

Palestine Polytechnic University



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Software Project Report PPU Warehouse System

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Abstract

The warehouse of Palestine Polytechnic University is responsible for all products that enter the university, and also keeping track of their state and place. In our project we are going to make a software system using access database management system. Thus converting all the essential tasks done by the warehouse employees, which were previously done using hand writing and excel program into a database based software system. The system is estimated to increase the efficiency and speed of the warehouse operations. Furthermore this system is a good step for building advanced software systems for the various university departments.

- يقوم مستودع الجامعة بتولي مسؤولية المواد الآتية للجامعة، كما يقوم بمراقبة وضع ومكان المواد داخل الجامعة. في مشروعنا نقوم ببناء نظام برمجي باستخدام برنامج إدارة قواعد البيانات الاكسس. وبالتالي سنؤدي ذلك إلى تحويل المهام الأساسية، التي يقوم بها موظفي المستودع والتي كانت تنفذ باستخدام الكتابة اليدوية و برنامج الاكسس، إلى نظام برمجي مبني على أساس قاعدة بيانات. من المتوقع للنظام زيادة كفاءته و سرعة عمليات المستودع، إضافة لذلك إن النظام خطوة جيدة لعمل أنظمة برمجية متقدمة لأقسام الجامعة المتعددة.

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List of Abbreviations

DBMS	Database Management System
DFD	Data Flow Diagram
ER	Entity Relationship Model
PPU	Palestine Polytechnic University
UI	User Interface

Chapter one

Introduction

1.1 Preface

1.2 System Objectives

1.3 Previous Work / Previous System

1.4 Report Outline

Chapter one

Introduction

1.1 Preface

The Warehouse of Palestine Polytechnic University in Hebron is located in the main building of the university in Ein Sara. The warehouse is responsible for receiving the university items and distributing them to where they are supposed to go in the university buildings.

The warehouse employees control and monitor the items even after they are delivered. They keep track of the items places. The warehouse keeps track of the items in case they were destroyed or moved from one place to another or the responsible person of the room items changed.

The employee of the warehouse uses traditional ways to perform all of the work, so the processes are slow, difficult and inaccurate, and so weakening the warehouse services. Introducing a software system will make the warehouse processes easier, faster and more accurate, and so improve the warehouse services. Furthermore this system will enhance the ability to develop the warehouse processes.

Problem Initiation

The warehouse employee is conscious of the importance of a special software system, so he made a formal request for a software system. And upon his request this software system will be built.

1.2 System Objectives

The software system will help the warehouse employee in his work. It will also improve the warehouse services. The software system will allow the warehouse employee to:

- Store information about items that come from outside the university.
- Store information about items that are inside the university, which are under warehouse responsibility.
- Store information about daily items usage.
- Apply any changes of the items state, place or responsibility to the stored information.
- The ability to make special reports about laboratories contents, building contents, or responsibility change.

1.3 Previous Work / Previous System

All the work in the warehouse is done without using a special software system. The employee is using traditional ways to perform all the needed tasks. These include the use of ordinary papers, or Excel to write special reports, and to write item responsibility change.

The system to be built will be the first custom-built software system to be installed in the warehouse; therefore there are no effects on the system from other systems and also no integration is needed with other systems.

Examples of the previous manual system are shown below. The first one shows the form used to save supplies for the warehouse, while the other is used for university orders.

1.4 Report Outline

This document consists of eight chapters.

The First chapter is an introduction that consists of four sections which describe the system requirements, importance and objectives of the project, and the worker contribution.

The Second chapter has seven sections that deal with project planning. The first section is a preface, the second section describes the way in which the development team is organized and the people involved. The third section describes the project risks and the probability of risks arising, and describes the ways to reduce these risks. The fourth section describes the software and hardware requirements, and the estimation of software and hardware costs. The fifth section describes the system activities, and identifies the deliverable or milestone with each activity. The sixth section describes the time scheduling; the seventh section describes monitoring and reporting.

