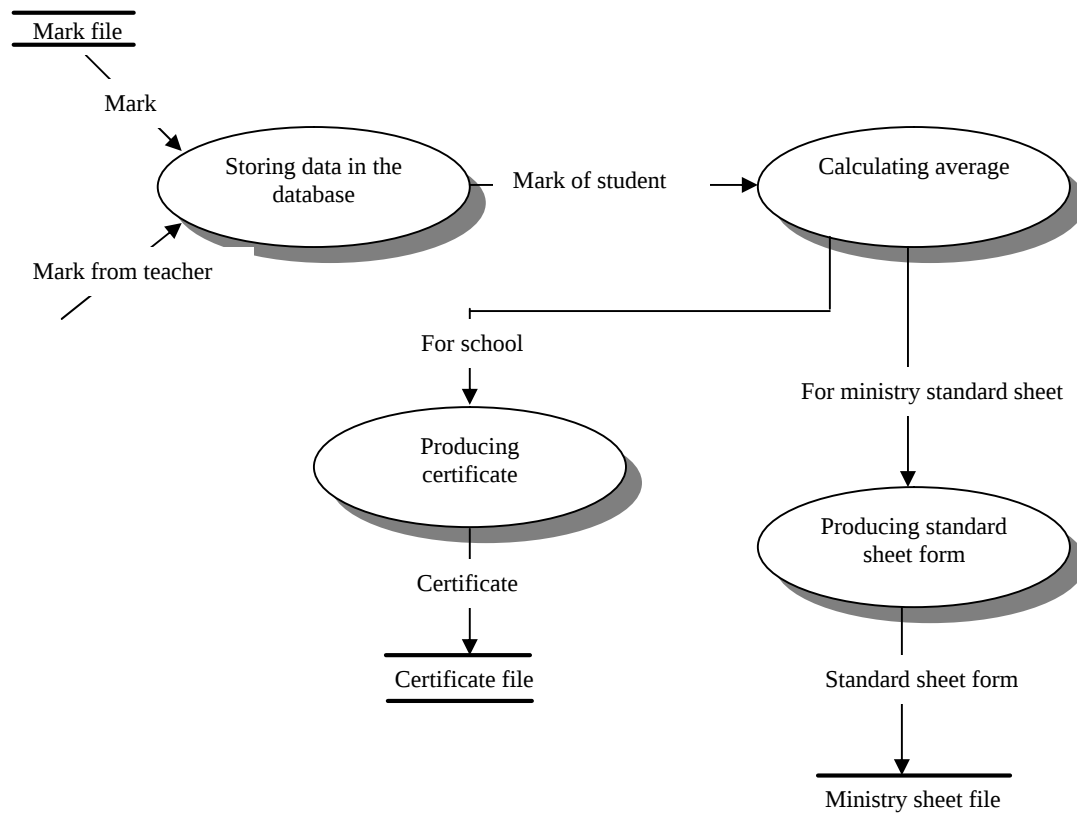


Figure 2. 2 Mark DFD

Accounting subsystem:

The accounting system in our project is divided into two partitions

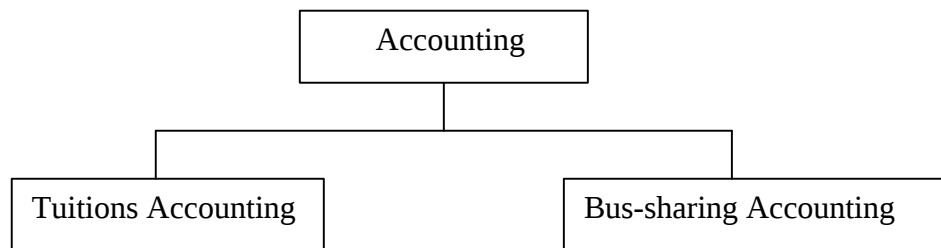


Figure 2. 3 Accounting System Parts

The diagram below illustrates the accounting system processes in general

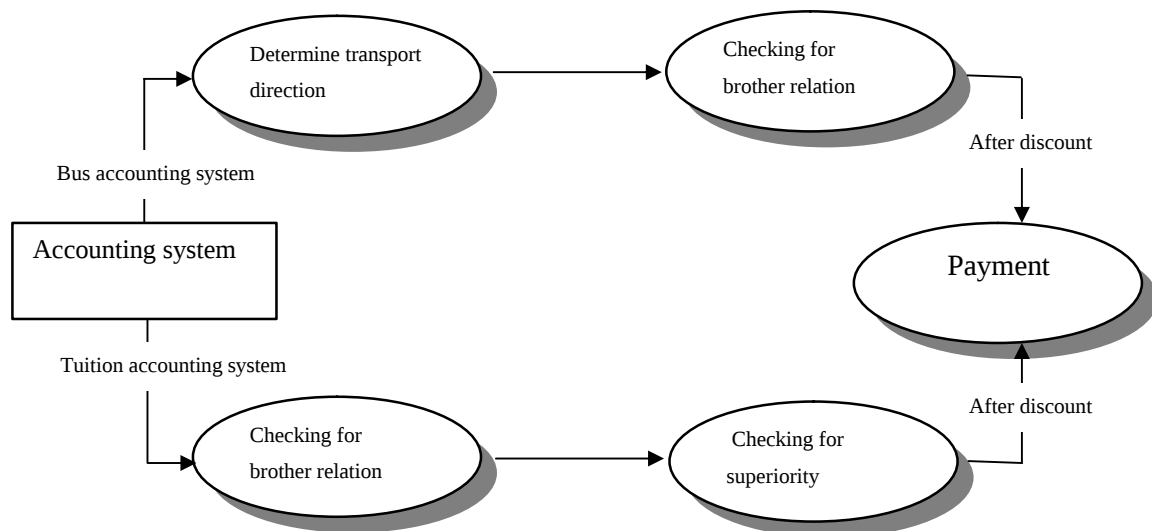


Figure 2. 4 General Diagram ForAccounting Process

To explain each accounting part individually, we describe each part in data flow diagram. Firstly the data flow for the students' tuitions accounting, and secondly the data flow for the bus sharing accounting.

- Data flow diagram for students' tuitions accounting

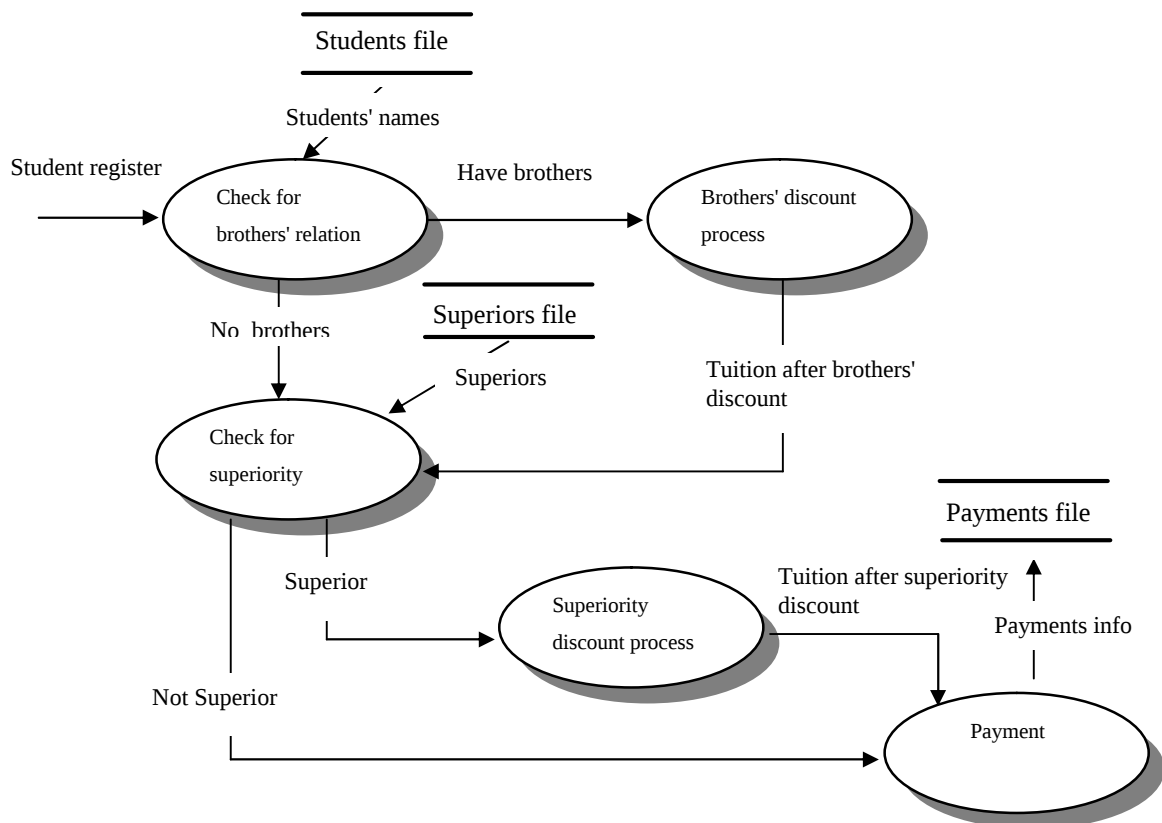


Figure 2. 5 Accounting DFD for the Academic tuition

- Data flow diagram for bus sharing accounting

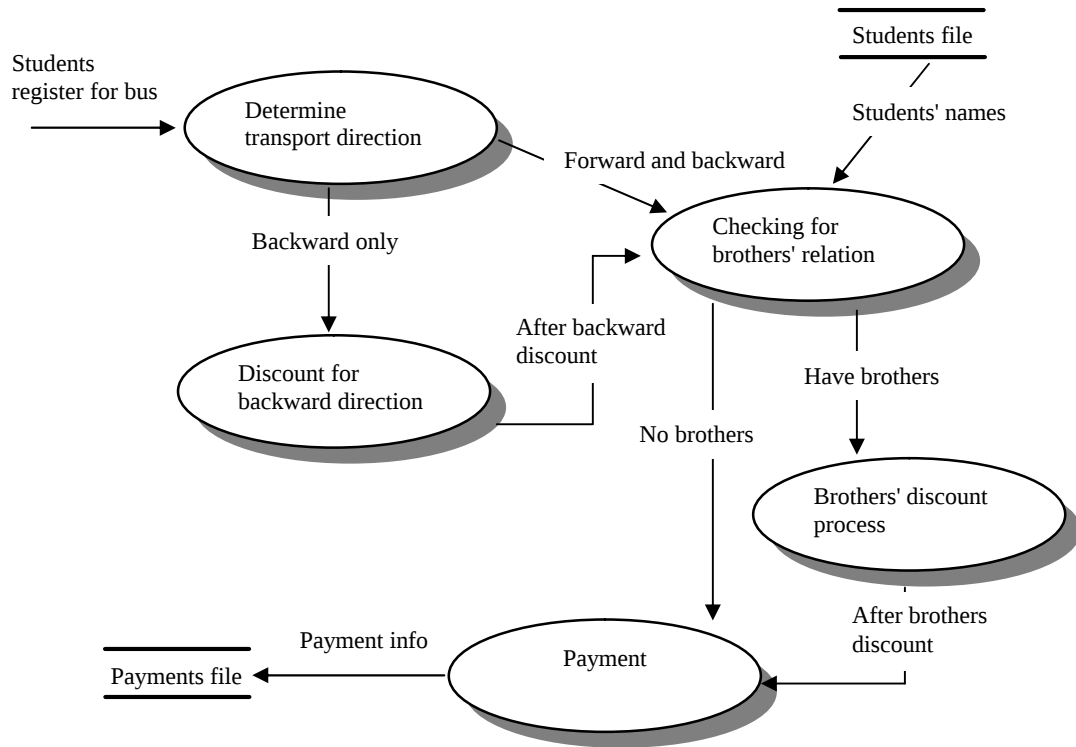


Figure 2. 6 Accounting DFD for Buses Sharing

2.4.2 Database dictionary

This section gives you an overview of relational databases in the Rabita system; the database consists of three schemas each schema includes a different number of tables, these schemas are: Student, Marks, and Accounting.

Student Schema:

This schema consists of eight tables: student, personal_themes, family_cooperation, house_info, marital_status, problem_procedure, activities_and_interests, and previous_school.

First of all, a description for each table will be illustrated, then a description for each table's columns.

The table below gives a description for each table in this schema.

Table Name	Description
STUDENT	This table include all important attributes for basic student information such as student passport type and ID
PERSONAL_THEMS	This table include all attributes about student themes such as degree of creativity
FAMILY_COORPORATION	This table include all attributes about degree of family student corporation such as family attendance in school
PROBLEM_PROCEDURES	This table include all attributes about all type of problem that are meeting students and procedure for solving it such as problem type, problem description
ACTIVITIES_AND_INTERESTS	This table include all attributes about student activities and interests
HOUSE_INFO	This table include all attributes about house information of students such as house address
PREVIOUS_SCHOOL	This table include all attributes about previous school of students

Table 2. 1 Student Schema tables description

Now, a description for each column in the tables in the student schema will be illustrated below table by table.

STUDENT TABLE:

Column Name	Description
STD_AUTONO	A sequence number for student that are start from 1 and increment by 1
STD_ID_TYPE	The type of ID ex.(Palestinian ID)
STD_ID_NO	Number of ID (unique field)
STD_PASSPORT_TYPE	The type of passport ex.(Palestinian passport)
STD_PASSPORT_NO	Number of passport (unique field)
STD_DOB	Date of birth of student
STD_POB	Place of birth of student
STD_BORN_NATION	The student nation when born
STD_NAME1	Name of student
STD_NAME2	Father name
STD_NAME3	Grand father name
STD_NAME4	Family name
STD_RELIGION	Religion of student
STD_FTHR_NAME1	Name of father
STD_FTHR_ID	Number of father ID (unique filed)
STD_FTHR_JOB	Nature job of father
STD_FTHR_JOB_ADDRESS	Address job of father
STD_FTHR_JOB_TEL	Telephone number of father
STD_FTHR_DOB	Date of birth of father
STD_FTHR_POB	Place of birth of father
STD_MTHR_NAME1	Name of mother
STD_MTHR_NAME4	Family name of mother
STD_MTHR_ID	ID number of mother (unique filed)
STD_MTHR_JOB	Nature job of mother
STD_MTHR_DOB	Date of birth of mother
STD_NOK_NAME1	Name of responsible of student other than parents

STD_NOK_NAME4	Family name of the responsible
STD_NOK_RELATION	The nature relation between responsible and the student
STD_NOK_ID	ID number of the responsible of student
STD_NOK_JOB	Nature job of the responsible
STD_NOK_DOB	Date of birth of the responsible

Table 2. 2 Student Table

PERSONAL_THEMS:

Column Name	Description
PT_ACADM_YEAR	The academic year of student in that class ex(1998-1999)
PT_JUDJMENT	Degree of student ability to interact with different situation
PT_EXPLORING	Degree of student exploring
PT_TRUST	Degree of student trust
PT_RESPONSE	Degree of student responsibility
PT_RESPECT	Degree of student respect to the school law
PT_GOHEAD	Degree of initiative for each student
PT_MUBADRA	Degree of student mubadra
PT_LEADING	Related to the student themes nature about degree of leading
PT_TREAT_OTHERS	How student deal with other
PT_GBODY	General body appearance
PT_ACTIVE	Degree of student activity
PT_HEALTH_CLEAN	Degree of respect to the clean and health grammar
PT_THINK	How student thinks and degree of logic
PT_CREATIVE	Degree of student creative
PT_FOCUS	Ability to focus
PT_DECISION	Ability of decision making

Table 2. 3 Personal themes table

FAMILY_CORPORATION:

Column Name	Description
FC_FTHRS_COUNSIL	Attendance to the fathers' council
FC_SCHOOL_ACT	Degree of family sharing in school activities
FC_ATTENDENCE	Degree of commitment of responsible of student when needed
FC_SUPPORT	Degree of support

Table 2. 4 Family Cooperation table

HOUSE_INFO:

Column Name	Description
H_ADDREES	Address of the house
H_YEAR	Living year in that house
H_STYLE	Style of the house ex.(rent)
H_BUILDING_STYLE	Building style or feature such as blocks
H_LIVEWITH	Student lives with parents, brothers, other
H_DISTANCE_SCHOOL	Distance between school and house
H_TRANSPORT_MEDIA	The type of transport media
H_NO_OF_ROOMS	Number of room in the house

Table 2. 5 House Information table

MARITAL_STATUS:

Column Name	Description
MS_NO_OF_WORKER	Number of brothers that are working in family
MS_ESBS_US	Children(that are not in the range of school age)
MS_ESBS_UNLETERE	Brothers that are not studying
MS_ESBS_BASIC	Brothers that are finishing the basic school level
MS_ESBS_SECONDARY	Brothers that are finishing the secondary school level
MS_ESBS_DIPLOMA	Brothers have diploma degree or study under diploma degree
MS_ESBS_UG	Brothers have bachelors degree
MS_ESBS_HE	Brothers have high education certificate
MS_FCOUNT	Family individual number

Table 2. 6 marital status table

PROBLEMS_PROCEDURES:

Column Name	Description
PP_TYPE	Type of the problem ex: social problem
PP_DESC	Brief description of the problem
PP_SCHOOL_PROCEDURE	Procedure that are taken by school
PP_RESULT	Result

Table 2. 7 Problems & Procedures table

ACTIVITIES_AND_INTERESTES:

Column Name	Description
AI_CULTURE	Degree of sharing student in the culture activities
AI_COMMUNITY	Degree of sharing student in the community activities
AI_SPORT	Degree of sharing student in the sport activities
AI_SCIENTIFICAL	Degree of sharing student in the scientifically activities
AI_ARTIST	Degree of sharing student in the artist activities
AI_HEALTH	Degree of sharing student in the health activities
AI_COMMUNITY_SERVICE	Degree of sharing student in the community service

Table 2. 8 Activities and Interests

PREVIUOS_SCHOOL:

Column Name	Description
PS_SCHOOL_NAME	Name of school
PS_AUTHORITY	The type of authority
PS_DEPT	State or department that school are relate to
PS_DOA	Date of admission
PS_DOS	Date of transport
PS_CAUSE	Cause of transport
PS_GARDEN_YEAR	Number of year that the student are studying in the garden school

Table 2. 9 Previous School

Marks Schema:

This schema consists of eight tables, these tables are: TEACHER, STUDENT_SECTION, SCL_CLASS, SECTION, COURSE, PLAN, MARK, PLAN_COURSE.

First of all, a description for each table will be illustrated, then a description for each table's columns.

The next table gives a description for each table in this schema.

Table name	Description
TEACHER	This table include all attributes about teacher such as teacher degree
STUDENT_SECTION	This table include all attributes about related section of student such as section number
SCL_CLASS	This table include all attributes about classes in the school such as class name
SECTION	This table include all attributes about all class section information such as section symbol
COURSE	This table include all attributes about courses in each class such as course name
PLAN	This table include all attributes about plan of each class level such as plan year of specific class level
MARK	This table include all attributes about all mark information needs such as mark of semester1
PLAN_COURSE	This table include all attributes about that each plan needed specific courses such as course order in the plan

Table 2. 10 Mark schema tables description

Now, a description for each column in the tables in the marks schema will be illustrated below table by table

TEACHER TABLE:

Column Name	Description
TCHR_AUTNO	A sequence number for teacher that are start from1 and increment by 1
TCHR_CONTRACT	The type of contract between teacher and the school
TCHR_DEGREE	Degree of teacher certificate
TCHR_GRAD_YEAR	Graduate year of teacher
TCHR_MAJOR	The major of the teacher
TCHR_LEVEL	
TCHR_TEL	Telephone of teacher
TCHR_HIRDATE	The date that the teacher starting a job in the school
TCHR_ID	Number of ID teacher
TCHR_ADDR	Address of the teacher
TCHR_MOSANAF	
TCHR_NAME	Name of the teacher
TCHR_UNIVERSITY	The university that the teacher graduate from
TCHR_GENDER	Gender of the teacher (male, female)
TCHR_DOB	Teacher date of birth
TCHR_NATION	The teacher nation
TCHR_DEPT	Department of the teacher
TCHR_TAFAROG	Check if the teacher available (under demand) or not
TCHR_ATTENDENCE	The type of teacher attendance

Table 2. 11 Teacher table

STUDENT_SECTION Table:

Column Name	Description
SEC_NO	Sequence that are begin from 1 and increment by 1 that describe the class section
STD_AUTONO	See student table
ABSENT_DAYS	Numbers of the day that the student absent from school in specific academic year

Table 2. 12 Student Section table

SCL_CLASS Table:

Column Name	Description
CLS_LEVEL	The class level
CLS_NAME	Name of the class
CLS_NOTES	Notes

Table 2. 13 School class table

SECTION Table:

Column Name	Description
SEC_NO	Sequence that are begin from 1 and increment by 1
SEC_SYMBOL	The symbol that are related to the section such as (?)
SEC_YEAR	Year of the section
SEC_NOTES	Notes
CLS_LEVEL	See the SCL_CLASS table

Table 2. 14 Section table

COURSE Table:

Column Name	Description
CRS_NO	Sequence that are begin from 1 and increment by 1
CRS_NAME	The name of the course
CRS_NOTES	Notes

Table 2. 15 Course table

PLAN Table:

Column Name	Description
PLAN_AUTONO	Sequence that are begin from 1 and increment by 1
PLAN_YEAR	Year that the plan education established
CLS_LEVEL	See SCL_CLASS table

Table 2. 16 Plan table

MARK Table:

Column Name	Description
MRK_HALF_SEMESTER1	Total mark before final exam of the semester1
MRK_SEMESTER1	Final mark of semester1
MRK_HALF_SEMESTER2	Total mark before final exam of the semester2
MRK_SEMESTER2	Final mark of semester2
MRK_NOTES	Notes

Table 2. 17 Mark table

PLAN_COURSE Table:

Column Name	Description
PLAN_COURSE_ORDER	The order of course in the mark table

Table 2. 18 Plan Course table

Accounting schema: This schema consists of five tables, these tables are: TRS_TYPE, VARIABLES, TRANSACTION, BUS, DISCOUNT.

First of all, a description for each table will be illustrated, then a description for each table's columns.

The next table gives a description for each table in this schema.

Table Name	Description
TRS_TYPE	Type of the transaction that the accounting subsystem do
VARIABLES	Program attributes that can be changed from the system
TRANSACTION	The name of transaction
DISCOUNT	Manipulates all discounting processes
BUS	Manipulates the bus sharing for students

Table 2. 19 Accounting Schema tables description

Now, a description for each column in the tables in the marks schema will be illustrated below table by table

TRS_TYPE Table:

Column Name	Description
TR_TYPE_AUTONO	Sequence that are begin from 1 and increment by 1
TR_TYPE_DESC	Description of each type of transaction
TR_TYPE_VALUE	Value of each type of transaction
TR_TYPE_CURRENCY	The currency type

Table 2. 20 Transaction type table

VARIABLES Table:

Column Name	Description
VAR_NAME	Name of the variable that are needed for transaction
VAR_VALUE	Value of the variable
VAR_SYSTEM	Variable for the system application that are not related to any actions related to the user

Table 2. 21 Variables table

TRANSACTION Table:

Column Name	Description
TR_VALUE	The transaction value
TR_DATE	Date of transaction
TR_NOTES	Notes

Table 2. 22 Transactions table

BUS Table:

Column Name	Description
IS_ACTIVE	Determines whether his bus sharing is active or not

Table 2. 23 Bus table

DISCOUNT Table:

Column Name	Description
DISCOUNT_LEVEL	Discount level for superiority
DISCOUNT_PERCENT	The percent of discount
DISCOUNT_SHARED	Check if exist more than one student in the same level
DISCOUNT_TRANSFEERED	Transferring discount to transaction table

Table 2. 24 discount table



Chapter 3

System Design



3.1 Introduction

In this chapter a description for the system design will be explained. This chapter includes a functional design and description for each module, interface design, flowchart, and constraints over each table in the database, input/output design for user interface, and database design using UML notations.

3.2 Functional design

3.2.1 *Functional design for marks subsystem*

Description:

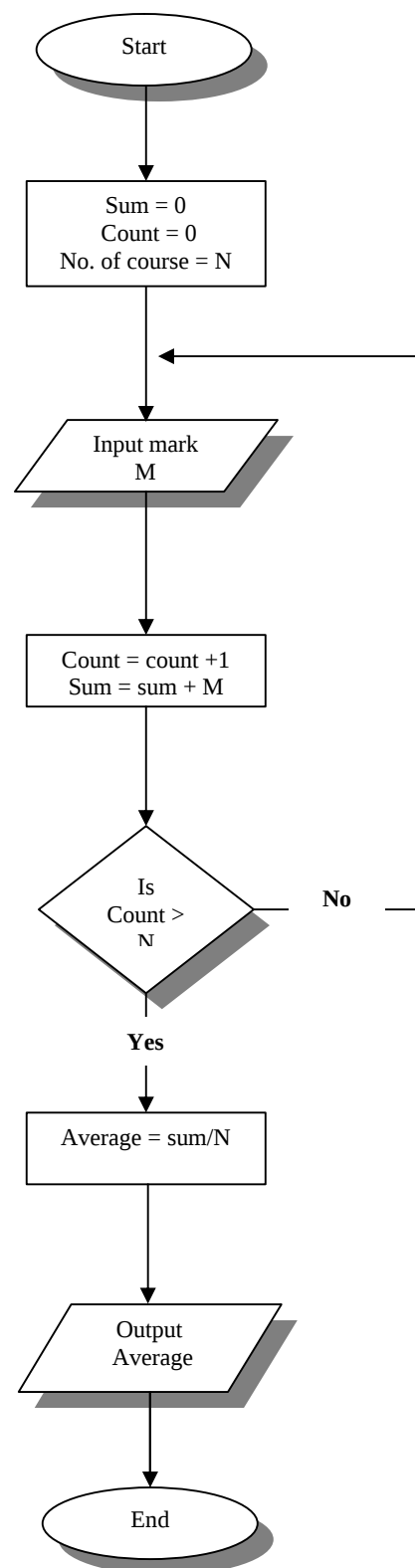
This subsystem manipulates all the student marks and that by inserting marks for each student in specific section, transfer and store marks and data for each student to ministry standard sheet, printing all the type of certificates for each student including all marks for different courses in each semester, and each certificate include the name of the student, class, section, and other information

3.2.1.1 Calculating average function

a) Description: This function calculates the average for each student; divide the summation of all the marks related to the student in a specific class and section over the number of courses.

b) User interface:

- ❖ Input: Mark for each course of student that are enter by the user
- ❖ Output: Average of student for all courses in that class

c) Flowchart:**Figure 3. 1 Calculating Average Flowchart**

d) Interface:

- ❖ Input: Mark for each course of student that are enter by the user
- ❖ Output: Average of student for all courses in that class
- ❖ Require: number of the course in that class depending on class level get from database

3.2.1.2 Final result function

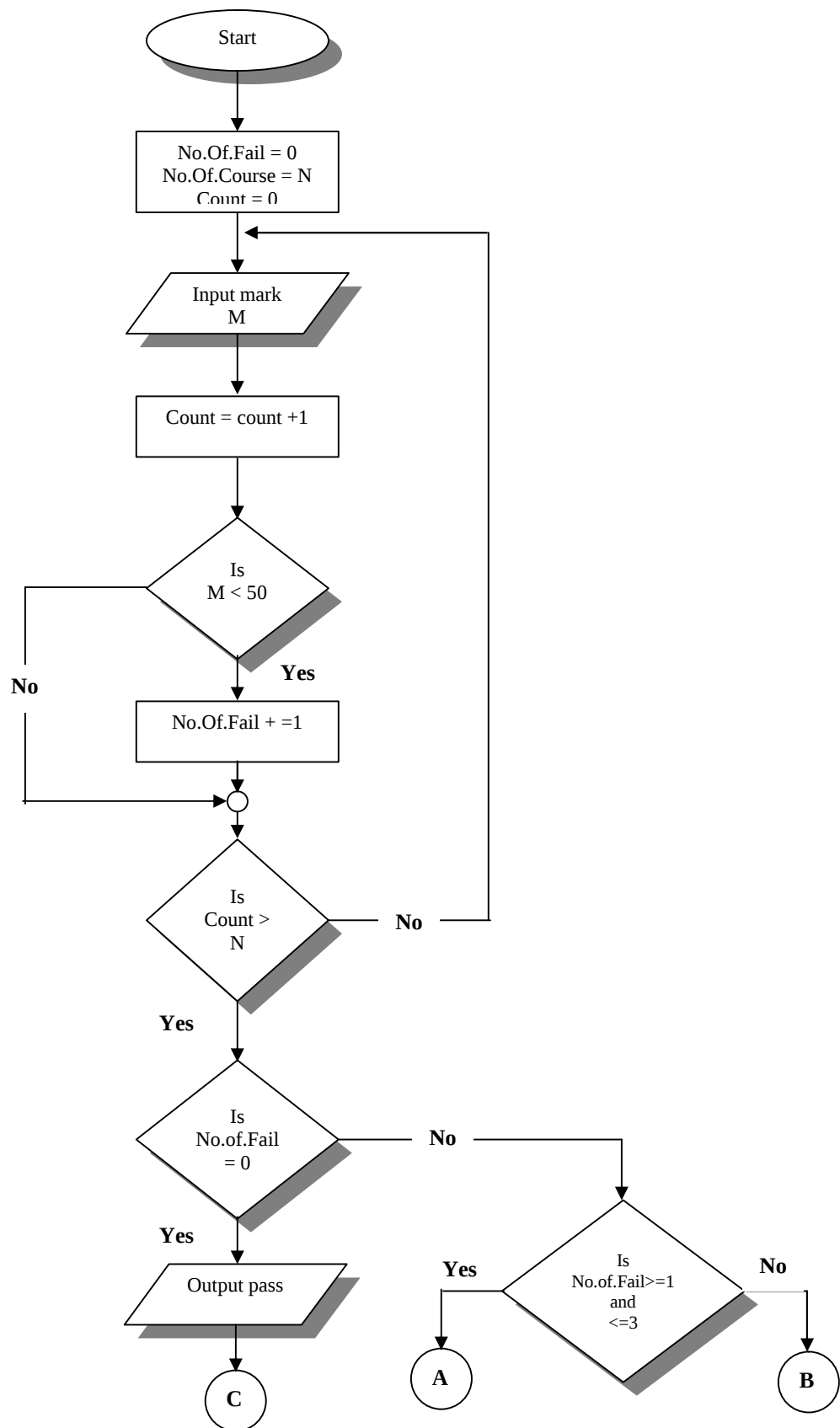
a) Description:

this function specifies the final result of each student according to his/her number of failed courses; if there is no fail courses the final result is pass otherwise the final result is incomplete, if the number of fail courses passes three the final result will be failed.

b) User interface:

- ❖ Input: Mark for each course of student that are enter by the user
- ❖ Output: Final result of the student in that class depending on the average in that class such as pass, incomplete, fail

c) Flowchart:



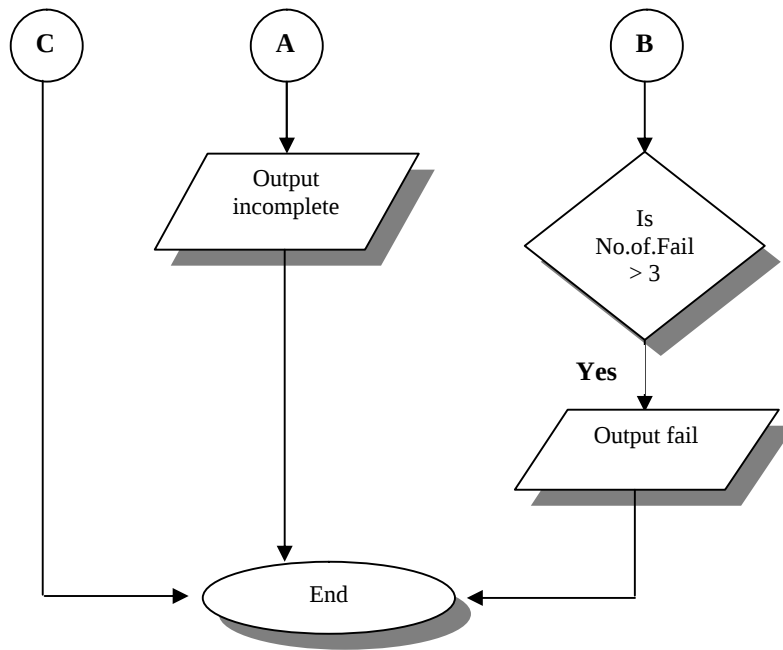


Figure 3. 2 Final result function Flowchart

Symbols in flowchart:

No.Of.Fail: number of courses that the student fails.

No.Of.Course (N): number of courses for that class.

M: mark that are inserted from the users.

d) Interface:

- ❖ Input: Mark for each course of student, number of fail and number of course getting from database
- ❖ Output: Final result of the student in that class depending on the average in that class such as pass, incomplete, fail

3.2.1.3 Mark evaluation

a) Description:

This function gives an evaluation for each mark according to its range; 90-100 excellent, 80-89 very good, 70-79 good, 50-69 accepted.

b) User interface:

- ❖ Input: mark of specific course in specific class
- ❖ Output: mark evaluation for each course in that class of the student such as excellent, very good, good...

c) Flowchart:

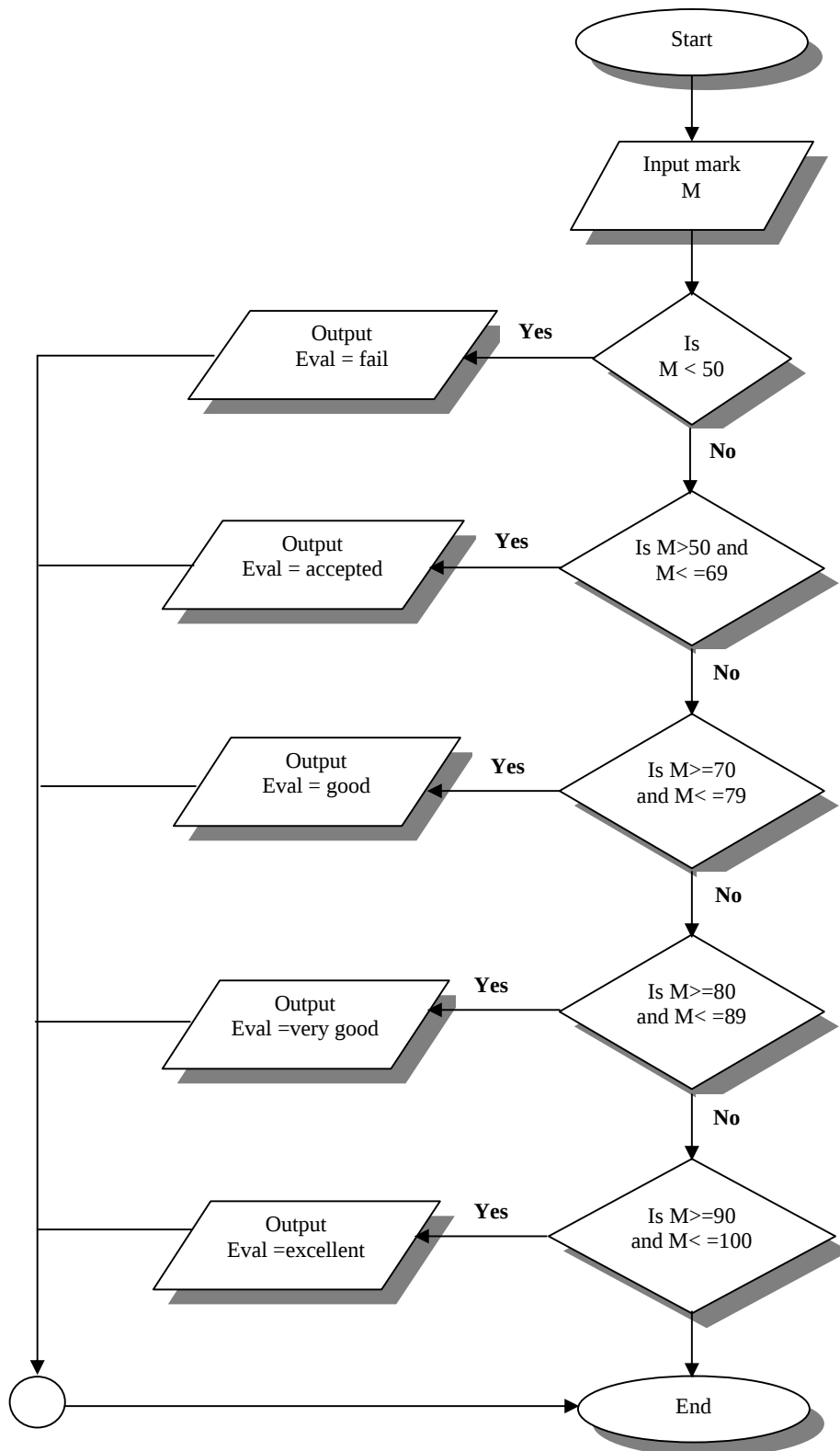


Figure 3. 3 Mark evaluation Flowchart

Symbols in flowchart:

M: mark of the student for each course

Eval: evaluation of each mark.

d) Interface:

- ❖ Input: mark of specific course in specific class
- ❖ Output: mark evaluation for each course in that class of the student such as excellent, very good, good...

3.2.1.4 Next class level

a) Description:

This function manipulate transferring student from current class level to the next class level after finishing his/her academic year in that level. Also this function checking the gender of the student at 4th class level, if the gender is male the student transfer to the other school.

b) User interface:

- ❖ Input: student name, student auto number
- ❖ Output: next class level of student

c) Flowchart:

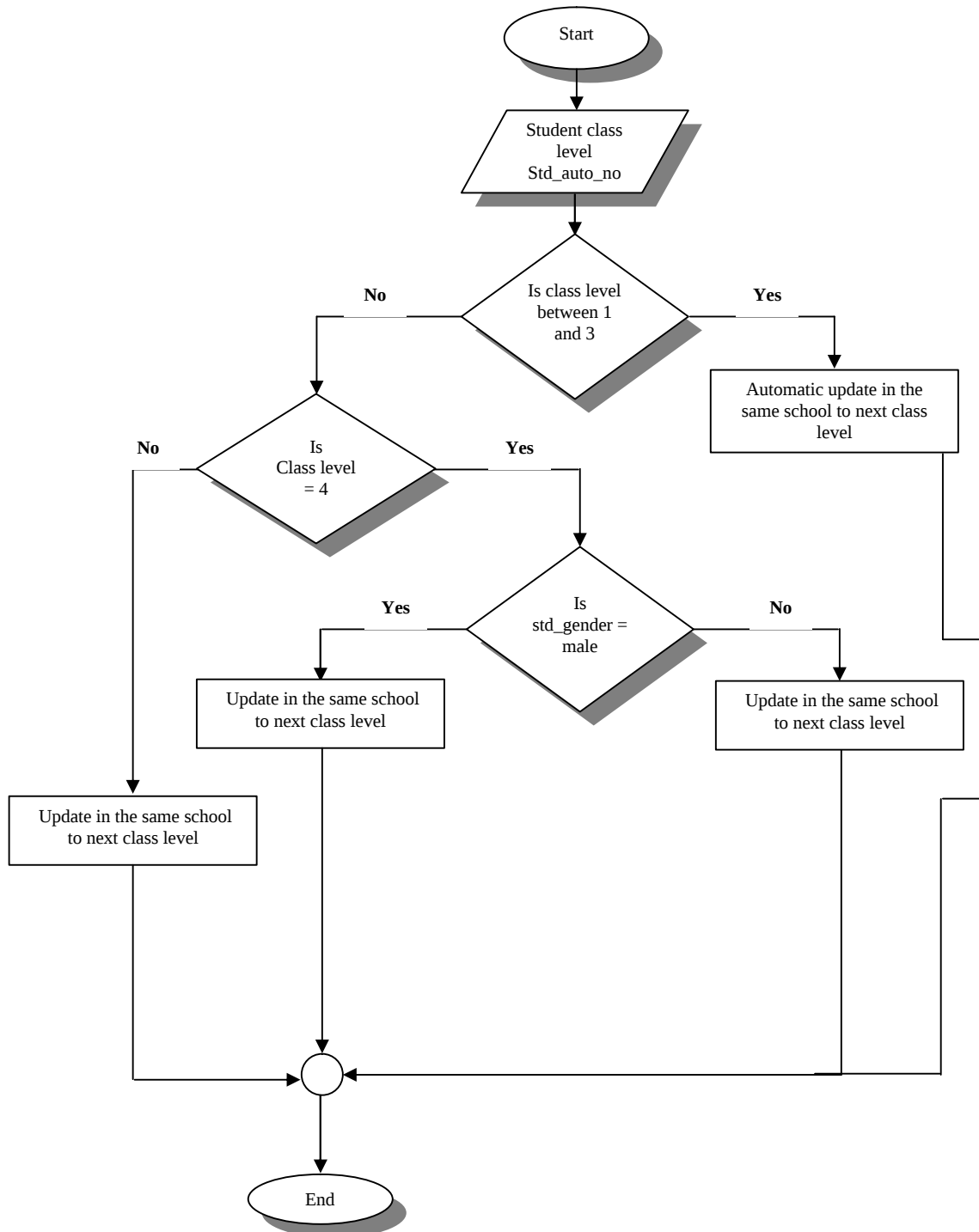


Figure 3. 4 Next class level Flowchart

d) Interface:

- ❖ Input: student class level, student auto number, student name
- ❖ Output: transferring students to the next class level.

3.2.1.5 Processes

1) Adding student process: when adding student to the section the system must create a mark record and add it to the database in mark schema for that student.

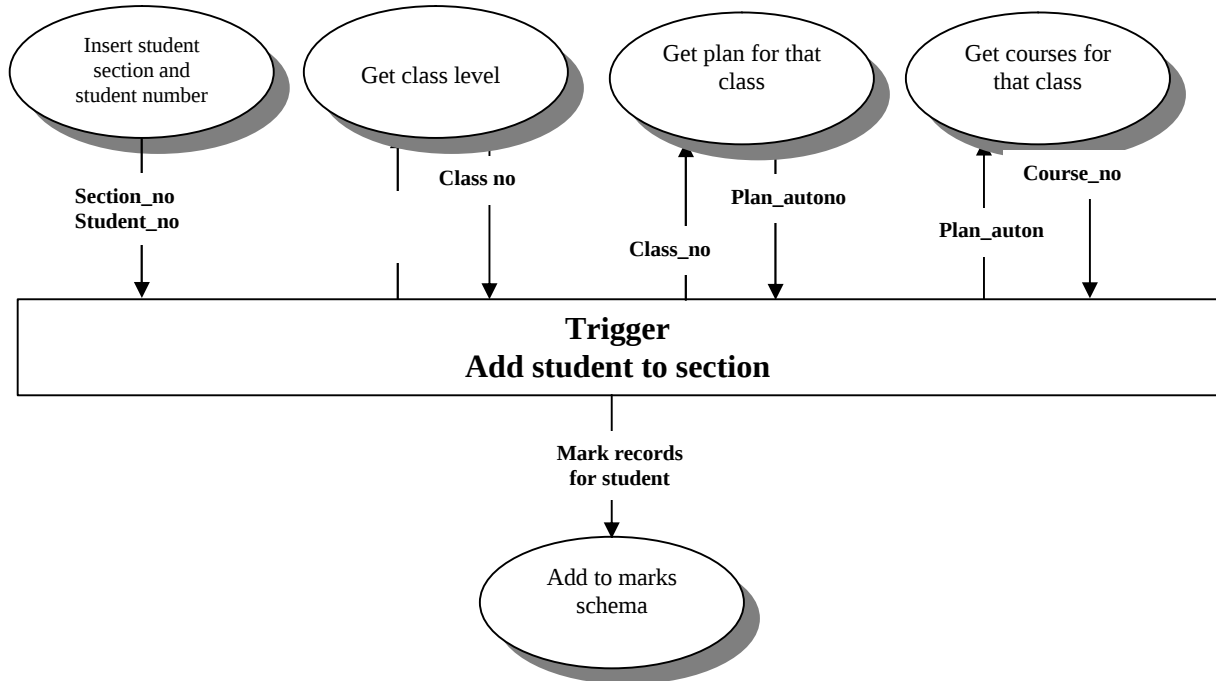


Figure 3. 5 Adding student process Diagram

2) **Remove student process:** delete student records from specific section from database.