The Third chapter has four sections that deal with software requirements and requirement analysis. The first section specifies system definition, functional requirements, nonfunctional requirements, and domain requirements, and states assumptions and dependencies. The second section describes system requirements specification. The third section analyzes software requirements using viewpoint oriented elicitation and scenarios. The fourth section describes system models: context model, DFD, and data model.

The Fourth chapter has six sections that deal with software design. The first section is a preface. The second section describes the system structuring and the general block diagram. The third section describes the control model. The fourth section describes modular decomposition and DFD model. The fifth section describes the interface design of the system.

The Fifth chapter consists of seven sections that deal with system implementation. It includes preface, system pseudo code, system flow chart, system implementation and system results.

The Sixth chapter has two sections that deal with system testing. The first section is an introduction. The second section describes the system testing.

The Seventh chapter has two sections that deal with maintenance and installation of the system.

The Eighth chapter is a conclusion and describes the future work for the system.

Finally, the system source code is included in the appendix

Chapter Two

Project Planning

2.1 Preface

2.2 System objectives

2.3 Development Organization

2.4 Risk Analysis

2.4.1 Project Risks

2.4.2 Types of Risks

2.4.3 Reduction Strategies

2.5 Hardware and Software Requirements

2.6 Work Activities

2.7 Project Schedule

2.8 Monitoring and Reporting

Chapter Two

Project Planning

2.1 Preface

The most important objective of the warehouse is to control the university items. The processes in the warehouse are carried out manually so they are slow, difficult and inaccurate, thus reducing the warehouse efficiency and restricting its services. Introducing a software system will make the warehouse processes easier, faster and more accurate, and so improve the warehouse services and efficiency. Furthermore this system will enhance the ability to develop the warehouse processes. And in this system, the programming language that will be used, can be integrated easily with databases to achieve the warehouse objectives.

In our system we are going to make an application that control and computerize all the process in the warehouse.

The system will be implemented for the university buildings in

- Wady Al-Harieh, consisting of
 - Building A, which consists of 4 floors, each contains about 10 rooms.
 - Building B, which consists of 6 floors, each contains about 10 rooms.
- Abu-Ektaiah, consisting of
 - Building A, which consists of 4 floors, each contains about 7 rooms.
 - Building B, which consists of 4 floors, each contains about 6 rooms.
 - Building C, which consists of 4 floors, each contains about 6 rooms.
- Main Building, consisting of 2 floors, each contains about 6 rooms.

2.2 System objectives

There are some objectives of the warehouse:

- Make internal university orders transactions, and ability to make reports about order's transactions.
- Store room contents and ability to add, delete, or update these contents. Also the ability to make a report about a room and its contents.
- Make supplies, which come from vendors, transactions, and ability to make reports about these transactions.
- Store daily used items that are taken from the warehouse, and ability to make reports about used items.
- Make transfers, which are transfer from one room to another, transactions and make a report concerning these transactions.

There are some constraints that affect the project:

- The time: the time is a very important factor in any project. It plays an essential role in this project; where we have sixteen weeks to complete the project, so the time is considered as a pressure factor.
- The cost: we need new equipments (computer, printer...), and new programs; and maybe the budget is not enough to cover these costs.

2.3 Development Organization

The team consists of three persons, and all the team members' work together to complete this project. The team works in parallel without explicit distribution for the activities. Each member participates in each activity of this project. We started the work step by step and activity-by-activity, we firstly prepare and then meet and discuss about the activity before producing it in a final form.

There are three members in the team, whose job is to build the system. The salary for each of them is \$450. So, the human costs in this project equal $(450 * 3(\text{member}) * 4(\text{months}))$ \$5400.

It is estimated that the system maintenance will cost about \$60/month.

2.4 Risk Analysis

2.4.1 Project Risks

In this project the team may face the following risks:

1. Some activities may not be made on time for some reason, such as one of the team members might become ill.
2. The system may fail in the operation stage.
3. Changes to requirements, which require major redesign, are proposed.

4. The user may not be able to use the program that the team will design very well.
5. The time required to develop the software is underestimated.
6. The costs of the project may exceed the estimated costs; so the budget of the project will not cover this cost.
7. Political situation may affect the time schedule.