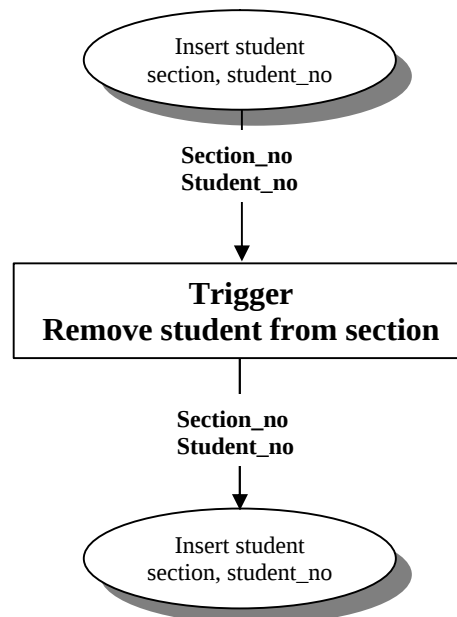


Figure 3. 6 Remove student process Diagram

3. Transfer data from DB to EXCEL:

The user will enter data about the students, the teachers, marks, and other information to the database, the system transfer these information or data to excel file.

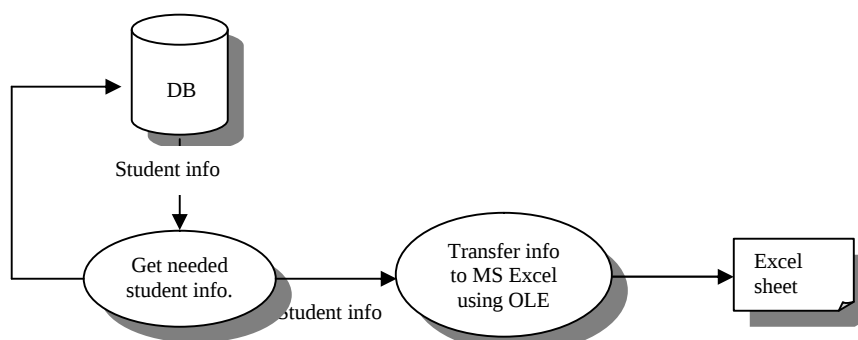


Figure 3. 7 Transfer data from DB to EXCEL Diagram

3.2.2 *Functional design of accounting subsystem*

Description: This subsystem managing all the accounting processes that are related to the student's tuition and buses subscriptions, taking in mind the discounts for brothers and superiority (excellence student).

3.2.2.1 Brothers Discount function

a) Description:

This function determine whether the student has a brother or not, if the student has a brother a discount process will take place according to the number of brothers.

b) User interface:

- ❖ Input: father ID, student name.
- ❖ Output: The final value of the tuition after checking brother relation.

c) Flowchart:

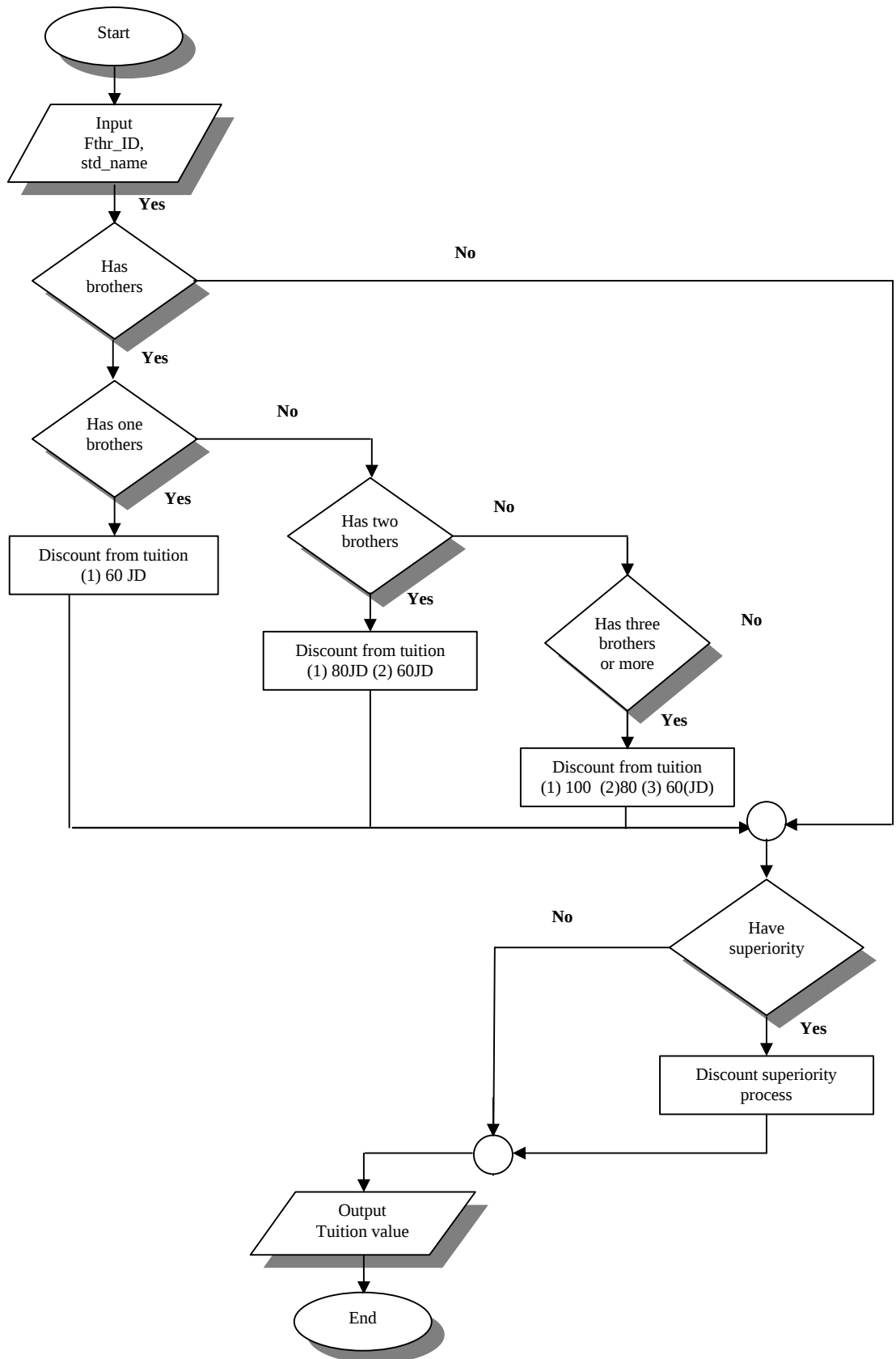


Figure 3. 8 Brothers Discount Flowchart

Symbols in flowchart:

- 1 the oldest brothers
- 2 the next oldest brother
- 3 other brothers

d) Interface:

- ❖ Input: father ID, student name, discount value for brother relation such as for the student have one brother the discount value is 60 JD.
- ❖ Output: The final value of the tuition after checking brother relation.

3.2.2.2 Superiority function

a) Description:

This function determines the student is superior or not according to his/her average; if the student is superior a discount process will take place according to his/her degree in his/her class.

b) User interface:

- ❖ Input: student mark, average.
- ❖ Output: the final value of the tuition value after checking superiority

c) Flowchart:

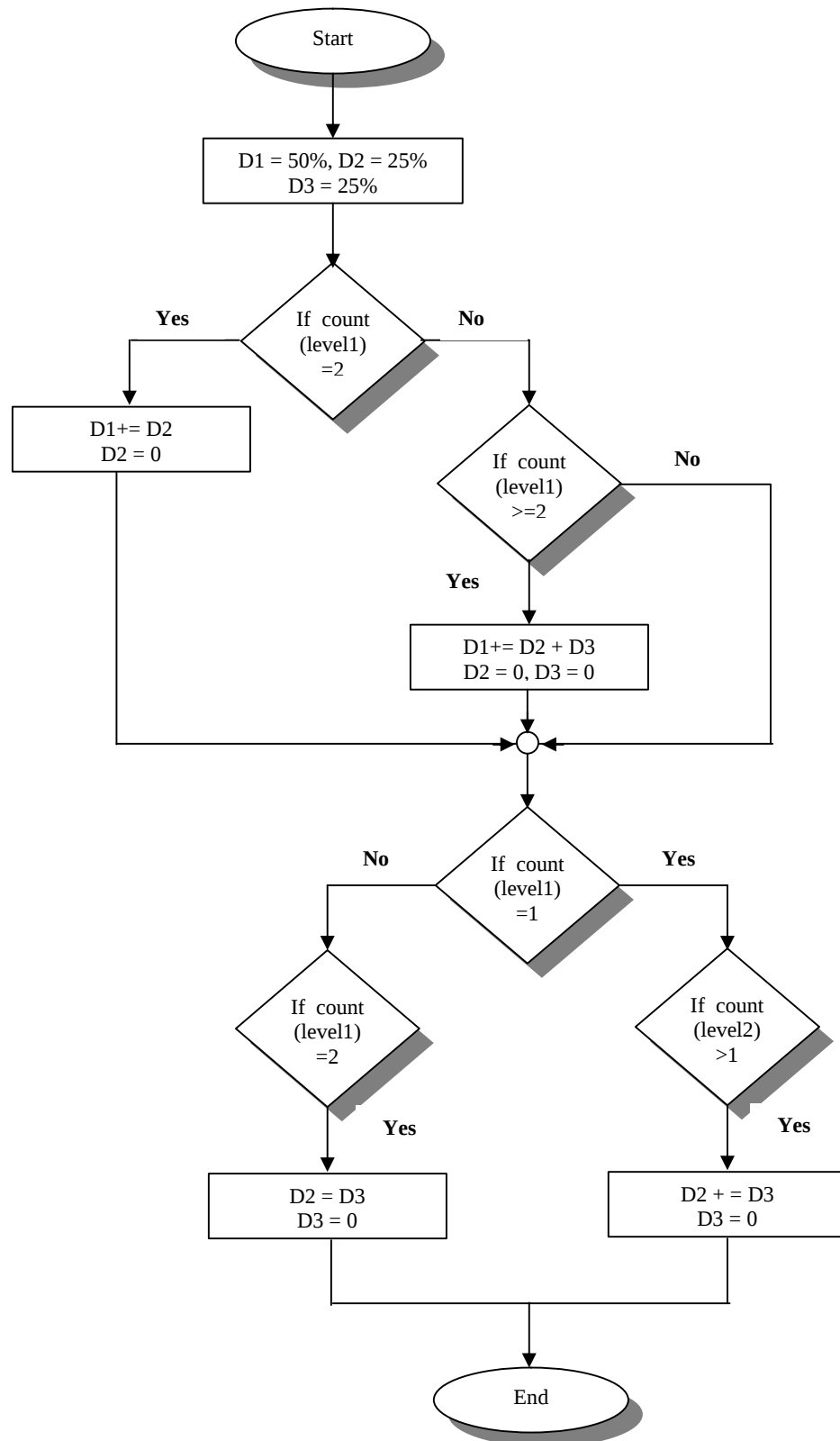


Figure 3. 9 Superiority Flowchart

Symbols in flowchart:

D1 discount value for that student has the highest grade

D2 discount value for that student has the 2nd highest grade

D3 discount value for that student has the 3rd highest grade

d) Interface:

- ❖ Input: student mark, average, discount value for superiority such as for the student that having the best grade the discount value is 50% from tuition value.
- ❖ Output: the final value of the tuition value after checking superiority

3.2.2.3 Bus subscription function

a) Description:

This function manage the discount process for the buses subscription; firstly it determine the direction of traveling to make backward discount if the direction is backward only then checks for brothers to make discount process for brothers relation

b) User interface:

- ❖ Input: father ID, student name
- ❖ Output: the final value of the tuition value after checking brother relation

c) Flowchart:

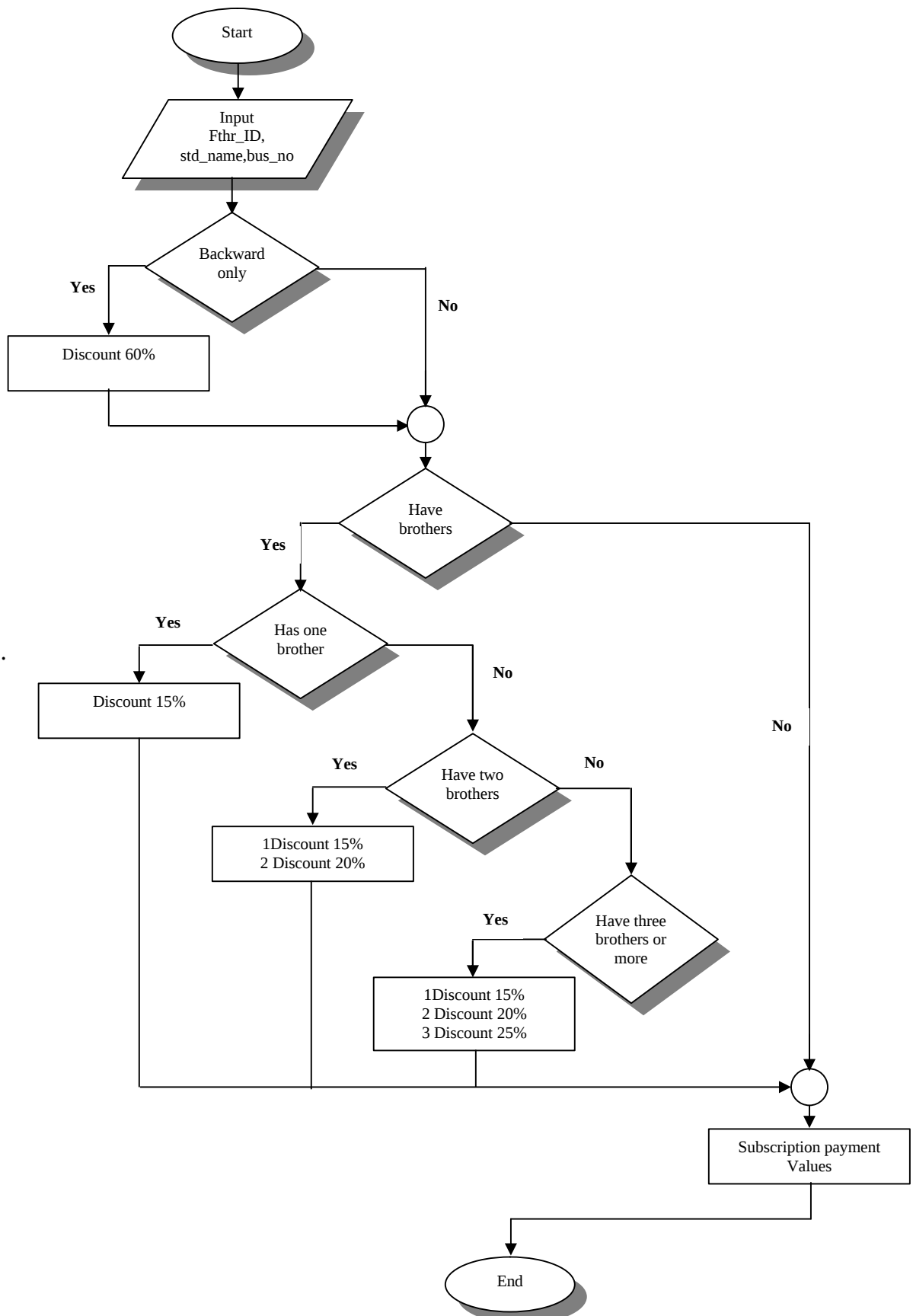


Figure 3. 10 Bus subscription Flowchart

Symbols in flowchart:

- 1: the oldest brothers
- 2: the next oldest brother
- 3: other brothers

d) Interface

- ❖ Input: father ID, student name, discount value for brother relation in the bus subscription
- ❖ Output: the final value of the tuition value after checking brother relation

3.3 Input/Output design

3.3.1 Input design

3.3.1.1 Student subsystem screens

Student accumulative card: this subsystem include two forms the first one includes several tab pages, the first tab include the basic information about student, the second tab includes information about student father, the third tab includes information about student mother, the forth tab include information about responsible manager of the student. And the second form include different tabs pages contains information about personal theme, family corporation, problem procedure, activities and interests, house information, previous school, marital status

The screenshot displays the 'Oracle Developer Forms Runtime - Web' window. The main form is titled 'بيانات الطالب' (Student Data) and is part of a larger application titled 'الطلاب السجل إستعلام المعلومات والشهادات الموظفين التقارير نافذة'. The form has several tabs at the top: 'بيانات الطالب', 'بيانات والدة الطالب (أب)', 'بيانات والدة الطالب (أم)', and 'بيانات عن ولي أمر الطالب (من غير والديه)'. The 'بيانات الطالب' tab is currently selected. It contains various input fields for student information, including 'الرقم التسلسلي' (Serial Number), 'الجنس' (Gender), 'سنة دخول الأولي الأساسي' (First Basic Entry Year), 'الاسم الأول' (First Name), 'اسم الأب' (Father's Name), 'اسم الجد' (Grandfather's Name), 'العائلة' (Family), 'رقم الهوية' (ID Number), 'رقم جواز السفر' (Passport Number), 'نوع الوثيقة' (Document Type), 'نوع جواز السفر' (Passport Type), 'تاريخ الولادة' (Date of Birth), 'مكان الولادة' (Place of Birth), 'الجنسية عند الولادة' (Nationality at Birth), 'الدولة' (Country), and 'ملاحظات' (Remarks). The form is designed with a standard Oracle Forms layout, featuring a header bar, a title bar, and a main content area with various input fields and labels.

Figure 3. 11 Student information tab

As you see this tab contains the basic information about the student in the student accumulative card. The user will enter this information through this tab.

The screenshot displays the 'Oracle Developer Forms Runtime - Web' window. The main menu at the top includes 'الطلاب', 'السجل', 'إستعلام', 'العلامات', 'الشهادات', 'الموظفين', 'التقارير', and 'نافذة'. The active tab is 'بيانات والدة الطالب (أب)'. The form contains the following fields:

- الاسم الأول:
- اسم الأب:
- اسم الجد:
- العائلة:
- الجنسية:
- رقم الهوية:
- تاريخ الميلاد:
- عنوان السكن:
- هاتف السكن:
- المهنة:
- عنوان العمل:
- هاتف العمل:
- الحالة الاجتماعية: (مترج)
- عدد الزوجات:
- بلده قبل نكحة ٤٨:
- مسجل كلاجئ؟: (لا)

The bottom status bar shows '<OSC>' and 'سجل: ١/١'.

Figure 3. 12 Student father information tab

As you see this tab contains the basic information about the student father in the student accumulative card. The user will enter this information through this tab.

The screenshot displays the 'Oracle Developer Forms Runtime - Web' window. The main form is titled 'بطاقة الطالبة التراكمية' (Student Mother Information Card). It features a tabbed interface with the following tabs: 'بيانات الطالبة' (Student Data), 'بيانات والدة الطالبة (أب)' (Student Mother Data - Father), 'بيانات والدة الطالبة (أم)' (Student Mother Data - Mother), and 'بيانات عن ولي أمر الطالبة (من غير والديه)' (Student Guardian Data (Not Parents)). The 'بيانات والدة الطالبة (الأم)' tab is currently selected.

The form contains the following fields:

- الاسم الأول (First Name): Text input field.
- اسم الاب (Father's Name): Text input field.
- اسم الجد (Grandfather's Name): Text input field.
- الجنسية (Nationality): Dropdown menu.
- رقم الهوية (ID Number): Text input field.
- تاريخ الميلاد (Date of Birth): Text input field.
- عنوان السكن (Residence Address): Text input field.
- هاتف السكن (Residence Phone): Text input field.
- المنطقة (Region): Text input field.
- عنوان العمل (Work Address): Text input field.
- هاتف العمل (Work Phone): Text input field.
- الحالة الاجتماعية (Marital Status): Dropdown menu with 'متزوجة' (Married) selected.
- بلدها قبل نكبة ٤٨ (Country before 1948): Text input field.
- ملاحظات (Remarks): Large text area.

The bottom of the window shows a status bar with '<OSC>' and 'سجل: ١/١' (Log: 1/1).

Figure 3. 13 Student mother information tab

As you see this tab contains the basic information about the student mother in student accumulative card. The user will enter this information through this tab.

The screenshot shows a web-based Oracle Developer Forms Runtime window. The title bar reads 'Oracle Developer Forms Runtime - Web'. The main window has a menu bar with options: 'الطلاب', 'السجل', 'إستعلام', 'العلامات', 'الشهادات', 'الموظفين', 'التقارير', 'نافذة'. Below the menu bar is a toolbar with icons for file operations. The main content area displays a form titled 'بيانات الطالبة (من غير والديه)' (Student Data (from non-parents)). The form includes several input fields and dropdown menus for the following information:

- الاسم الأول (First Name)
- اسم الاب (Father's Name)
- اسم الجد (Grandfather's Name)
- العائلة (Family)
- الجنسية (Nationality)
- رقم الهوية (ID Number)
- عنوان السكن (Residential Address)
- هاتف السكن (Residential Phone)
- المهنة (Profession)
- عنوان العمل (Work Address)
- هاتف العمل (Work Phone)
- الحالة الاجتماعية (Marital Status) with a dropdown menu showing 'متزوج' (Married) and 'مفترق' (Single).
- صلة القرابة (Relationship)
- ملاحظات (Remarks) with a large text area.

At the bottom of the form, there is a status bar with '<OSC>' and 'سجل: 1/1'.

Figure 3. 14 Student responsible manager information tab

As you see this tab contains the basic information about the student responsible manger in the student accumulative card. The user will enter this information through this tab.

Oracle Developer Forms Runtime - Web

الطلاب السجل استخدام الحاميات والشهادات الموظفين المحاسبة التقارير نافذة

بيانات الطالب: بطاقة الطالب / التراكمية

الرقم: [] الجنس: [] سنة الميلاد: [] الإسم الكامل: []

الوضع الاجتماعي

المعلومات الشخصية | المشاكل والإجراءات | الشهادات والإحصائيات | المدارس التي التحق بها الطالب | بيانات السكن | تعاون الأسرة مع المدرسة | **الوضع الاجتماعي**

الصف: [] السنة الدراسية: []

الصف	السنة الدراسية	المستوى التعليمي	الترتيب بين الإخوة	عدد أفراد الأسرة
أحمد	أحمد	أحمد	أحمد	أحمد

* ترتيب الطالب بين إخوته: (١) الأول والأخير (٢) في الوسط (٣) الأخير والأصغر
 ** المستوى التعليمي للوالدين: (١) أمي (٢) أساسي (٣) ثانوي (٤) دبلوم (٥) جامعي (٦) دراسات عليا

أدخل استخدام: اضغط Ctrl+F11 للتنفيذ، F4 للإلغاء
 سجل: ١/١

Figure 3. 15 Marital status information tab

As you see this tab contains the basic information about the student marital status in the student accumulative card. The user will enter this information through this tab.

Oracle Developer Forms Runtime - Web

الطلاب سجل إستمارة المعلومات والشهادات الموفقةن الحاسبة التقارير نافذة

بيانات بطاقة الطالب/ة المترجمة

بيانات الطالب/ة

الرقم
التسلسلي

الجنس

سنة الدخول

الإسم الكامل:

الوضع الاجتماعي

تعاون الأسرة مع المدرسة

بيانات السكن

المدارس التي التحق بها الطالب

النشاطات والإهتمامات

المشاكل والإجراءات

السمات الشخصية

تعاون الأسرة مع المدرسة

السنة الدراسية:

الصف:

الإسهام في مجلس الآباء والمعلمين واللجان المدرسية

الإسهام في النشاطات المدرسية

حضور ولي أمر الطالب/ة للمتابعة او عند الاستدعاء

تقديم الدعم للمدرسة

تمت البيانات برمز الخيارات التالية: (١) دائماً (٢) أحيانا (٣) نادرا

أدخل استمارة اضغط Ctrl+F11 للتنفيذ F4 للإلغاء

سجل: ١/١

أدخل الاستمارة ...

<OSC>

Figure 3. 16 Family corporation information tab

As you see this tab contains the basic information about the student family corporation in the student accumulative card. The user will enter this information through this tab.

The screenshot shows the 'Oracle Developer Forms Runtime - Web' window. The title bar includes the text 'الطلاب السجل استعمال الخدمات والشهادات الموظفين المحاسبة التقارير نافذة'. The main form is titled 'بيانات بطاقة الطالب التراكمية'. It features a top section with fields for 'الرقم القبطي' (Coptic ID), 'الجنس' (Gender), 'سنة الدخول' (Year of Entry), and 'الإسم الكامل' (Full Name). Below this is a tabbed interface with the following tabs: 'البيانات الشخصية' (Personal Data), 'المشاكل والإجراءات' (Problems and Procedures), 'الشكايات والإهتمامات' (Complaints and Concerns), 'المدارس التي التحق بها الطالب' (Schools the student attended), 'بيانات السكن' (House Information), 'تعاون الأسرة مع المدرسة' (Parental cooperation with the school), and 'الوضع الاجتماعي' (Social Status). The 'بيانات السكن' tab is currently selected, showing a section titled 'بيانات السكن' with the following fields: 'عنوان السكن' (House Address), 'سكن الطالب مع' (Student lives with), 'نوع السكن' (Type of house), 'نوع البناء' (Type of building), 'عدد الغرف' (Number of rooms), 'وسيلة المواصلات' (Means of transport), and 'المسافة بين السكن والمدرسة' (Distance between house and school). The bottom status bar contains the text 'أدخل استعلام: اضغط Ctrl+F11 للتنفيذ، F4 للإلغاء' and 'سجل: ١/١'.

Figure 3. 17 House information tab

As you see this tab contains the basic information about the student house in the student accumulative card. The user will enter this information through this tab.

The screenshot shows the 'Previous school' tab in the Oracle Developer Forms Runtime - Web interface. The form is titled 'بيانات بطاقة الطالب التراكمية' (Cumulative Student Card Data). It contains several tabs: 'البيانات الشخصية' (Personal Data), 'المشاكل والإجراءات' (Problems and Procedures), 'النشاطات والإهمامات' (Activities and Interests), 'المدارس التي التحق بها الطالب' (Schools the student attended), 'بيانات السكن' (Housing Data), 'تعاون الأسرة مع المدرسة' (Family cooperation with the school), and 'الوضع الاجتماعي' (Social Status). The 'المدارس التي التحق بها الطالب' tab is selected, showing fields for 'اسم المدرسة' (School Name), 'الرقم الوطني' (National Number), 'السلطة المشرفة' (Supervising Authority), 'تاريخ الانتقال' (Date of Transfer), 'سبب الانتقال' (Reason for Transfer), and 'عدد سنوات رياض الأطفال' (Number of years of Kindergarten).

Figure 3. 18 Previous school tab

As you see this tab contains the basic information about the student previous school in the student accumulative card. The user will enter this information through this tab.

The screenshot displays the 'Oracle Developer Forms Runtime - Web' window. The title bar includes the text 'الطلاب السجل استعمال المعلومات والشهادات الموظفين المحاسبة التقارير نافذة'. The main window title is 'بيانات بطاقة الطالب التراكمية'. The form contains several input fields and tabs. At the top, there are fields for 'الرقم القسري' (Mandatory Number), 'الجنس' (Gender), 'سنة الدخول' (Entry Year), and 'الإسم الكامل' (Full Name). Below these are tabs for 'السمات الشخصية' (Personal Attributes), 'المشاكل والإجراءات' (Problems and Procedures), 'النشاطات والإهتمامات' (Activities and Interests), 'المدارس التي التحق بها الطالب' (Schools the student attended), 'بيانات السكن' (Housing Data), 'تعاون الأسرة مع المدرسة' (Family cooperation with the school), and 'الوضع الاجتماعي' (Social Status). The 'النشاطات والإهتمامات' tab is selected, showing a section titled 'النشاطات والإهتمامات' with a list of activities and interests: 'السنة الدراسية' (Academic Year), 'المهنة' (Profession), 'الرياضية' (Sports), 'الاجتماعية' (Social), 'الثقافية' (Cultural), 'المهنية' (Professional), 'الخدمات المجتمعية' (Community Services), and 'المحلي' (Local). Each activity has a corresponding dropdown menu for selection. The bottom status bar shows 'أدخل استعمال: اضغط Ctrl+F11 للتنفيذ F4 للإلغاء' and 'سجل: ١/١'.

Figure 3. 19 Activities and interests tab

As you see this tab contains the basic information about the student activities and interests in the student accumulative card. The user will enter this information through this tab.

The screenshot shows a web-based Oracle Developer Forms Runtime window titled "Oracle Developer Forms Runtime - Web". The main menu bar includes "الطلاب", "السجل", "إستعلام", "العلامات", "الشهادات", "الموظفين", "المحاسبة", "التقارير", and "خافذة". The current form is titled "بيانات بطاقة الطالب التراكمية". It features a header section with fields for "الرقم القبطي", "الجنس", "سنة الدخول", and "الإسم الكامل". Below this is a tabbed interface with the following tabs: "البيانات الشخصية", "المشاكل والإجراءات", "الشكايات والإهتمامات", "المدارس التي التحق بها الطالب", "بيانات السكن", "تعاون الأسرة مع المدرسة", and "الوضع الاجتماعي". The "المشاكل والإجراءات" tab is active, displaying a form with fields for "السنة الدراسية", "نوع المشكلة", "وصف المشكلة", "الإجراءات التي اتخذتها المدرسة", and "النتيجة". The status bar at the bottom indicates "أدخل استعلام: اضغط Ctrl+F11 للتنفيذ, F4 للإلغاء" and "سجل: ١/١".

Figure 3. 20 Problem and procedure tab

As you see this tab contains the basic information about the student problem and procedure in the student accumulative card. The user will enter this information through this tab.

The screenshot displays the 'Oracle Developer Forms Runtime - Web' window. The title bar includes the text 'الطلاب السجل إستعلام الحاميات والشهادات الموظفين المحاسبة التقارير نافذة'. The main window has a tab titled 'بيانات بطاقة الطالب / التراكمية'. Below the title bar, there are several input fields for student information: 'الرقم القبطي' (Coptic Number), 'الجنس' (Gender), 'سنة الدخول' (Year of Entry), and 'الإسم الكامل' (Full Name). A horizontal tab bar contains the following tabs: 'الوضع الاجتماعي' (Social Status), 'تعاون الأسرة مع المدرسة' (Family Cooperation with School), 'بيانات السكن' (Housing Data), 'المدارس التي التحق بها الطالب' (Schools the student attended), 'الشهادات والإهتمامات' (Certificates and Interests), 'المشاكل والإجراءات' (Problems and Procedures), and 'السمات الشخصية' (Personal Traits). The 'السمات الشخصية' tab is currently selected. It contains a section titled 'السمات الشخصية' with two columns of dropdown menus. The left column includes: 'الصفة' (Rank), 'حب الاستطلاع' (Curiosity), 'الثقة بالنفس' (Self-confidence), 'تحمل المسؤولية' (Responsibility), 'احترام النظام' (Respect for the system), 'الانطلاق والانبساط' (Initiative and openness), 'المبادرة والجرأة' (Initiative and courage), 'القيادة' (Leadership), and 'التعامل مع الآخرين' (Dealing with others). The right column includes: 'السنة الدراسية' (Academic Year), 'المظهر الجسمي العام' (General physical appearance), 'الحيوية والنشاط' (Vitality and activity), 'السعة والنفاق والترتيب' (Generosity, frugality, and order), 'التفكير والمنطق' (Thinking and logic), 'التجديد والابتكار' (Renewal and innovation), 'التركيز والانتباه' (Concentration and attention), 'اتخاذ القرارات' (Decision making), and 'الحكم على الأمور' (Judgment of matters). At the bottom of the window, there is a status bar with the text 'أدخل استعلام: اضغط Ctrl+F11 للتنفيذ، F4 للإلغاء' (Enter query: press Ctrl+F11 to execute, F4 to cancel) and 'سجل: ١/١' (Log: 1/1).

Figure 3. 21 Personal theme tab

As you see this tab contains the basic information about the student personal theme in the student accumulative card. The user will enter this information through this tab.

3.3.1.2 Mark subsystem screens

This subsystem include four forms, these forms are courses form that contains different course in different class and years, plans forms that contain different plan for different class, student and section form, student mark form

رقم المبحث	اسم المبحث	ملاحظات
٢	الترجمة الدينية	
٣	اللغة العربية	
٤	اللغة الانجليزية	
٥	الرياضيات	
٦	العلوم العامة	
٧	العلوم الاجتماعية والتربية الوطنية	
٨	التربية المدنية	
٩	الفنون والحرف	
١٠	التربية الرياضية	
١١	النشاط الحر	
١٢	اللغة الاجنبية الثانية (الجرية)	
١٣	التربية الفنية والموسيقى	
١٤	التكنولوجيا والعلوم التطبيقية	
١٥	التربية المهنية	
١٦	الحاسوب	
١٧	فيزياء	
١٨	كيمياء	

Figure 3. 22 Course tab

In this form the user will enter whole the course that are given in the school

المصف: الأول الأساسي رقم المصف: ١ السنة الدراسية: ٢٠٠٤

رقم المبحث	إسم المبحث	ترتيب المساق
١	التربية الدينية	١
٣	اللغة العربية	٢
٤	اللغة الانجليزية	٣
٥	الرياضيات	٤
٦	العلوم العامة	٥
٧	العلوم الاجتماعية والتربية الوطنية	٦
٨	التربية البدنية	٧
٩	الفنون والحرف	٨
١٠	التربية الرياضية	٩
١١	النشاط الحر	١٠
١٢	اللغة الاجنبية الثانية (البحرية)	١١

Figure 3. 23 Plan form

In this form the user will fill the academic plan for each class.

Oracle Developer Forms Runtime - Web

الطلاب السجل إستعلام العلامات والشهادات الموظفين التقارير نافذة

الشعبة والطلاب

الشعبة الصفية: المدرسة: مدرسة عين سارة الصف: الأول الأساسي رقم الشعبة: ٣٨١ رمز الشعبة: أ السنة الدراسية: ٢٠٠٣/٢٠٠٤ مربي الصف: ٦ إختصار محمود محمد الجنيدي

طباعة شهادات الشعبة طباعة جدول العلامات تخزين جدول العلامات في ملف إكسل

علامات الشعبة طلاب الشعبة

تخزين شهادة طالب طباعة شهادة طالب

رقم الطالب	اسم الطالب	عدد أيام الغياب
١	احمد بنشار نبيل الجنيدي	١
٢	احمد يسري نظمي صلاح	٠
٣	امجد نافذ رضوان ابوسينه	١
٤	ارهاب سفيان جميل دوفتن	٠
٥	ياسل محمد هاشم الهيموني	١
٦	ثامر توفيق حمدان السعد	١
٧	ثركيل احمد هاشم الهيموني	٢
٨	ديانا يوسف مصطفى دبابسة	٠
٩	رائد عبد الرزاق رائد البكري	٠
١٠	سيف الدين سفيان محمدحجازي محاسب	٢

سجل: ١/٢

Figure 3. 24 Student and section form (student section tab)

This form contains two tabs. The first one user will enter the students that are registered for this class section.

Oracle Developer Forms Runtime - Web

الطلاب السجل إستعلام البيانات والشهادات الموظفين المحاسبة التقارير نافذة

الشعب والطلاب

الشعبة الصفية

المدرسة: السنة الدراسية: رمز الشعبة: رقم الشعبة: ١٢٧٧

الصف: مربي الصف:

تخزين جدول البيانات في ملف إكسل

طباعة جدول البيانات

طباعة شهادات الشعبة

طلاب الشعبة

علامات الشعبة

البيانات

المبحث: ٢

اسماء الطلاب

الطلاب	الشهرين ف١	ف١	الشهرين ف٢	ف٢

تخزين شهادة طالب

طباعة شهادة طالب

سجل: ١/١

Figure 3. 25 Student and section form (section marks tab)

In this tab the user will enter the students' marks that are registered for this class section.

Oracle Developer Forms Runtime - Web

الطلاب السجل إستلام العلامات والشهادات الموظفين المحاسبة التقارير نافذة

الطلاب علامات الطالب

الطالب

رقم الطالب: 100 أحمد ماهر جميل بدر الفصل: 90.2

العلامات

المبحث	العلامة	العلامة	العلامة
	الشهرين ف 1	الشهرين ف 2	العلامة ف 3
التربية الدينية	94	94	94
اللغة العربية	96	96	94
اللغة الانجليزية	92	96	90
الرياضيات	96	96	90
العلوم العامة	96	96	93
العلوم الاجتماعية والتربية الوطنية	96	96	96
التربية المدنية	98	98	98
الفنون والحرف	94	94	93
التربية الرياضية	93	93	94
النشاط الحر	94	94	90
اللغة الانجليزية الثانية (المرية)			

سجل: 1/1

Figure 3. 26 Student mark form

In this form the user will scan the marks and the average for each student independently. The user can modify the marks if there is a need for modification.

3.3.1.3 Accounting subsystem screens

This subsystem includes four forms; each form manipulates specific accounting processes. These forms are Transaction types, Academic Tuitions accounting.

The screenshot shows a web-based Oracle Developer Forms Runtime window. The title bar reads 'Oracle Developer Forms Runtime - Web'. The browser's address bar contains the URL 'المعاملات المحاسبية'. The main content area displays a form titled 'المعاملات المحاسبية' (Accounting Transactions). The form has three input fields: 'رقم الحركة' (Transaction Number), 'وصف الحركة' (Transaction Description), and 'قيمة الحركة' (Transaction Value). The 'نوع العملة' (Currency Type) is set to 'دينار' (Dinar). The form is displayed within a web browser window.

Figure 3. 27 Transactions types form

The user here will enter the accounting transactions types that are manipulated inside this school. The inputs are transaction number, description, and value; Such as brothers discount, superiority discount, buses sharing...etc.

The screenshot shows the Oracle Developer Forms Runtime - Web interface for the 'Student Accounting' form. The form is titled 'محاسبة الطلاب' (Student Accounting) and contains the following fields:

- الرقم التسلسلي (Serial Number): A text field.
- الجنس (Gender): A dropdown menu with 'ذكر' (Male) selected.
- سنة الدخول (Year of Entry): A text field.
- الإسم الكامل (Full Name): A text field.

Below these fields is a table for accounting transactions. The table has the following columns:

- رقم الحركة (Transaction Number)
- وصف الحركة (Transaction Description)
- المبلغ (Amount)
- العملة (Currency)
- التاريخ (Date)
- ملاحظات (Remarks)

The table contains 8 rows of data, with the first row highlighted in yellow. The bottom of the form shows a status bar with '<OSC>' and 'سجل: ١/١' (Record: 1/1).

Figure 3. 28 Student accounting form

In this form the user can either enter a manual accounting transaction that related to the school academic tuitions for the specified student or scan the automatically generated transaction for the same student.

رقم الطالب	إسم الطالب	رقم الباص	إسم خط الباص	الإشتراك فعال
١٠٠	زين عبدالقادر عبدالرحمن بدارين	٢	رسم إشتراك الباص رقم ١ - ٢	☒
١٢٠	محمد ناظر رضوان ابوسنينة	٣	رسم إشتراك الباص رقم ٢ - ٣	☒
١٤٩	احمد اكرم محمد الزعزعي	٤	رسم إشتراك الباص رقم ٣ - ٤	☒
١٨٦	ارجوان جهاد حسن ناصرالدين	٥	رسم إشتراك الباص رقم (١) - عودة فقط	☒
٢٠٣	أسل ايلاد منير عرفه	٦	رسم إشتراك الباص رقم (٢) - عودة فقط	☒
١٠٤	اكرم حامد درويش تكتوري	٧	رسم إشتراك الباص رقم (٣) - عودة فقط	☒
١٠١	زين عمار مصطفى الشعراوي	٢	رسم إشتراك الباص رقم ١ - ٢	☒
٢٠١	انعام عمار مصطفى الشعراوي	٢	رسم إشتراك الباص رقم ١ - ٢	☒
٥٦	انس عمار مصطفى شعراوي	٢	رسم إشتراك الباص رقم ١ - ٢	☒
				☐
				☐
				☐

Figure 3. 29 Bus subscription form

In this form the user can enter a bus subscriptions for the students that use the school's buses for traveling from home to school or vice versa.

Oracle Developer Forms Runtime - Web

نافذة التقارير المسحقة الموظفين الشهادات و الشهادات الطلاب إستعلام السجل البرنامج

حسابات الاخوة

الاجاء

رقم هوية الاب:

اسم الاب:

حسابات الطلاب

الرقم التسلسلي	اسم الطالب	المجموع لايدنار	المجموع/شيكال

<OSC> سجل: ١/١

Figure 3. 30 Brother account form

In this form the user can be know and get the final account for each brother, since this form include all accounting information about each brother.