2.4.2 Types of Risks

The possible risks are considered to be:

1. Technology: the Database Management System used in the system cannot process as many transactions per second as expected.
2. People: one of the team becomes ill, so the system cannot be finished on time.
3. Organization: organizational financial problems force reductions in the project budget.
4. Requirements: changes to requirements, which require major redesign are proposed.
5. Estimation: The time required to develop the software is underestimated. The rate of defect repair is underestimated.

2.4.3 Reduction Strategies

The team spent sufficient time in the planning phase to avoid these risks.

1. To get a good system on time, so the team suggests one week backup.
2. The team put a plan that show ways and bases which must be followed step by step, to make sure that the system is correct and efficient.
3. A plan that shows the procedures and operations which help the team to document all the steps that are followed to build the system; in order to go back at any document, and see it.
4. A plan shows the future challenges that may intercept the operations of mending and developing the system.

2.5 Hardware and Software Requirements

In this project we need the following equipments and programming languages, which are listed in table 2.1:

No.	H.W Requirements	The price
1	Rented computer Pentium 3 with 20 GB Hard disk, 64-128 RAM, Monitor, mouse, Floppy Disk.	\$300
2	Rented Printer	\$50
3	Printing papers	\$10
Total		\$360

Table 2.1 Hardware Requirements.

No.	S.W Requirements	The price
1	Microsoft packages	\$300
2	Windows XP	\$50
Total		\$350

Table 2.2 Project Software Requirements

The total cost: \$710 from H.W and S.W Requirements, and \$5400 from Human costs.

The transportation is estimated to be about \$50.

So, the final cost = \$6160. (See the table below)

No.	Costs	The price
1	Software	\$350
2	Hardware	\$360
3	Transportations	\$50
4	Personal payments	\$5400
Total		\$6160

Table 2.3 Software Project Requirements

2.6 Work Activities

The project time needed is sixteen weeks, there is one week backup for the project. And the work in project begins on 18/9/2004, and will finish on 5/1/2005.

The main activities in our system are:

- **(T1) Collecting the information and the requirements from the organization and writing Feasibility Study**

At the beginning we must collect the requirements from the stakeholders, and then we will write a feasibility study to determine if we can continue or not with our budget and schedule.

The milestone will be a feasibility report which will be given on 9/10/2004.

- **(T2) Analyze the information and requirements**

In this activity we must study and analyze the requirements very well to make decisions regarding what the new system will be according to users and stakeholders, defining user and system requirements, Scenarios,etc.

The milestone will be a document which will be given on 23/10/2004.

- **(T3) System modeling and design**

After collecting the requirements and writing the feasibility study, we will model the system by using dataflow because we find it the most appropriate representation since our system serve as sequence operations.

The milestone will be Architectural model, design which will be given on 20/11/2004.

- **(T4) System Implementation**

In this stage and after the designers and programmers complete their work, we must check for validity of the system by implementing it in the warehouse department and test it.

The milestone will be a code report and will be delivered on 10/12/2004.

- **(T5) System testing**

This will include component, integration, the defects testing, and to be sure of the system serving in the warehouse, and that will be done by giving input data as a test then test the result more carefully to ensure that the system gives correct results.

The milestone will be a report delivered on 24/12/2004.

- **(T6) System Documentation**

This phase will start with the project and end with it.

The milestone will be a complete project delivered by the end of the semester.

This Chart shows the schedule time for the system

Activity	Time required	Dependent activity
T1: Collecting the information and the requirements from the company and writing Feasibility Study.	3 weeks	M1
T2: Analyze the information and requirements	2 weeks	T1(M2)
T3: Design	4 weeks	T2(M3)
T4: Implementation	3 weeks	T3(M4)
T5: Testing	3 weeks	T4(M5)
Backup week	1 week	
T6: Documentation	16 weeks	T1, T2, T3, T4, T5 (Complete SW Project)

Table 2.4 Project Schedule in weeks

M1, M2... M5: are milestones, the milestone is an end-point of some software process activity.

2.7 Project Scheduling

This figure shows the scheduling of the project tasks described in the previous section.