1) Standard ministry sheet for the students' mark that are created by the system

Figure 3. 31 Standard ministry sheet for the students' mark

[illegible]

97

3) Teacher proof certificate

U.G.U Model High School				مدرسة رابطة الجامعيين الثانوية النموذجية	
الى من يهمه الأمر					
نشهد ادارة مدرسة رابطة الجامعيين ان المعلمة					
وهي علي راس عملها حتى تحرير			تحمل في المدرسة منذ تاريخ		
هذا الكتاب بتاريخ					
وقد اعطيناه هذه الشهادة بناء على طلبها.					
وتقبلوا بقبول طائق الاختيرام					
مديرة المدرسة سمي ططيس					

Figure 3. 33 Teacher proof certificate

4) Student proof certificate

U.G.U Model High Scho			مدرسة وابطة الجامعيين الثانوية النموذجية
التاريخ:			
الى من يهمه الامر			
تشهد ادارة مدرسة وابطة الجامعيين ان الطالب/ة		علي يوسف محمد الجعري	
كان/ت احدي طلاب المدرسة خلال العام الدراسي		2003/2004	
وهذا اعطى/ت له/ها الشهادة بناء على طلبه/ها.			
يتقبلها بقبول تامم لاختتم			
مديرة المدرسة سفي دناي			

5) Expert certificate

U.G.U Model High School		 مدرسة رابطة الجامعيين الثانوية النموذجية	
التاريخ			
الى من يهمه الأمر			
نشهد ادارة مدرسة رابطة الجامعيين ان السيدة			
حامل هوية رقم		قد عملت بوظيفة مدرسة في المدرسة	
اعتبارا من تاريخ		وحتى تاريخ	
وقد انطقت هذه الشهادة بناء على طلبه/م			
ونقبلوا بقبول طائفي الاخترا لم			
مديرة المدرسة			
سمي كنديس			

Figure 3. 35 Expert certificate

6) Good behavior certificate

U.G.U				مدرسة رابطة الجامعيين	
Model High School				الثانوية النموذجية	
التاريخ:					
<u>الى من يهمه الامر</u>					
شهد ادارة مدرسة رابطة الجامعيين ان الطالب/ة					
كان/ت احدي طلاب المدرسة خلال السنوات الدراسية					
من 2003/200 الى 2003/200					
ووجد كان/ت خلال هذه الفترة حسن/ة السيرة والسلوك					
مديرة المدرسة					
سمي دنديس					

Figure 3. 36 Good behavior certificate

7) Brothers accounts in this screen the user can scan the brothers' account according to their father

الاجاء

رقم هوية الاب:

اسم الاب: جمال محمد فايز شرياتي

حسابات الطلاب

الرقم التسلسلي	اسم الطالب	المجموع لادخار	المجموع استهلاك	المجموع الكلي
٨٤	خالد جمال محمد فايز الشرياتي	٤٠٠	٢٤٠	٢٤٠
١٧٣	رضد جمال محمد فايز شرياتي	٣٤٠		

<OSC> سجل: 2/1

Figure 3. 37 Brothers accounts form

«table»
Stud
STUDENT
STD_AUTONO : NUMBER(5, 0) STD_ID_NO : VARCHAR2(15) STD_PASSPORT_TYPE : VARCHAR2(20) STD_PASSPORT_NO : NUMBER(9, 0) STD_DOB : DATE STD_POB : VARCHAR2(20) STD_BORN_NATION : VARCHAR2(20) STD_RELIGON : NUMBER(1, 0) STD_PHOTO : BLOB STD_NOTES : VARCHAR2(300) STD_FTHR_NAME1 : VARCHAR2(20) STD_NO : NUMBER(5, 0) STD_FTHR_NAME2 : VARCHAR2(20) STD_FTHR_NAME3 : VARCHAR2(20) STD_FTHR_NAME4 : VARCHAR2(20) STD_FTHR_NATION : VARCHAR2(20) STD_FTHR_ID : VARCHAR2(15) STD_FTHR_DOB : DATE STD_FTHR_ADDRESS : VARCHAR2(100) STD_FTHR_HOM_TEL : VARCHAR2(10) STD_FTHR_JOB : VARCHAR2(50) STD_FTHR_JOB_ADDRESS : VARCHAR2(100) STD_GENDER : NUMBER(1, 0) STD_FTHR_JOB_TEL : VARCHAR2(10) STD_FTHR_MARITAL_STATUS : NUMBER(1, 0) STD_FTHR_WCOUNT : NUMBER(1, 0) STD_FTHR_TBN : VARCHAR2(30) STD_FTHR_IS_REF : NUMBER(1, 0) STD_MTHR_NAME1 : VARCHAR2(20) STD_MTHR_NAME2 : VARCHAR2(20) STD_MTHR_NAME3 : VARCHAR2(20) STD_MTHR_NAME4 : VARCHAR2(20) STD_MTHR_NATION : VARCHAR2(20) STD_ADMITION : NUMBER(4, 0) STD_MTHR_ID : VARCHAR2(15) STD_MTHR_DOB : DATE STD_MTHR_ADDRESS : VARCHAR2(100) STD_MTHR_HOM_TEL : VARCHAR2(10) STD_MTHR_JOB : VARCHAR2(50) STD_MTHR_JOB_ADDRESS : VARCHAR2(100) STD_MTHR_JOB_TEL : VARCHAR2(10) STD_MTHR_MARITAL_STATUS : NUMBER(1, 0) STD_MTHR_TBN : VARCHAR2(30) STD_MTHR_NOTES : VARCHAR2(300) STD_NAME1 : VARCHAR2(50) STD_NOK_NAME1 : VARCHAR2(20) STD_NOK_NAME2 : VARCHAR2(20) STD_NOK_NAME3 : VARCHAR2(20) STD_NOK_NAME4 : VARCHAR2(20) STD_NOK_NATION : VARCHAR2(20) STD_NOK_ID : VARCHAR2(15) STD_NOK_RELATION : VARCHAR2(20) STD_NOK_ADDRESS : VARCHAR2(100) STD_NOK_HOM_TEL : VARCHAR2(10) STD_NOK_JOB : VARCHAR2(50) STD_NAME2 : VARCHAR2(20) STD_NOK_JOB_ADDRESS : VARCHAR2(100) STD_NOK_JOB_TEL : VARCHAR2(10) STD_NOK_MARITAL_STATUS : NUMBER(1, 0) STD_NOK_NOTES : VARCHAR2(300) STD_SCHOOL_NO : NUMBER(1, 0) STD_STATUS : VARCHAR2(30) STD_NAME3 : VARCHAR2(20) STD_NAME4 : VARCHAR2(20) STD_ID_TYPE : VARCHAR2(20)
«UK» UQ_NO_GENDER_ADMITION : STD_NO, STD_GENDER, STD_ADMITION «UK» UQ_ID : STD_ID_TYPE, STD_ID_NO «PK» PK_STUDENT : STD_AUTONO «UK» UQ_PASSPORT : STD_PASSPORT_TYPE, STD_PASSPORT_NO

«table» Student									
1	1	1	1	1	1	1	1	1	1

FK_PERSONAL_THEMS_STUDENT	FK_PREV_SCHOOL_STUDENT	FK_FC_STUDENT	*
FK_AI_STUDENT			

«table» Student	
PERSONAL_THEMS	
PT_ACADIM_YEAR : VARCHAR2(9)	
PT_JUDJMENT : NUMBER(1, 0)	
PT_EXPLORING : NUMBER(1, 0)	
PT_TRUST : NUMBER(1, 0)	
PT_RESPONSE : NUMBER(1, 0)	
PT_RESPECT : NUMBER(1, 0)	
PT_GOHEAD : NUMBER(1, 0)	
PT_MUBADRA : NUMBER(1, 0)	
PT_LEADING : NUMBER(1, 0)	
PT_TREAT_OTHERS : NUMBER(1, 0)	
STD_AUTONO : NUMBER(5, 0)	
PT_CLASS : VARCHAR2(20)	
PT_GBODY : NUMBER(1, 0)	
PT_ACTIVE : NUMBER(1, 0)	
PT_HEALTH_CLEAN : NUMBER(1, 0)	
PT_THINK : NUMBER(1, 0)	
PT_CREATIVE : NUMBER(1, 0)	
PT_FOCUS : NUMBER(1, 0)	
PT_DECISION : NUMBER(1, 0)	
«PK» PK_PERSONAL_THEMS : PT_ACADIM_YEAR, STD_AUTONO «Check» CK_CREATIVE : PT_CREATIVE BETWEEN 1 AND 3 «Check» CK_FOCUS : PT_FOCUS BETWEEN 1 AND 3 «Check» CK_DECISION : PT_DECISION BETWEEN 1 AND 3 «Check» CK_MUBADRA : PT_MUBADRA BETWEEN 1 AND 3 «Check» CK_RESPONSE : PT_RESPONSE BETWEEN 1 AND 3 «Check» CK_GOHEAD : PT_GOHEAD BETWEEN 1 AND 3 «Check» CK_RESPECT : PT_RESPECT BETWEEN 1 AND 3 «Check» CK_EXPLORING : PT_EXPLORING BETWEEN 1 AND 3 «Check» CK_JUDJMENT : PT_JUDJMENT BETWEEN 1 AND 3 «Check» CK_THINK : PT_THINK BETWEEN 1 AND 3 «Check» CK_HEALTH_CLEAN : PT_HEALTH_CLEAN BETWEEN 1 AND 3 «Check» CK_LEADING : PT_LEADING BETWEEN 1 AND 3 «Check» CK_TRUST : PT_TRUST BETWEEN 1 AND 3 «Check» CK_TREAT_OTHERS : PT_TREAT_OTHERS BETWEEN 1 AND 3 «Check» CK_ACTIVE : PT_ACTIVE BETWEEN 1 AND 3 «Check» CK_GBODY : PT_GBODY BETWEEN 1 AND 3	

FK_PROBLEMS_PROCEEDURES	FK_PROBLEMS_ACTIVITYES	FK_PROBLEMS_HOUSEINFO_STUDENT	*
-------------------------	------------------------	-------------------------------	---

«table» Student	
PROBLEMS_PROCEEDURES	
PP_ACADIMCYEAR : VARCHAR2(9)	
PP_CLASS : VARCHAR2(20)	
PP_TYPE : VARCHAR2(20)	
PP_DESC : VARCHAR2(50)	
PP_SCHOOLPROCEDURE : VARCHAR2(100)	
PP_RESULT : VARCHAR2(50)	
STD_AUTONO : NUMBER(5, 0)	
«PK» PK_PROBLEMS : PP_ACADIMCYEAR, STD_AUTONO *	

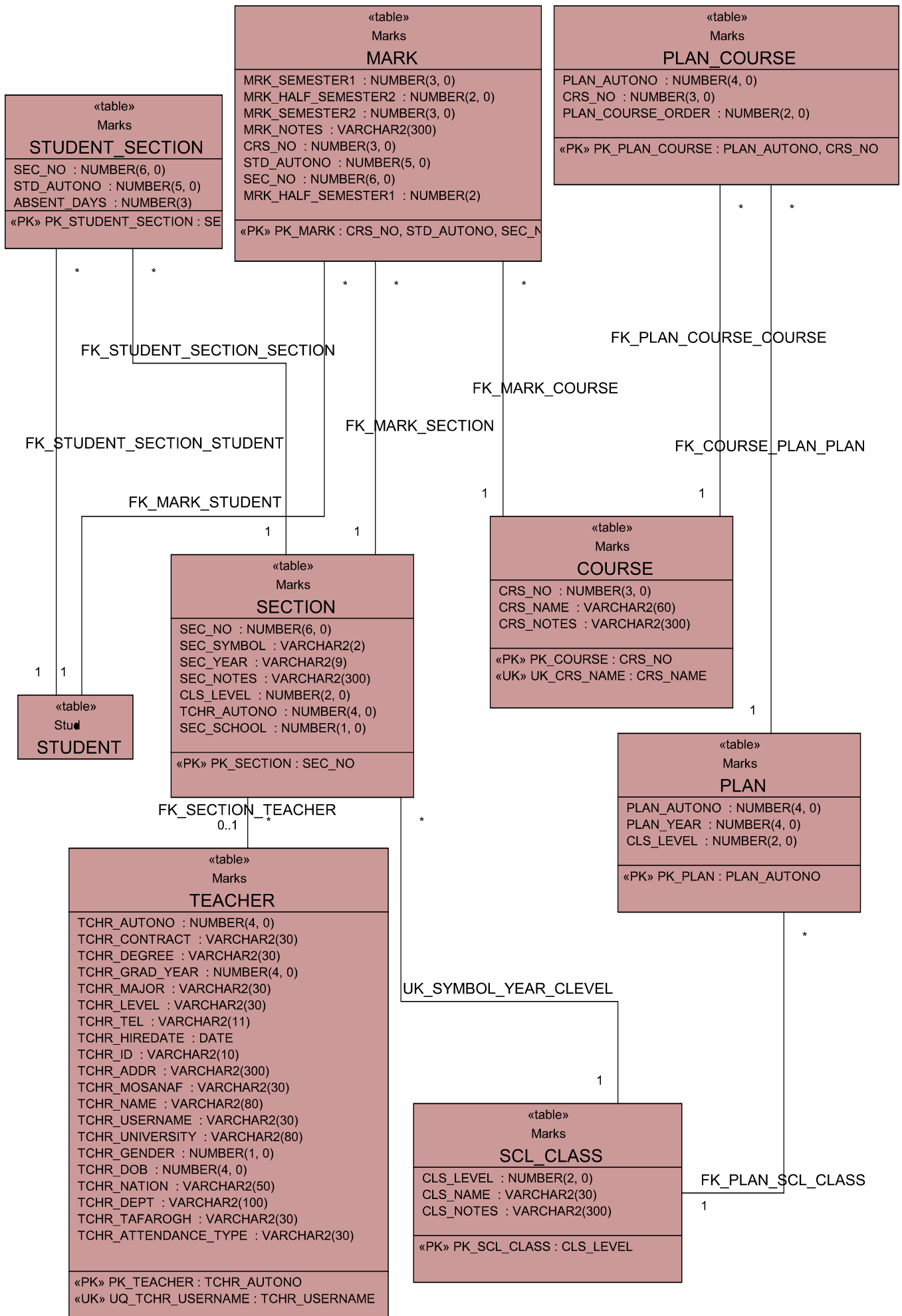
«table» Student	
PREVIOUS_SCHOOL	
PS_NATIONAL_NO : NUMBER(8, 0)	
PS_SCHOOL_NAME : VARCHAR2(80)	
PS_AUTHORITY : VARCHAR2(6)	
PS_DEPT : VARCHAR2(30)	
PS_DOA : DATE	
PS_DOS : DATE	
PS_CAUSE : VARCHAR2(100)	
PS_GARDEN_YEAR : NUMBER(1, 0)	
STD_AUTONO : NUMBER(5, 0)	
«PK» PK_PREV_SCHOOL : PS_NATIONAL_NO, STD_AUTONO «Check» CK_PS_GARDEN_YEAR : PS_GARDEN_YEAR BETWEEN 1 AND 3	

«table» Student	
ACTIVITIES_AND_INTERESTES	
AI_ACADIMYEAR : VARCHAR2(9)	
STD_AUTONO : NUMBER(5, 0)	
AI_CLASS : VARCHAR2(20)	
AI_CULTURE : NUMBER(1, 0)	
AI_COMMUNITY : NUMBER(1, 0)	
AI_SPORT : NUMBER(1, 0)	
AI_SCIENTIFICAL : NUMBER(1, 0)	
AI_ARTIST : NUMBER(1, 0)	
AI_HEALTH : NUMBER(1, 0)	
AI_COMMUNITYSERVICE : NUMBER(1, 0)	
«PK» PK_AI : AI_ACADIMYEAR, STD_AUTONO «Check» CK_AI_SCIENTIFICAL : AI_SCIENTIFICAL BETWEEN 1 AND 3 «Check» CK_AI_CULTURE : AI_CULTURE BETWEEN 1 AND 3 «Check» CK_AI_SPORT : AI_SPORT BETWEEN 1 AND 3 «Check» CK_AI_HEALTH : AI_HEALTH BETWEEN 1 AND 3 «Check» CK_AI_ARTIST : AI_ARTIST BETWEEN 1 AND 3 «Check» CK_AI_COMMUNITY : AI_COMMUNITY BETWEEN 1 AND 3	

«table» Student	
HOUSE_INFO	
H_ADDRESS : VARCHAR2(100)	
H_YEAR : VARCHAR2(9)	
H_STYLE : VARCHAR2(10)	
H_BUILDING_STYLE : NUMBER(1, 0)	
H_LIVewith : NVARCHAR2(10)	
H_DISTANCE_SCHOOL : NUMBER(2, 0)	
H_TRANSPORT_MEDIA : NUMBER(1, 0)	
H_NO_OF_ROOMS : NUMBER(1, 0)	
STD_AUTONO : NUMBER(5, 0)	
«PK» PK_HOUSE_INFO : H_ADDRESS, H_YEAR «Check» CK_HOUSE_STYLE : H_BUILDING_STYLE BETWEEN 1 AND 3	

«table» Student	
FAMILY_COORPORATION	
FK_MS_STUDENT : VARCHAR2(9)	
FC_CLASS : VARCHAR2(20)	
FC_FTHRS_COUNCIL : NUMBER(1, 0)	
FC_SCHOOL_ACT : NUMBER(1, 0)	
FC_ATTENDANCE : NUMBER(1, 0)	
FC_SUPPORT : NUMBER(1, 0)	
STD_AUTONO : NUMBER(5, 0)	
«PK» PK_FC : FC_ACAD_YEAR, STD_AUTONO «Check» CK_SCHOOL_ACT : FC_SCHOOL_ACT BETWEEN 1 AND 3 «Check» CK_ATTENDANCE : FC_ATTENDANCE BETWEEN 1 AND 3 «Check» CK_SUPPORT : FC_SUPPORT BETWEEN 1 AND 3 «Check» CK_FTHR_COUNCIL : FC_FTHRS_COUNCIL BETWEEN 1 AND 3	

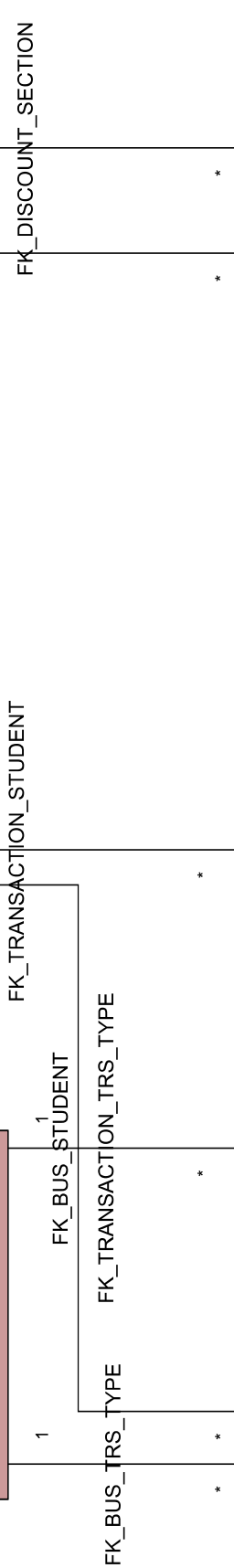
«table» Student	
MARITAL_STATUS	
MS_AY : VARCHAR2(9)	
MS_NO_OF_WORKER : NUMBER(2, 0)	
MS_ESBS_US : NUMBER(1, 0)	
MS_ESBS_UNLETTERED : NUMBER(1, 0)	
MS_ESBS_BASIC : NUMBER(1, 0)	
MS_ESBS_SECONDARY : NUMBER(1, 0)	
MS_ESBS_DIPLOMA : NUMBER(1, 0)	
MS_ESBS_UG : NUMBER(1, 0)	
MS_ESBS_HE : VARCHAR2(10)	
STD_AUTONO : NUMBER(5, 0)	
MS_CLASS : VARCHAR2(20)	
MS_FCOUNT : NUMBER(2, 0)	
MS_BCOUNT : NUMBER(2, 0)	
MS_SCOUNT : NUMBER(2, 0)	
MS_HISORDER : NUMBER(1, 0)	
MS_ES_FATHER : NUMBER(1, 0)	
MS_ES_MOTHER : NUMBER(1, 0)	
MS_WORK : NUMBER(1, 0)	
«PK» PK_MS : MS_AY, STD_AUTONO «Check» CK_HISORDER : MS_HISORDER BETWEEN 1 AND 3	



«table» Accounting	
TRS_TYPE	
TR_TYPE_AUTONO : NUMBER(3)	
TR_TYPE_DESC : VARCHAR2(100)	
TR_TYPE_VALUE : NUMBER(4)	
TR_TYPE_CURRENCY : VARCHAR2(50)	
«PK» PK_TR_TYPE : TR_TYPE_AUTONO	

«table» Student	
STUDENT	

«table» Marks	
SECTION	



«table» Accounting	
BUS	
STD_AUTONO : NUMBER(5, 0)	
TR_TYPE_AUTONO : NUMBER(3, 0)	
IS_ACTIVE : NUMBER(1)	
«PK» PK_BUS : STD_AUTONO, TR_TYPE_AUTONO	
«Check» CK_BUS_TRS_TYPE : tr_type_autono between 2 and	

«table» Accounting	
TRANSACTION	
STD_AUTONO : NUMBER(5, 0)	
TR_TYPE_AUTONO : NUMBER(3, 0)	
TR_VALUE : NUMBER(4)	
TR_DATE : DATE	
TR_NOTES : VARCHAR2(300)	
«PK» PK_TRANSACTION : STD_AUTONO, TR_TYPE_AUTONO, TR_DATE	

«table» Accounting	
DISCOUNT	
SEC_NO : NUMBER(6, 0)	
STD_AUTONO : NUMBER(5, 0)	
DISCOUNT_LEVEL : NUMBER(1, 0)	
DISCOUNT_PERCENT : NUMBER(5, 1)	
DISCOUNT_SHARED : NUMBER(1, 0)	
DISCOUNT_TRANSFERRED : NUMBER(1)	
«PK» PK_DISCOUNT : STD_AUTONO	

«table» Accounting	
VARIABLES	
VAR_NAME : VARCHAR2(200)	
VAR_VALUE : NVARCHAR2(200)	
VAR_SYSTEM : NUMBER(1)	
«PK» PK_VARIABLES : VAR_NAME	

3.5 Test plan

System testing is an important phase in the software development life cycle, since it is the way to ensure that the system design and implementation meets the required specifications, and to find out mistakes and problems.

For that, the project team put a test plan. This plan includes a description for each testing step starting from unit testing to the acceptance testing.

The figure below describe the testing steps

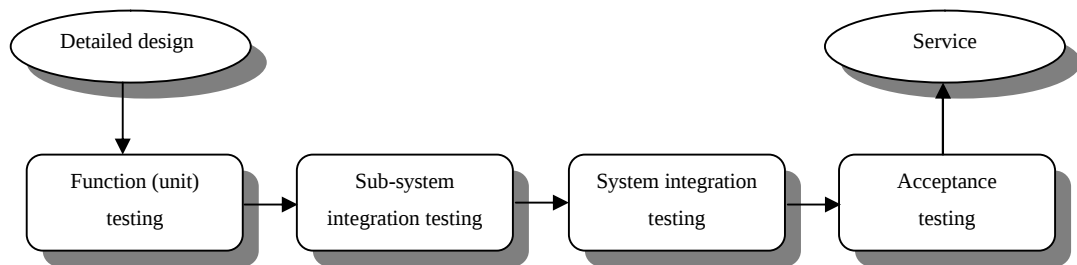


Figure 3. 38 Testing Steps Plan

Function (unit) testing

Function (unit) testing is the first step in the testing phase. Here, a testing for each function or unit in the system should take place to ensure that each function works correctly when it tested. Its behavior to the inputs, the out puts are the same as expected or not. According to its design

The white box testing is the technique that we will use to test each function.

Subsystem integration testing

After testing each function or unit that related to one subsystem and ensuring that each function or unit works correctly independently, a testing for the integration of these functions and units together will take place to ensure that each subsystem works correctly and the functions do not affect each other in wrong way.

The black box testing is the technique that we will use to test.

System integration

After finishing the testing of the subsystems, these subsystems should integrate together and work without any faults or errors. This means that accessing one subsystem shouldn't affect on the others subsystems. Also no data corruption should take place during this step of testing. To do that the integration testing should begin as soon as usable versions of some of the system components are available using the incremental approach to simplify the process.

The black box testing is the technique that we will use to test the whole integrated system.

Acceptance testing

Acceptance testing is last step in the testing phase before the deriving of the system to service. The system should meet all of its user requirements definitions, requirement by requirement. This mean that the whole system must operate as required from the user. This type of testing is finished by the user satisfaction (user OK).

The table below shows the testing schedule according to period given to the testing phase in the planning of this project. The testing was given 4 weeks according to the plan.

Estimated time Testing process	The 1 st week	The 2 nd week	The 3 rd week	The 4 th week
Function(unit) testing				
Subsystem testing				
System integration testing				
Acceptance testing				

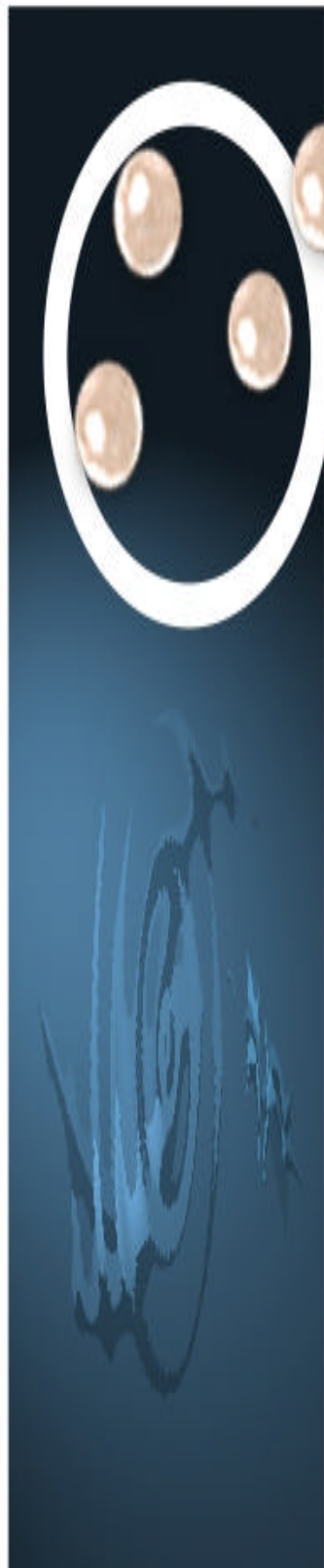
Table 3. 1 Test Plan Schdule

3.6 Program languages & coding

Since the project is a database application, and the database that will be used for the database that will be used for this project as shown in chapter one is oracle 9i. The SQL and PL/SQL will be the programming language for this application.

Why PL/SQL?

As we said before, the development tool for this project will be the oracle developer 10g. So the integration between the database and the development tool exists and high, and the integration of PL/SQL with the database and the developer is also exists and high too. For that, using PL/SQL will be the most appropriate programming language for this application. In addition for the previous reasons, another factor plays an important role in the decision of deciding what programming language we will use. This was the team experience in PL/SQL. In fact the team experience in PL/SQL is better than any programming language.



Chapter 4

System Implementation



4.1 Introduction

The data growth and volume is increased so fast nowadays, and the need for managing these data in a practical, trusted, and reliable way is increased too. As a result many Database Management systems are available now to manage the data and many development tools are also available for the development process. Also many tools are available now to allow the users to manage there information, database remotely.

In this chapter system implementation is presented, the steps that must be followed to implement the function that have been discussed before are presented.

4.2 Setting up the required software and hardware

a) Network setting:

This system operates on a network build on web based technology using HTTP protocol. This network needs HTTP server, browser, and cables (twisted pair RJ45).

b) Setting operating system:

The operating system required for the HTTP server is Microsoft XP, and on the browser side there is no need to specify the operating system since it can be operate under any environment.

c) Installing Java Runtime and internet explorer:

Since it is a web based application the browser side just need to have JRE (java runtime environment) to support the java applets and internet explorer 6 or later to brows the screens; these two software packages were installed on the browser side before installing the system.

4.3 Database implementation

4.3.1 *Installing oracle 9ⁱ database and developer 10g*

To build the database for the system, we need the oracle 9ⁱ which is a relational enterprise database management system; it was installed on the server side beside the installation of developer 10g, which is the development tool for the screens, forms, and reports of the system. Oracle 9ⁱ database is a powerful choice for building, and manage the database since it can run over multiple operating system such as Linux and Windows; which is an advantage over MS SQL server.

4.3.2 *Building the database*

Since our project is a database application, the need for relational normalized database is essential. For that we built the database tables required for the project, classifying them into separate schemas to separates each subsystem table from each other. The relations between tables in each schema were normalized as possible to ensure the correctness of the relations between different tables. Building the tables was through the oracle enterprise manager; which is a tool for managing the database that it is installed directly with database, and through JDeveloper which is installed directly with the developer10g using SQL DDL which stands for Structure query language – Data definition language

4.4 Input output implementation

4.4.1 *Input implementation*

The input interface, forms, and screen were built by using oracle developer 10g- Forms builder, these screen was made to accept and process data entries, executing query. These screens were developed to be as possible user-friendly.

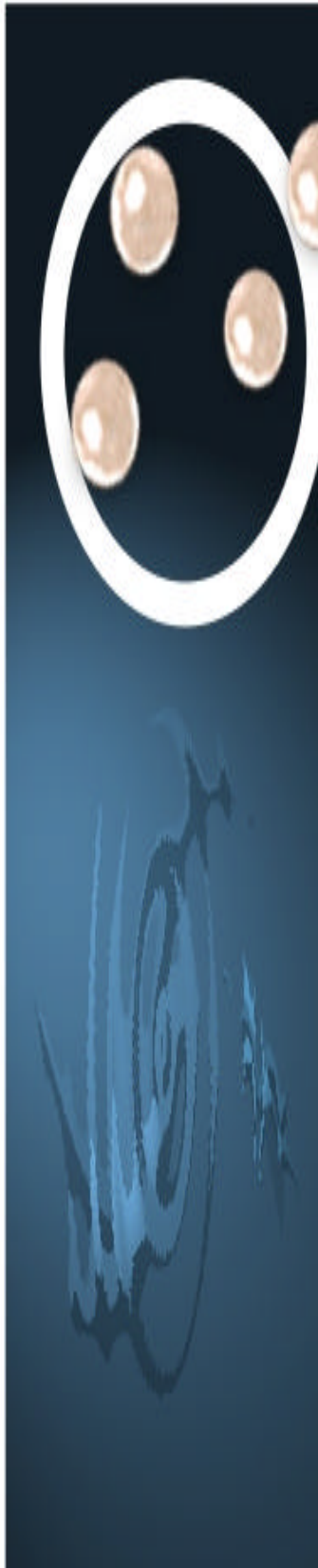
4.4.2 *Output implementation*

The output interfaces were developed to be displayed into three ways. Some of the output displayed on the forms after executing some queries, others are displayed by reports using the report builder that directly installed with developer 10g, and others are outputted as excel sheets or printed hard copy.

4.5 Module implementation

At this phase the implementation of each module was occurred separately, one by one as the following:

- ❖ **Implementation of student accumulative card:** this was the first module to implement since other modules are depending on it.
- ❖ **Implementation of mark module:** we can not implement this module before student accumulative card since it is depending on data that inputs through student accumulative module.
- ❖ **Implementation of accounting module:** the implementation of accounting module is considered as critical one since its deal with tuition, bus subscription and other related issue; so the implementation of this module was not occurred until we took whole the specification that related to this module in our consideration to ensure its correctness of work.



Chapter 5

System Testing



5.1 Introduction

In this chapter the application will be tested according to the testing plan that the project team put in order to accomplish all the required steps in testing phase. The importance of this phase returns to the importance to ensure that the design and implemented system meets the required specifications.

5.2 Testing processes

5.2.1 *Function (Unit) testing*

At this stage, the individual components are tested to ensure that they operate correctly. Each component should be tested independently. Each unit or task is tested by following the steps, tab, and forms. It was found that all units operate properly.

5.2.2 *Subsystem testing*

Here, the testing performed over a collection of unit (function) which has been integrated into subsystems.

The following subsystems are tested:

- Student subsystem
- Mark subsystem
- Accounting subsystem

And the results were as expected taken into account all probabilities.

5.2.3 *System testing*

Subsystems are integrated to constitute the whole system, real data are filled through the system, and results are enquired through both application and web part of the system. Inaccurate values are input to check up the system behavior.

System testing is also accomplished through transferring the system on different platform, database replication is tested by preparing a network of two machines with windows server 2000 installed at them. Changes done to one of the replicated database are immediately reflected into the other

5.2.4 Acceptance testing

Acceptance testing is used to ensure that the system design is consistency with the system requirement, this test is passed successfully. All requirements analyzed before system implementation are satisfied and checked correctly with a corporation with the school administration (system user).

5.3 Snapshots

5.3.1 Add new student

This form allow user to add new student.

As an example we added a student with the name "????? ? ????S "

Oracle Developer Forms Runtime - Web

الطلاب السجل إستعلام المعلومات والشهادات الموظفين المحاسبة التقارير نافذة

بطاقة الطالب التراكيمية

بيانات الطالب (أ) بيانات والد الطالب (ب) بيانات والدة الطالب (الام) بيانات عن ولي امر الطالب (من غير والديه)

بيانات الطالب

صورة الطالب

الرقم التسجيلي ١٩٩٩/٠١/١٩ سنة دخول ٢٠٠٤ الجنس ذكر

الاسم الاول حمدي الاسم الاب يوسف اسم الجد مجدي المكنية تكتوري

نوع الوثيقة: ضيقة عربية رقم الهوية: ٤٥٤٥٤٥٤٥ نوع جواز السفر: فلسطيني رقم جواز السفر: ٦٥٦٥٦٥٥

تاريخ الولادة: ١٩٩٩/٠١/١٩ مكان الولادة: العليل الجنس عند الولادة: فلسطينية الاديان: مسلمة

ملاحظات:

FORM-40400 تمت الحركة: ١ سجل تم تغييرها وحفظها

<OSC> ...

Figure 5. 1 Adding Student Snapshot

After adding the new student, the tables in the student schema in the database are scanned to see if the student had been added or not as the following



STD_...	STD_NO	STD_...	STD_NAME	STD_...	STD_NAME	STD_NAME4
130	10024	2001	جنى	بسام	ديب	بدر
172	20031	2000	جهاد	يوسف	مصطفى	دبابسة
362			حافظ	عبدالعزى	حافظ	عبدالله
363			نيسد	ابراهيم	حسن	العملة
61	2068	2002	حسن	باسر	احمد	ساهيم
1358	10101	2004	حمدي	يوسف	مجدي	نكروى
108	10006	2001	حمدي	محمد	علي	النكروى
62	2005	2002	حمزة	نافذ	ربحي	نبروخ

Figure 5. 2 Student Table

5.3.2 Deleting student or record

The user can delete the student after determine him/her and then click delete record in the menu

As an example we deleted a student with the name "? ?????? ?? ? ???? ?S "

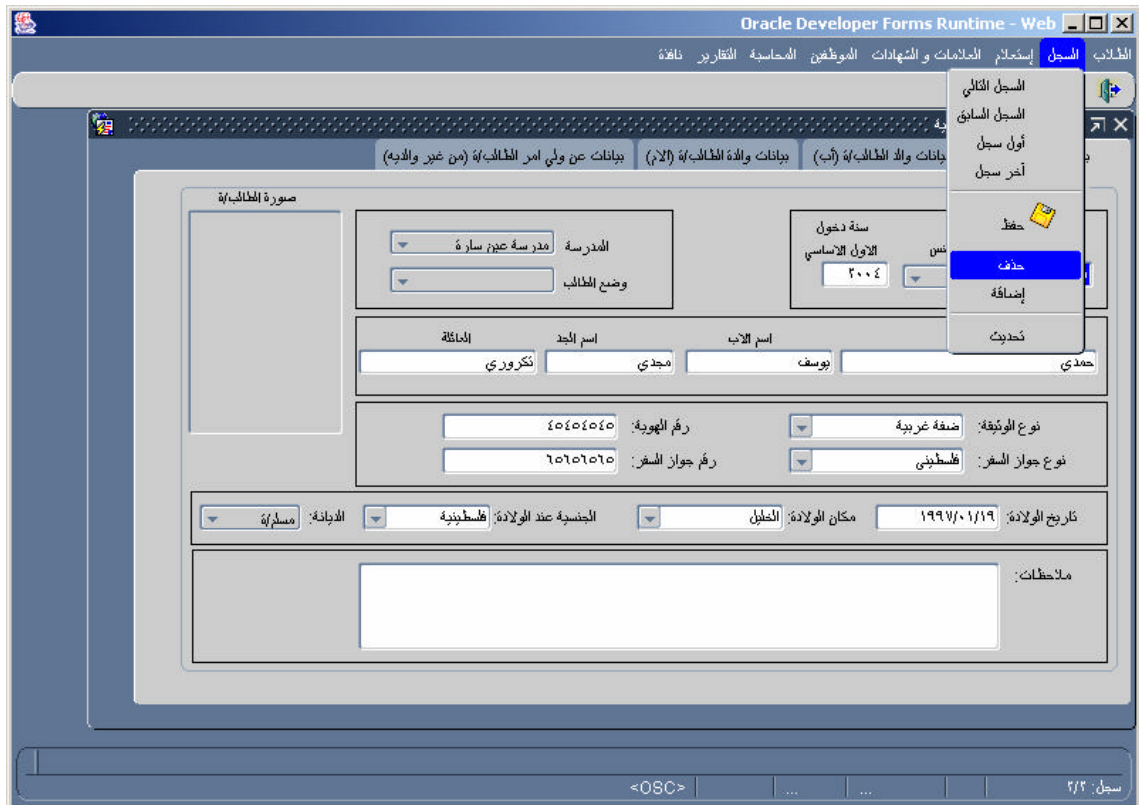


Figure 5. 3 Deleting Student Snapshot

After deleting the determined student, the tables in the student schema in the database are scanned to see if the student is deleted or not as the following



STD_ID	ST_ID	STD_ADMIT_ID	STD_NAME1	STD_NAME2	STD_NAME3	STD_NAME4
130	10024	2001	جنى	بسام	ديب	بدر
172	20031	2000	جهاد	يوسف	مصطفى	دبابسة
362			حافظ	عبدالحى	حافظ	عبدالحى
363			نيسد	ابراهيم	حسن	الحملة
61	2068	2002	حسن	باسر	احمد	ساهرين
108	10006	2001	حمدي	محمد	علي	الذكوري
62	2005	2002	حمزة	نافذ	ربحي	نبروخ

Figure 5. 4 Student Table After deleting

As we see in this snapshot, the student that we asked to delete is deleted from the database table.

5.3.3 Transferring students marks table to excel and storing it

The user can store the students mark table into standard ministry excel sheet by clicking on the button that that task as the following

The screenshot shows the 'Oracle Developer Forms Runtime - Web' window. The main form is titled 'الطلاب السجل إستماني العلامات والشهادات الموظفين المحاسبة التقارير نافذة'. The form has several sections:

- الشعبة الصفية:**
 - الدرجة: مدرسة عين سارة
 - السنة الدراسية: ٢٠٠٤/٢٠٠٣
 - رمز الشعبة: ١
 - رقم الشعبة: ٣٨١
- مربي الصف:**
 - الصف: الأول الأساسي
 - مربي الصف: ٦
 - إقتضار محمود محمد الجندي
- Buttons:**
 - طباعة جدول العلامات
 - طباعة شهادات الشعبة
 - تخزين جدول العلامات في ملف إكسل
- العلامات الشعبة:**
 - المبحث: التربية البدنية
 - الاسماء الطلاب:
- Table of Marks:**

الاسماء الطلاب	العلامة الشهرين ف١	العلامة الشهرين ف٢	العلامة الشهرين ف٣	العلامة الشهرين ف٤
احمد بشار نبيل الجندي	٩٩			١٠٠
احمد بسري نظمي صلاح	٩٢			٩٧
امجد ناظر رضوان ابوسنينة	٩٤			٨٧
ابيهاب سفيان جميل دوقتن	٩٥			٩٨
باسل محمد هاشم الهيموني	٨٨			٨٤
تامر توفيق حمدان السعده	٩٣			٨٥
تركيل احمد هاشم الهيموني	٨٨			٩٠
دوانا يوسف مصطفى دبابسة	٩٧			٩٨

Figure 5. 5 Transferring Student Mark Snapshot

After finishing the process of storing the marks on excel sheet a message will be appears as the following



Figure 5. 6 Verifying Transferring Student Mark Snapshot

[illegible]

Figure 5.7 standard ministry sheet testing result

5.3.4 Transferring student's marks to the certificate in excel and storing it

The user can store the student's marks to the certification in excel sheet and store it by clicking on the button that that task as example we store the certificate for the student name "???d??? ??S ? ??????"

The screenshot shows the 'Students' form in the Oracle Developer Forms Runtime - Web. The form is titled 'الطلاب السجل' and includes fields for student details. The 'Store Certificate in Excel' button is highlighted in yellow.

الاسم	الدرجة	الصف	المرجع	الصفحة	الصفحة	الصفحة	الصفحة	الصفحة	الصفحة
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩
احمد بشار نبيل الجندي	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩	٩٩

Figure 5. 8 Storing Certificate in Excel

After finishing the process of storing the marks on excel sheet a message will be appears as the following



Figure 5. 9 Verifying Storing Certificate process

Below the standard certificate school for the students mark that are created by the system

U.S.U Model High School		مدرسة رابطة الجامعيين التفويية النموذجية																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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</tr> <tr> <td>٩٧</td> <td>١١١</td> <td>١١١</td> <td>١٩٤</td> <td>١١١</td> <td>١٩٥</td> <td>١١١</td> </tr> <tr> <td>٩٨</td> <td>١١١</td> <td>١١١</td> <td>١٩٦</td> <td>١١١</td> <td>١٩٧</td> <td>١١١</td> </tr> <tr> <td>٩٩</td> <td>١١١</td> <td>١١١</td> <td>١٩٨</td> <td>١١١</td> <td>١٩٩</td> <td>١١١</td> </tr> <tr> <td>١٠٠</td> <td>١١١</td> <td>١١١</td> <td>٢٠٠</td> <td>١١١</td> <td>٢٠١</td> <td>١١١</td> </tr> </table>				الدرجة	النتيجة		الدرجة	النتيجة	الدرجة	النتيجة	الدرجة	النتيجة	الدرجة	النتيجة	الدرجة	النتيجة	١	١١١	١١١	٢	١١١	٣	١١١	٢	١١١	١١١	٤	١١١	٥	١١١	٣	١١١	١١١	٦	١١١	٧	١١١	٤	١١١	١١١	٨	١١١	٩	١١١	٥	١١١	١١١	١٠	١١١	١١	١١١	٦	١١١	١١١	١٢	١١١	١٣	١١١	٧	١١١	١١١	١٤	١١١	١٥	١١١	٨	١١١	١١١	١٦	١١١	١٧	١١١	٩	١١١	١١١	١٨	١١١	١٩	١١١	١٠	١١١	١١١	٢٠	١١١	٢١	١١١	١١	١١١	١١١	٢٢	١١١	٢٣	١١١	١٢	١١١	١١١	٢٤	١١١	٢٥	١١١	١٣	١١١	١١١	٢٦	١١١	٢٧	١١١	١٤	١١١	١١١	٢٨	١١١	٢٩	١١١	١٥	١١١	١١١	٣٠	١١١	٣١	١١١	١٦	١١١	١١١	٣٢	١١١	٣٣	١١١	١٧	١١١	١١١	٣٤	١١١	٣٥	١١١	١٨	١١١	١١١	٣٦	١١١	٣٧	١١١	١٩	١١١	١١١	٣٨	١١١	٣٩	١١١	٢٠	١١١	١١١	٤٠	١١١	٤١	١١١	٢١	١١١	١١١	٤٢	١١١	٤٣	١١١	٢٢	١١١	١١١	٤٤	١١١	٤٥	١١١	٢٣	١١١	١١١	٤٦	١١١	٤٧	١١١	٢٤	١١١	١١١	٤٨	١١١	٤٩	١١١	٢٥	١١١	١١١	٥٠	١١١	٥١	١١١	٢٦	١١١	١١١	٥٢	١١١	٥٣	١١١	٢٧	١١١	١١١	٥٤	١١١	٥٥	١١١	٢٨	١١١	١١١	٥٦	١١١	٥٧	١١١	٢٩	١١١	١١١	٥٨	١١١	٥٩	١١١	٣٠	١١١	١١١	٦٠	١١١	٦١	١١١	٣١	١١١	١١١	٦٢	١١١	٦٣	١١١	٣٢	١١١	١١١	٦٤	١١١	٦٥	١١١	٣٣	١١١	١١١	٦٦	١١١	٦٧	١١١	٣٤	١١١	١١١	٦٨	١١١	٦٩	١١١	٣٥	١١١	١١١	٧٠	١١١	٧١	١١١	٣٦	١١١	١١١	٧٢	١١١	٧٣	١١١	٣٧	١١١	١١١	٧٤	١١١	٧٥	١١١	٣٨	١١١	١١١	٧٦	١١١	٧٧	١١١	٣٩	١١١	١١١	٧٨	١١١	٧٩	١١١	٤٠	١١١	١١١	٨٠	١١١	٨١	١١١	٤١	١١١	١١١	٨٢	١١١	٨٣	١١١	٤٢	١١١	١١١	٨٤	١١١	٨٥	١١١	٤٣	١١١	١١١	٨٦	١١١	٨٧	١١١	٤٤	١١١	١١١	٨٨	١١١	٨٩	١١١	٤٥	١١١	١١١	٩٠	١١١	٩١	١١١	٤٦	١١١	١١١	٩٢	١١١	٩٣	١١١	٤٧	١١١	١١١	٩٤	١١١	٩٥	١١١	٤٨	١١١	١١١	٩٦	١١١	٩٧	١١١	٤٩	١١١	١١١	٩٨	١١١	٩٩	١١١	٥٠	١١١	١١١	١٠٠	١١١	١٠١	١١١	٥١	١١١	١١١	١٠٢	١١١	١٠٣	١١١	٥٢	١١١	١١١	١٠٤	١١١	١٠٥	١١١	٥٣	١١١	١١١	١٠٦	١١١	١٠٧	١١١	٥٤	١١١	١١١	١٠٨	١١١	١٠٩	١١١	٥٥	١١١	١١١	١١٠	١١١	١١١	١١١	٥٦	١١١	١١١	١١٢	١١١	١١٣	١١١	٥٧	١١١	١١١	١١٤	١١١	١١٥	١١١	٥٨	١١١	١١١	١١٦	١١١	١١٧	١١١	٥٩	١١١	١١١	١١٨	١١١	١١٩	١١١	٦٠	١١١	١١١	١٢٠	١١١	١٢١	١١١	٦١	١١١	١١١	١٢٢	١١١	١٢٣	١١١	٦٢	١١١	١١١	١٢٤	١١١	١٢٥	١١١	٦٣	١١١	١١١	١٢٦	١١١	١٢٧	١١١	٦٤	١١١	١١١	١٢٨	١١١	١٢٩	١١١	٦٥	١١١	١١١	١٣٠	١١١	١٣١	١١١	٦٦	١١١	١١١	١٣٢	١١١	١٣٣	١١١	٦٧	١١١	١١١	١٣٤	١١١	١٣٥	١١١	٦٨	١١١	١١١	١٣٦	١١١	١٣٧	١١١	٦٩	١١١	١١١	١٣٨	١١١	١٣٩	١١١	٧٠	١١١	١١١	١٤٠	١١١	١٤١	١١١	٧١	١١١	١١١	١٤٢	١١١	١٤٣	١١١	٧٢	١١١	١١١	١٤٤	١١١	١٤٥	١١١	٧٣	١١١	١١١	١٤٦	١١١	١٤٧	١١١	٧٤	١١١	١١١	١٤٨	١١١	١٤٩	١١١	٧٥	١١١	١١١	١٥٠	١١١	١٥١	١١١	٧٦	١١١	١١١	١٥٢	١١١	١٥٣	١١١	٧٧	١١١	١١١	١٥٤	١١١	١٥٥	١١١	٧٨	١١١	١١١	١٥٦	١١١	١٥٧	١١١	٧٩	١١١	١١١	١٥٨	١١١	١٥٩	١١١	٨٠	١١١	١١١	١٦٠	١١١	١٦١	١١١	٨١	١١١	١١١	١٦٢	١١١	١٦٣	١١١	٨٢	١١١	١١١	١٦٤	١١١	١٦٥	١١١	٨٣	١١١	١١١	١٦٦	١١١	١٦٧	١١١	٨٤	١١١	١١١	١٦٨	١١١	١٦٩	١١١	٨٥	١١١	١١١	١٧٠	١١١	١٧١	١١١	٨٦	١١١	١١١	١٧٢	١١١	١٧٣	١١١	٨٧	١١١	١١١	١٧٤	١١١	١٧٥	١١١	٨٨	١١١	١١١	١٧٦	١١١	١٧٧	١١١	٨٩	١١١	١١١	١٧٨	١١١	١٧٩	١١١	٩٠	١١١	١١١	١٨٠	١١١	١٨١	١١١	٩١	١١١	١١١	١٨٢	١١١	١٨٣	١١١	٩٢	١١١	١١١	١٨٤	١١١	١٨٥	١١١	٩٣	١١١	١١١	١٨٦	١١١	١٨٧	١١١	٩٤	١١١	١١١	١٨٨	١١١	١٨٩	١١١	٩٥	١١١	١١١	١٩٠	١١١	١٩١	١١١	٩٦	١١١	١١١	١٩٢	١١١	١٩٣	١١١	٩٧	١١١	١١١	١٩٤	١١١	١٩٥	١١١	٩٨	١١١	١١١	١٩٦	١١١	١٩٧	١١١	٩٩	١١١	١١١	١٩٨	١١١	١٩٩	١١١	١٠٠	١١١	١١١	٢٠٠	١١١	٢٠١	١١١
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Figure 5. 10 standard school certificate