	18/9	25/9	2/10	9/10	16/10	23/10	30/10	6/11	13/11	20/11	27/11	3/12	10/12	17/12	24/12	31/12
T1	3 Weeks															
T2			2 Weeks													
T3					4 Weeks											
T4									3 Week							
T5												3 Week			1 Week	
T6	16 Weeks															

Fig. 2.1 Project scheduling.

2.8 Monitoring and Reporting

Weekly reports will be given to the project supervisor, and these reports contain the developed and the documented parts of the system that were completed during the week. The project supervisor and the warehouse employee will monitor the system development process using these reports.

Chapter Three

Software Requirement and Requirement Analysis

3.1 Software Requirement Specification

3.1.1 System Definition

3.1.2 Functional Requirements

3.1.3 Non-Functional Requirements

3.1.4 Domain Requirements

3.1.5 Assumptions and Dependencies

3.2 System requirement Specification

3.3 Software Requirements Analysis

3.3.1 View-Point Oriented elicitation

3.3.1.1 Viewpoint Hierarchy

3.3.1.2 Viewpoint Templates

3.3.2 Scenario

3.3.2.1 Event Scenario

3.3.2.2 Use Case

3.4 System Models

3.4.1 System Context Model

3.4.2 DFD, State Machine Models

3.4.3 Data/ Object Models

Chapter Three

Software Requirement and Requirement Analysis

In this chapter we are going to introduce all the requirements of the system. These will be described using different notations and models.

3.1 Software Requirements Specification

Here user requirements will be described.

3.1.1 System Definition

The system is a management system for a warehouse; this management covers vendors, orders, items (warehouse contents), and expenses management.

A user will be able to store, view and delete information related to the above fields. The system also will provide capability to view reports concerning items and orders.

3.1.2 Functional Requirements

The system to be designed will have the following functions:

1. Store, view and delete vendor's information

Description: the system user can store, view and delete vendor's information that includes vendor name, items supplied, items cost, address, telephone number and additional information.

Rationale: this enables us to keep all information about vendors in case we have a problem.

2. Store, view and delete warehouse items information

Description: the system user can store, view and delete warehouse items information, which includes item name, cost, amount available, and additional information

Rationale: this enables us to remember all items locations in case we want to reach some of them.

3. Store, view and delete orders information

Description: the system user can store, view and delete orders information, which includes order name, order address, order telephone, needed items, date of order and additional information.

Rationale: this enables us to know all orders sources, from where did they come.

4. Introducing reports

Description: the system should be able to produce make the following reports

- Labs contents report.
- Building labs report.
- Employee usage in a specific time.
- Warehouse items report.
- Item destroyed / lost, change report.
- Delivering responsibility item report.
- Changing responsibility item report.

Rationale: this enables us to verify what transactions did happen.

5. Store, view and delete room items information

Description: the system user can store, view and delete room information, which includes room name, room number, room item, date of received items and additional information.

Rationale: this enables us to know all room items, to whom will go.

6. Control room contents

Description: the system user can monitor the items in the warehouse in order to do several transactions on it.

7. Save destroyed, lost, changed items

Description: the system user can save items conditions such as destroyed, lost, changed items.

8. Make supplies transaction

Description: the warehouse receives supplies from vendors, so the system should save these supplies information and update the items room item contents according to the supplies contents.

9. Make usage transactions

Description: There are daily usages of warehouse items. Employees come ask for an item or items the warehouse employee supplies them and register the used item or items.

10. A User graphical interface

Description: the system will have a graphical user interface that allows the user to choose the system services using the mouse.

Rationale: this makes the use of the system simple.

3.1.3 Non-Functional Requirements

The system will have the following nonfunctional requirements:

1. **Speed:** the system shall store and retrieve vendors, orders and items information in a fast and easy way.
2. **Adequate size:** the size of the files where the vendors, items and orders information should be adequate.
3. **Ease of use:** the user interface should help the user to choose services in an easy way, and the system shall have help.
4. **System Reliability:** the system should work in any environment.
5. **Portability:** the system user shall have the ability to transfer system data.
6. **Security** protects the data base with a password.
7. **Delivery date:** the product should be delivered before 5/1/2005.