5.3.5 Black box testing for brothers discount for the academic tuition

Since the accounting process consider as a critical one, the team project saw that it is good to test it using the black box methodology. The project team suggested some cases that need a special treatment and processing from the system as show in the table below

Inputs	Expected value	Actual value	Notes
Not superior and has not brother	JD 400	JD 400	Match
Not superior and has one brother	JD 340	JD 340	Match
Not superior and has two brother	JD 320	JD 320	Match
Not superior and has three brother	JD 300	JD 300	Match
Superior (the first) and has one brother	JD 170	JD 170	Match
Superior (the first) and has two brother	JD 160	JD 160	Match
Superior (the first) and has three brother	JD 150	JD 150	Match
Superior (the second) and has one brother	JD 255	JD 255	Match
Superior (the second) and has two brother	JD 240	JD 240	Match
Superior (the second) and has three brother	JD 225	JD 225	Match
Superior (the third) and has one brother	JD 255	JD 255	Match
Superior (the third) and has two brother	JD 240	JD 240	Match
Superior (the third) and has three brother	JD 225	JD 225	Match
Superior (the first) and has not brother	JD 200	JD 200	Match
Superior (the second) and has not brother	JD 300	JD 300	Match
Superior (the third) and has not brother	JD 300	JD 300	Match

Table 5. 1 Black box Testing

This is a snapshot that shows the result of discounts for a person who has more than one student at the school

The screenshot shows the Oracle Developer Forms Runtime - Web interface. The title bar includes the text "Oracle Developer Forms Runtime - Web". The menu bar contains the following items: البرنامج, السجل, إستعلام, الطلاب, العلامات و الشهادات, الموظفين, المحاسبة, التقارير, and نافذة. The main form is titled "حسابات الاخوة" (Siblings Accounts). It contains the following fields:

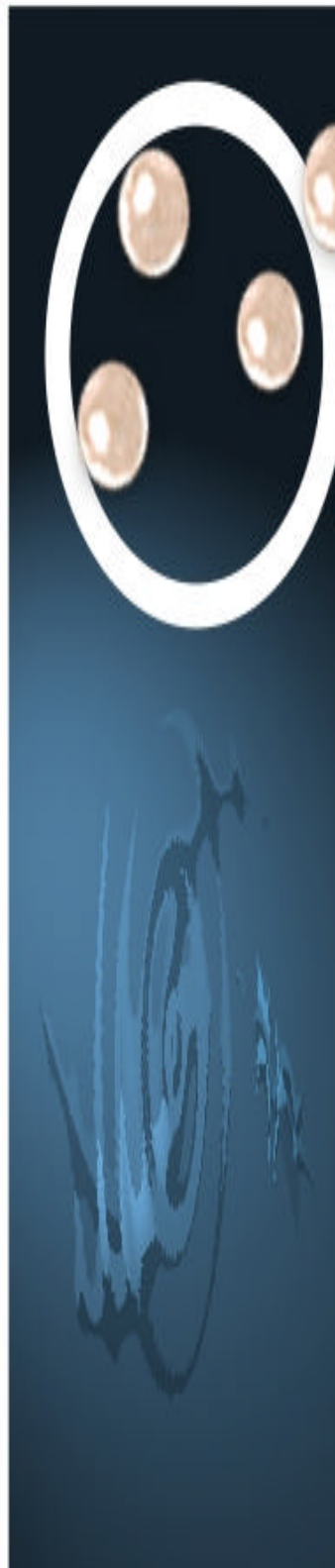
- الاسماء (Names):
- رقم هوية الاب: (Father's ID Number): ٤١٠٤٤٨١٨٧
- اسم الاب: (Father's Name): توفيق محمد اسماعيل

Below these fields is a table titled "حسابات الطلاب" (Students Accounts) with the following columns:

الرقم التسلسلي	اسم الطالب	المجموع لادخار	المجموع استحقاق
٢٢٠	يخترينا توفيق محمد اسماعيل	٣٤٠	
٣٤٨	محمد توفيق محمد اسماعيل	٤٠٠	

The status bar at the bottom shows "<OSC>" and "سجل: ٢/١١".

Figure 5. 11 Discount Result



Chapter 6

System Maintenance



6.1 Introduction

It is impossible to produce systems of any size which do not need to be changed. Once system is put into use, new requirements appear and existing requirements may be changed. Parts of the software may have to be modified to correct errors that are found during the running of the software.

Since software change is very important organizations are now completely dependent on their software systems. System maintenance is a general process of changing a system after it has been delivered in order to correct specification errors or to go with new requirements.

6.2 Maintenance plan

There are three different type of software maintenance:

- 1) *Maintenance to repair software faults*: coding errors are usually relatively cheap to correct.
- 2) *Maintenance to adapt the software to a different operating environment*: this type of maintenance is required when some aspect of the system environment such as hardware, software tool support change. The application system must be modified to adapt it to cope with these environment changes
- 3) *Maintenance to add or modify the system functionality*: this type of maintenance is necessary when the system requirements change in response to organizational or business change.

The project team decided to deal with the first type and third type of maintenance which is the maintenance to repair software faults. This is related to several reasons. The main reason was that these types of maintenance are the only types that can be implemented by the project team.

To implement the first type of maintenance, the project team makes an agreement with the school to correct the faults in the software that may appear through the accessing of the system.

The agreement says that the correctness in code will be implemented at the school site by sending one of the project team members or more to the site and correcting the errors. Or make the correctness at the developers' site if the errors were huge and need a time to correct.

The communication method between the school and the project team is agreed to be by the phone or mobile.

To implement the other type of maintenance that the project team agreed with the school, which is Maintenance to add or modify the system functionality. Some of this maintenance may be occurred at the school site and others that need a time will occur at the developers' site.

The communication method between the school and the project team is also agreed to be by the phone or mobile.

Also the project team was agreed with the school to visit the site once a week to insure that all the operation in the system are working correctly and helping the users there to go a head with the new system.

References

Books

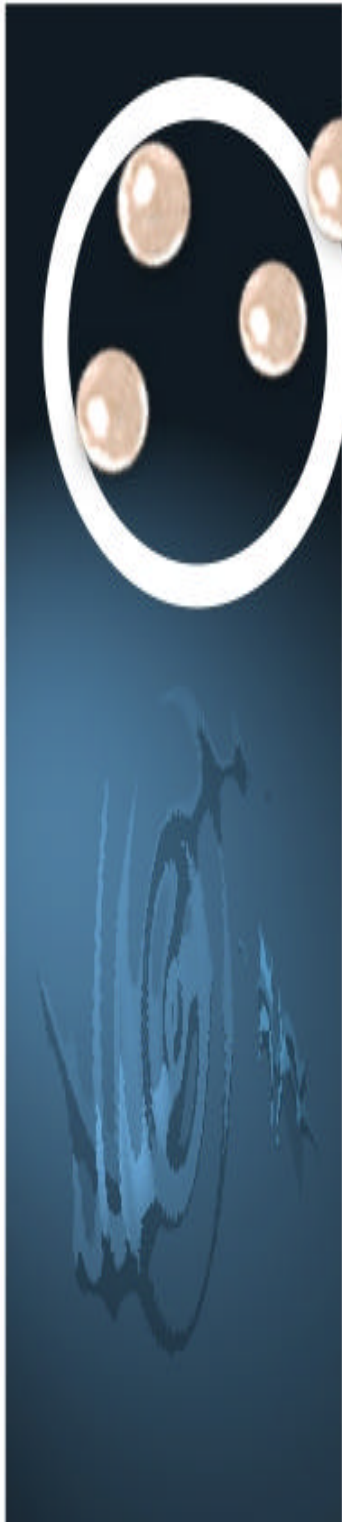
- ❖ Software Engineering, Ian Sommerville, 6th ed., Addison Wessley.
- ❖ OCP Introduction to Oracle 9i SQL, Chip Dawes, Bijui Thomas, 1st ed., Sybex.
- ❖ OCP Oracle 9i DBA Fundamental I, Chip Dawes, Bijui Thomas, 1st ed., Sybex.
- ❖ OCP Oracle 9i DBA Fundamental II, Chip Dawes, Bijui Thomas, 1st ed., Sybex.
- ❖ OCP Building Internet Application I & II, Crestopher Allen, 1st ed., McGraw-Hill.

Web sites

- ❖ www.oracle.com
- ❖ www.araboracle.com
- ❖ www.experts-exchange.com
- ❖ www.members.aol.com
- ❖ www.amazon.com

Technical Papers

- ❖ Oracle Forms Services-using run_report_object() to call reports with a parameter form, An Oracle Technical paper February 2004.
- ❖ Oracle Forms Services-secure web.show_document() calls to oracle reports, An Oracle Technical paper February 2004.



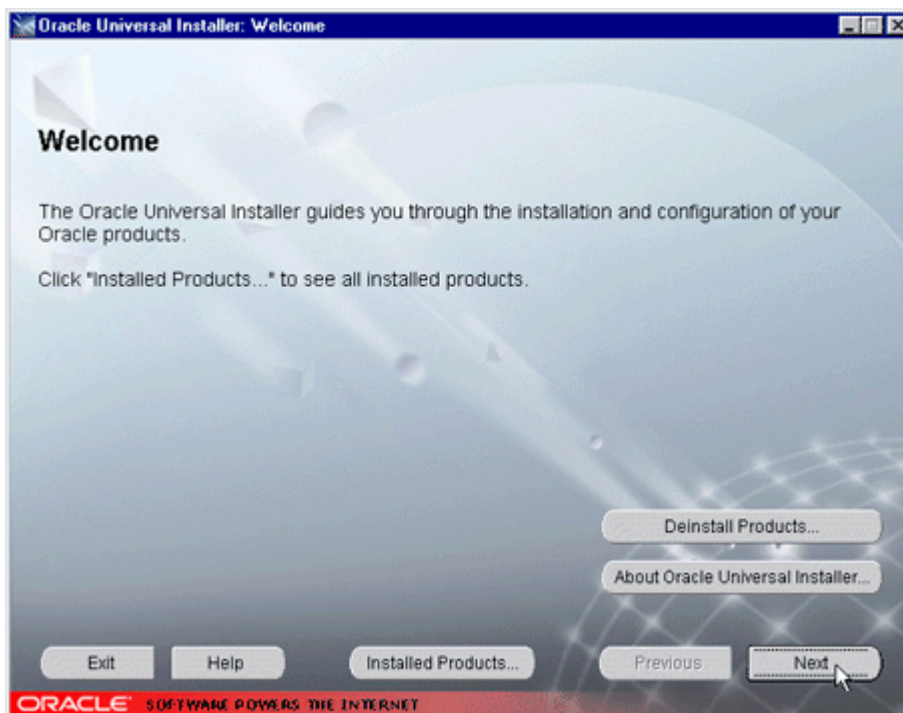
Appendix



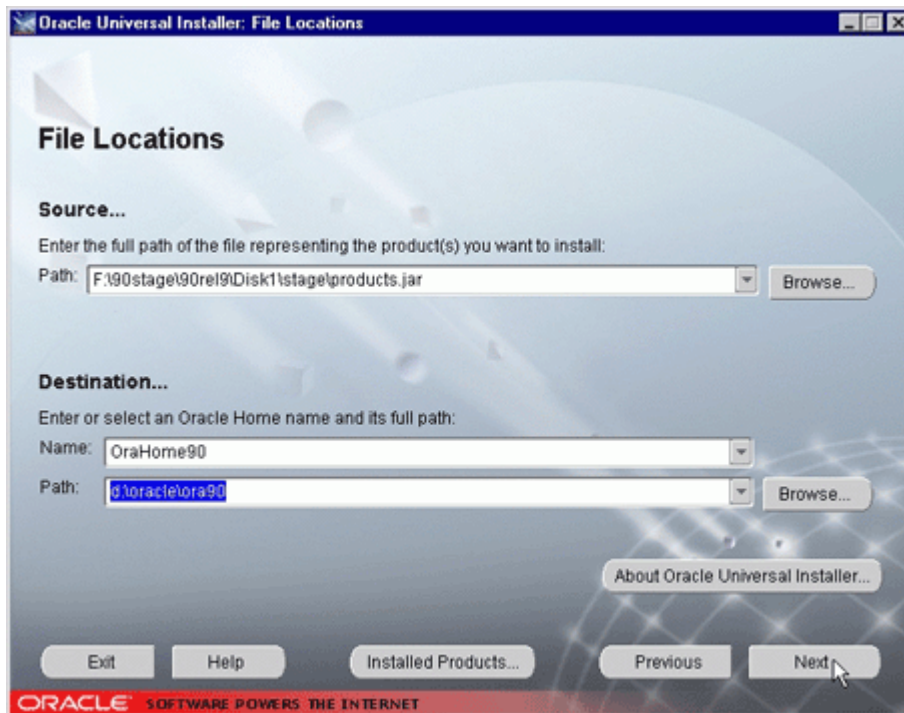
Installing oracle9i database:

Perform the following to install the Oracle9i Database:

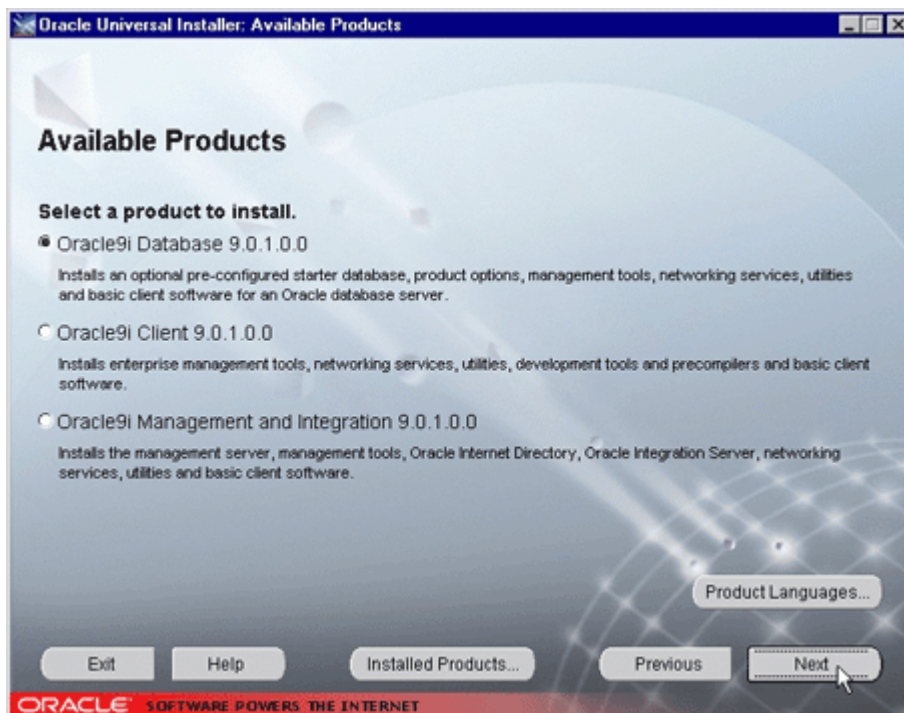
- 1) The Oracle Universal Installer requires 400MB of temp space on your C: drive to run successfully. If you do not have at least 400 MB on the C: drive, then update the TEMP user variable to a location with the required amount of space. In addition, make sure that the computer has sufficient system memory (the combination of RAM and virtual). If the paging file size is too small, messages appear indicating that the computer is running low on virtual memory. Check your paging file sizes to make sure that the initial size is 200 MB and the maximum size is 400 MB.
- 2) Insert your Oracle9i Enterprise Edition CD-ROM into the CD-ROM drive. In the Autorun window that appears, choose **Install/Deinstall Products**. If you do not have your laptop set up for Autorun capability, run **autorun.exe** directly from the **AUTORUN** directory on your Oracle9i Enterprise Edition CD-ROM. You will install Oracle9i in its own home directory. Choose **Next** to accept the default Oracle home name and location.
- 3) In the Welcome window, choose **Next**.



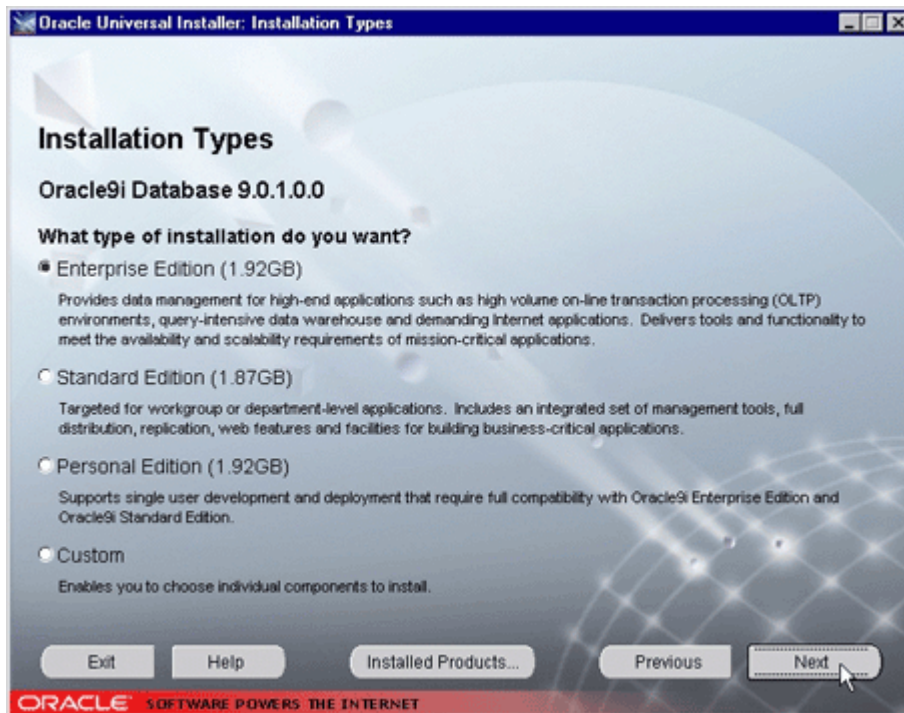
4) Install Oracle9i in its own home directory. Make sure the Name says **OraHome90** and the path is **d:\oracle\ora90** and choose **Next**.



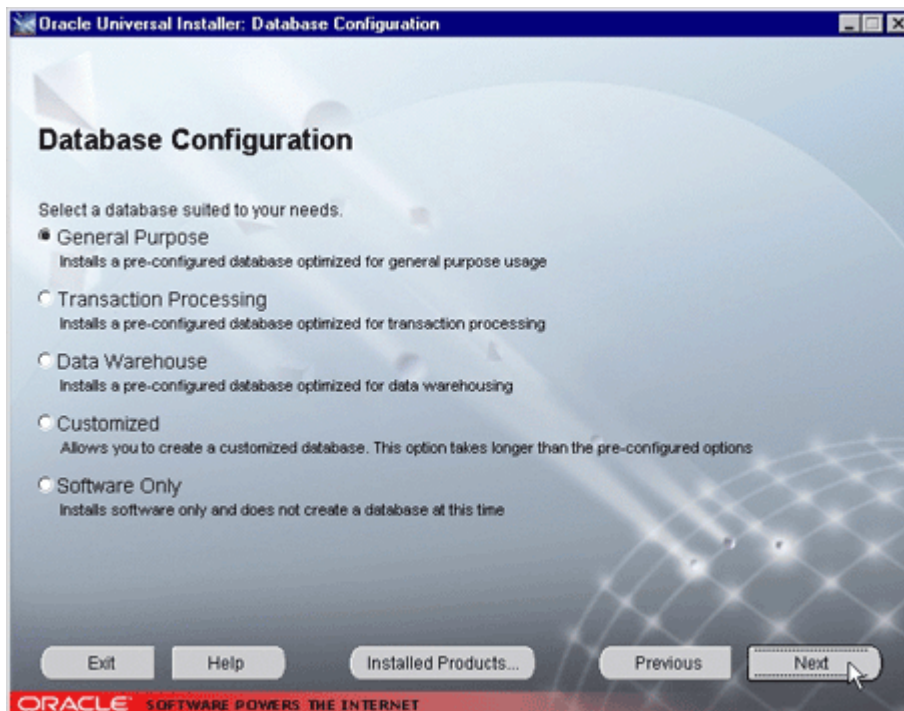
5) Choose **Oracle9i Database 9.0.1.0.0**. Choose **Next** to accept the default.



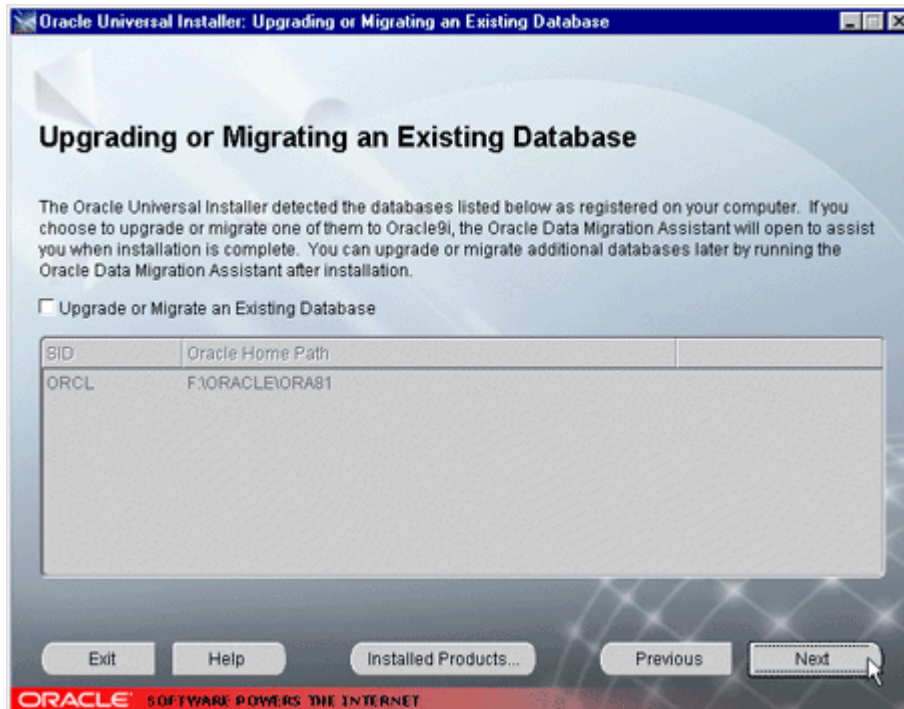
6) Choose **Enterprise Edition** and then choose **Next**.



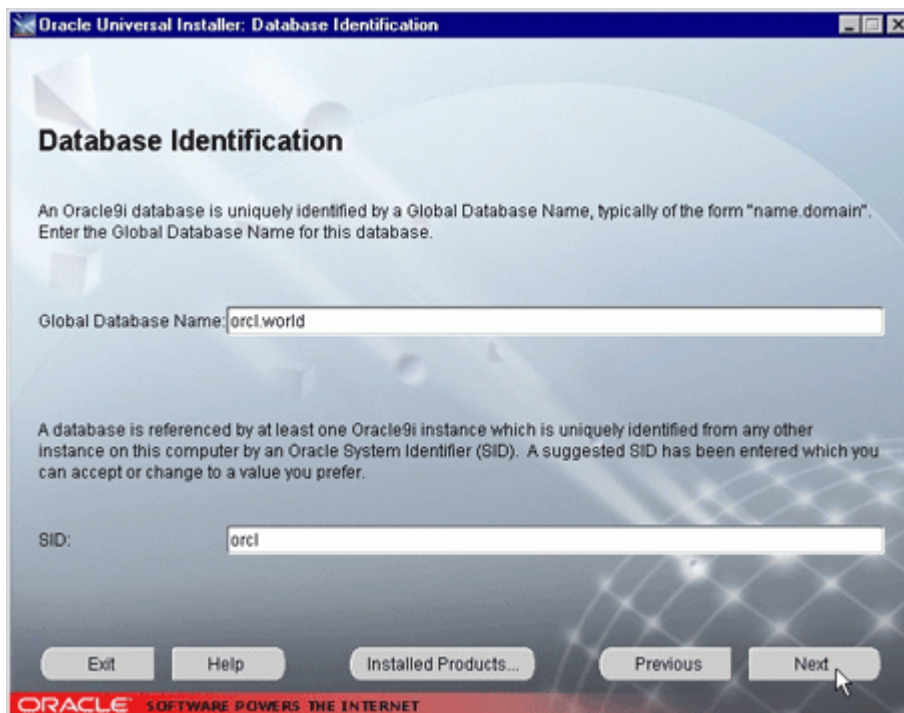
7) Accept the default database configuration **General Purpose** and choose **Next**.



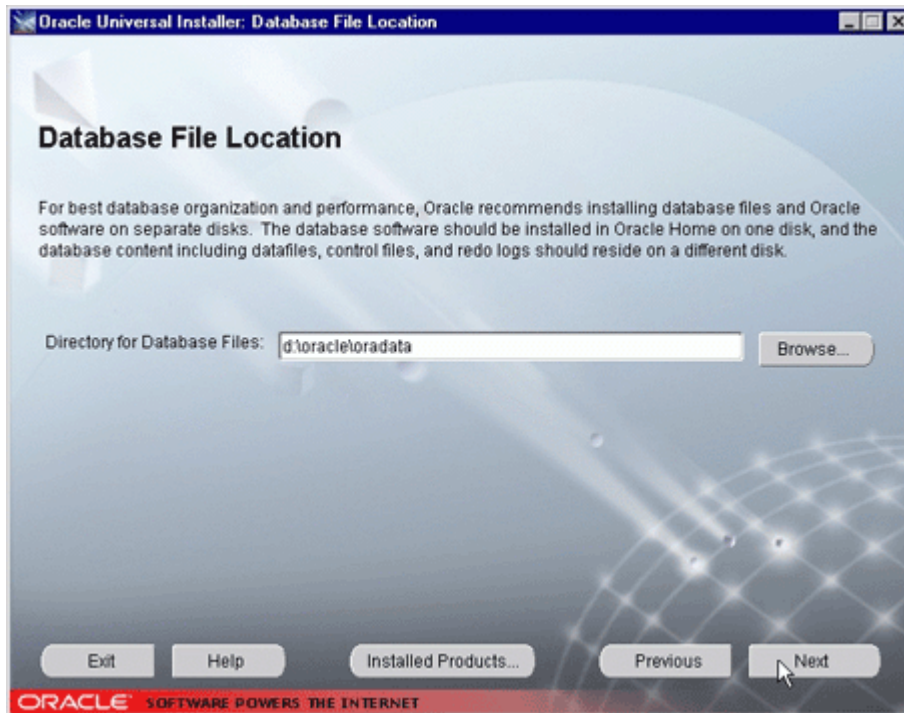
8) If a database already exists you will be prompted to upgrade or migrate the database. Click **Next**, do not upgrade or migrate.



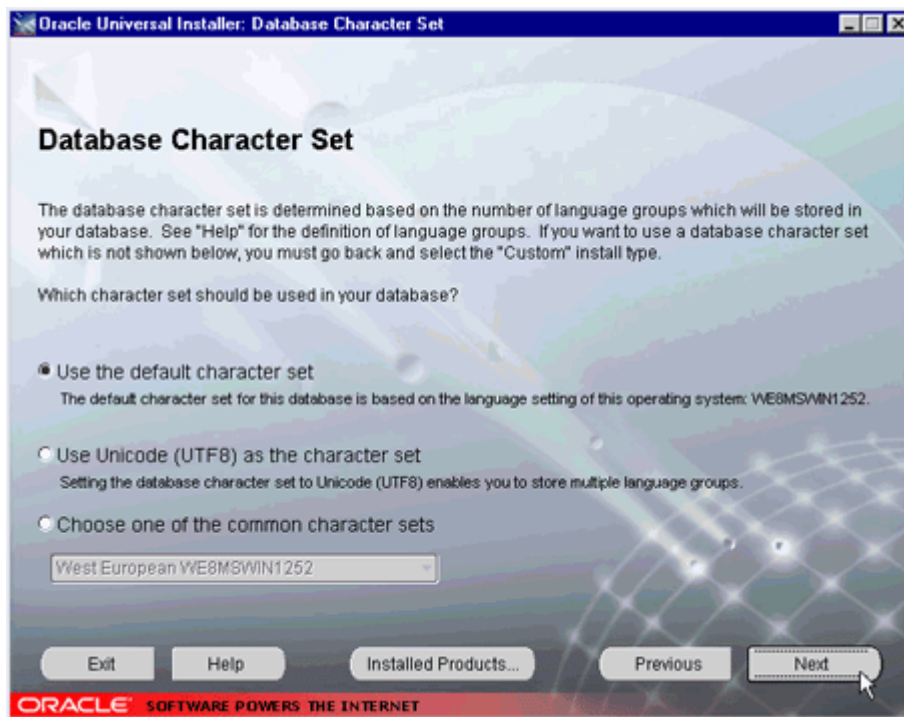
9) In the Global Database Name field, enter **orcl.world**. In the SID field, accept the default **orcl** and then choose **Next**.



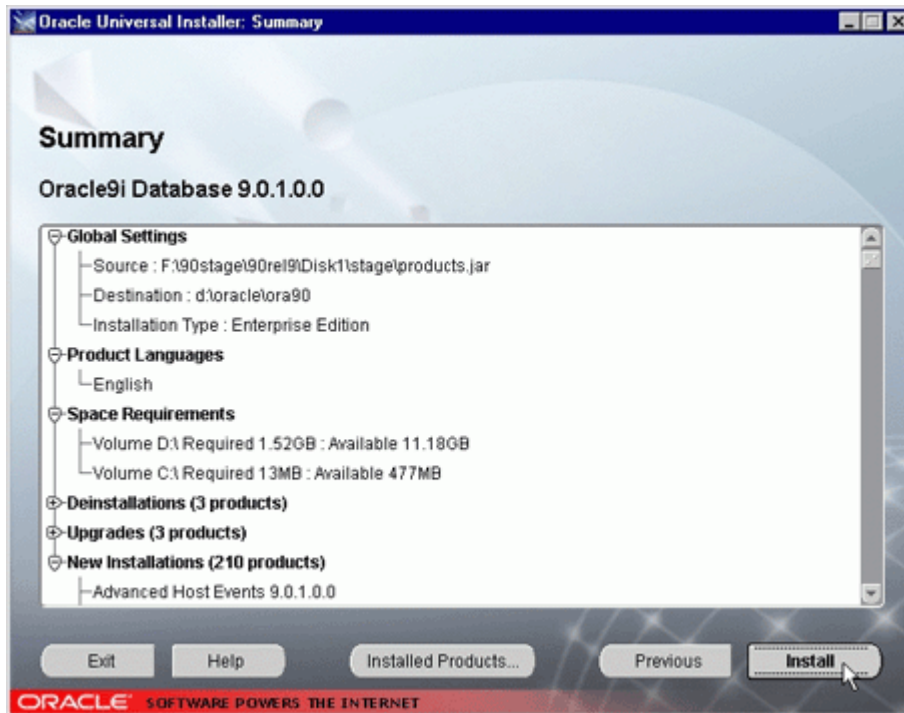
10) Change the directory to **D:\oracle\oradata** and choose **Next**.



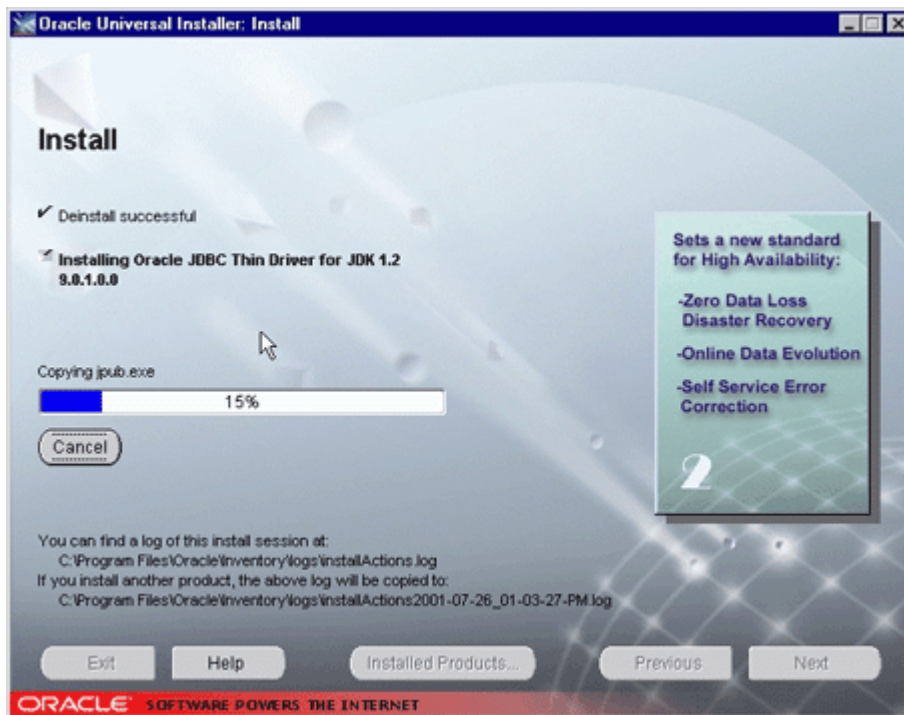
11) Accept the default character set and choose **Next**.



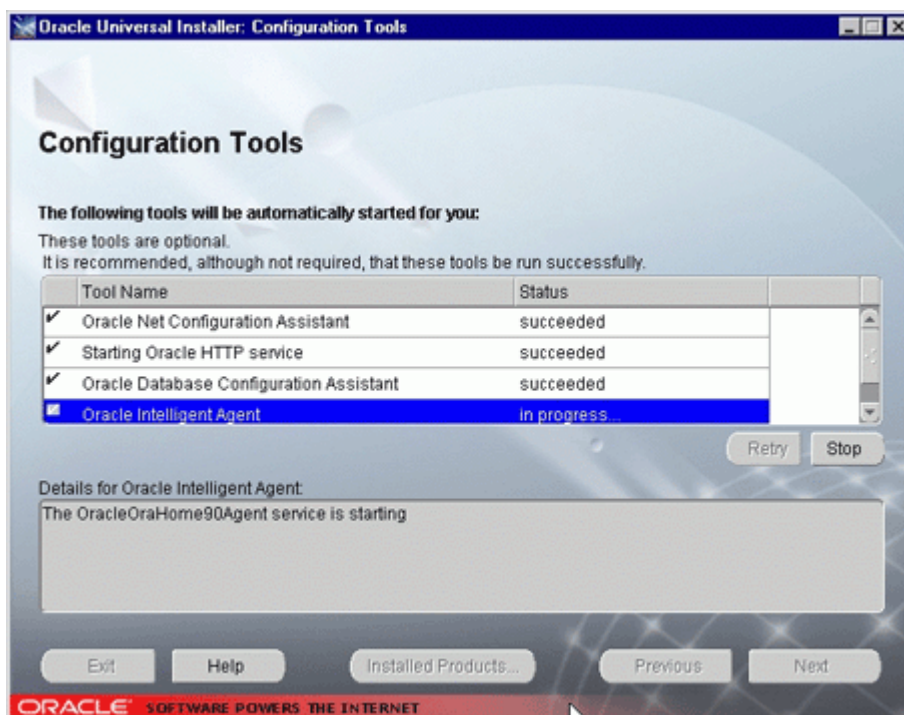
12) Oracle Universal Installer displays a summary of the installation options. Make sure that you have the required disk space available and then choose **Install**.



13) Oracle Universal Installer begins installing Oracle9i Enterprise Edition and related software. Note: This process takes at least one hour. The Oracle Universal Installer also creates installation logs as it progresses. You can view these while the installation is in progress. You can find the log of this installation session at **C:\Program Files\Oracle\Inventory\logs\installActions.log**. If you install another product, the current log is copied to this file and renamed, so there is always a history of each successive installation.

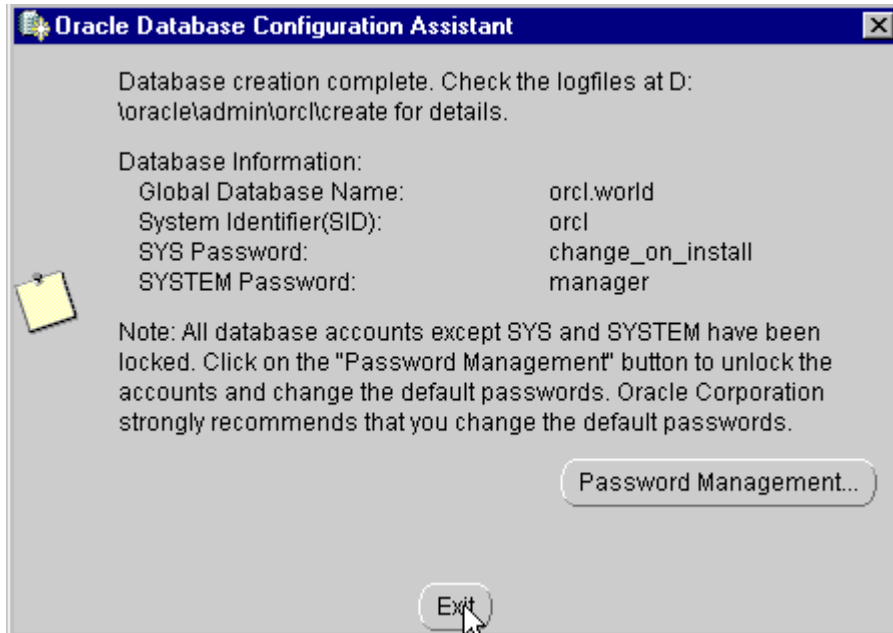


14) After the initial software is copied to the disk, Oracle Universal Installer also automatically configures the network for the Production database. This is done silently. The success of the operation is reported in the Oracle Universal Installer Configuration Tools window. Once the network configuration is complete, Oracle Universal Installer starts the Oracle Database Configuration Assistant. This assistant silently installs and configures the initial database.



15) Database creation takes about 20 minutes. Progress is shown in the Database Creation Progress window. When creation is completed, the Oracle Management Server NT service is created

16) Choose **Exit**.



Installing oracle developer 10g:**Hardware Requirements**

Check that your computer satisfies the hardware requirements in the following table:

Hardware Item	Requirements
CPU	500 Mhz Pentium or compatible processor
Memory	128 MB
Disk space	J2EE Development o Windows: 568 MB
Total page file or swap space	o Windows: 384 MB
Video	Minimum of 256 colors.

Operating Environments Software Requirements Ensure that your computer has one of the following operating environments:

Version	Requirement
NT 4.0	Service pack 6a
2000	Service Pack 3 or greater
XP Professional Edition	Service Pack 1 or greater

Main Installation Steps

Now proceed with the installation, by following these steps:

1. For all installation types except J2EE, the installer displays the Provide Outgoing Mail Server Information screen. Enter a name for the outgoing mail server. Oracle Application Server Reports Services uses the mail server to distribute reports by e-mail and to send job success notification e-mails when requested by users.
2. If you do not want to use this feature, leave the name blank.
3. When you have finished, click **Next** to continue.
4. Verify the information in the **Summary** screen and click **Install** to begin installing the files.
5. The **Install** screen appears and the installer begins copying the required files. Monitor the progress of the installation. From this screen, you can also see the full path of the installation log file.
6. Click **Stop Installation...** to discontinue the installation process. You can then choose to stop the entire installation, or the installation of a single component. Oracle recommends that you stop the entire installation. If you choose to stop the installation of a single component, other components may not function properly.
7. The **Configuration Assistants** screen may appear while the Oracle Net Configuration Assistant is running. When the Assistant is finished, you can review the results on the **Configuration Assistants** screen.
8. When the installer has finished, the **End of Installation** screen appears. It indicates whether the installation was successful or unsuccessful. To exit the installer, click **Exit**, then click **Yes** to confirm.