3.1.4 Assumptions and Dependencies

The system will be installed into the warehouse and there should be a training workshops.

3.2 System Requirements Specification

Each of the system functions will be described in block that contains the following:

1. Function name.
2. Function inputs and its sources.
3. Function outputs and its destination.
4. An indication of what other entities is used (the *requires* part).
5. Function pre-condition and function post-condition.
6. Function side effects.

1. Store, view and delete vendor's information

Function Store vendor's information (add new)

Description A user choose the vendors service icon, then the add option, then input vendors information.

Inputs Vendor name, items supplied, items cost, address, telephone number and additional information.

Source These inputs come from the user.

Outputs Vendor information.

Destination Vendor database.

Requires Vendors add window.

Pre-condition The add input window is open and displayed on the user's screen

Post-condition The information is added to vendors' database.

Side-effects None

Fig 3.1 Store vendor information system specification

Function View vendor's information

Description A user chooses the vendors' service icon, then the view option, then input the wanted vendor name.

Inputs Vendor name.

Source This input comes from the user

Outputs Vendor information.

Destination Vendors window.

Requires Vendor view window.

Pre-condition The view window is open and displayed on the user's screen

Post-condition The information is open and displayed on the user's screen.

Side-effects None

Fig 3.2 View vendor information system specification.

Function Delete vendor's information (update)

Description A user chooses the vendors' service icon, then the delete option, then input the vendor name whose information is to be deleted.

Inputs Vendor name.

Source This input comes from the user

Outputs Vendor information.

Destination Vendors database.

Requires Vendor delete window.

Pre-condition The view window is open and displayed on the user's screen

Post-condition The information is deleted from the vendor database.

Side-effects None

Fig 3.3 Delete vendor information system specification.

2. Store, view and delete warehouse items information

Function Store warehouse items information (Add).

Description A user chooses the items service icon, then the add option, then input the items information.

Inputs Item name, cost, and amount available and additional information

Source User

Outputs Item information.

Destination Items database.

Requires Item add window.

Pre-condition The add window is displayed.

Post-condition The items information is added to the items database.

Side-effects None

Fig 3.4 Store item information system specification.

Function View warehouse items information.

Description A user chooses the items service icon, then the view option, then input the item name.

Inputs Item name.

Source User

Outputs Item information.

Destination Items database.

Requires Item window.

Pre-condition The order view window is displayed.

Post-condition The item information is viewed to the user.

Side-effects None

Fig 3.5 View item information system specification

Function Delete warehouse items information.

Description A user chooses the items service icon, then the delete option, then input the item name.

Inputs Item name.

Source User

Outputs Item information.

Destination Items database.

Requires Item delete window.

Pre-condition The delete window is displayed.

Post-condition The items information is deleted from the items database.

Side-effects None

Fig 3.6 Delete item information system specification.

3. Store, view and delete orders information

Function Store orders information (Add).

Description A user chooses the orders service icon, then the add option, then input the orders information.

Inputs Order name, order address, order telephone, needed items, date of order and additional information

Source User.

Outputs Orders information.

Destination Orders database.

Requires Order add window.

Pre-condition The order adds window is displayed.

Post-condition The order information is added to the orders database.

Side-effects None

Fig 3.7 Store order information system specification

Function View orders information.

Description A user chooses the orders service icon, then the view option, then input the order name.

Inputs Order name.

Source User.

Outputs Orders information.

Destination Orders window.

Requires Order view window.

Pre-condition The order view window is displayed.

Post-condition The order information is viewed to the user.

Side-effects None

Fig 3.8 View order information system specification.

Function	Delete orders information.
Description	A user chooses the orders service icon, then the delete option, then input the order name.
Inputs	Order name.
Source	User.
Outputs	Orders information.
Destination	Orders database.
Requires	Order delete window.
Pre-condition	The order delete window is displayed.
Post-condition	The order information is deleted from the orders database.
Side-effects	None

Fig 3.9 Delete order information system specification.

4. Introducing reports

Function	Get a report about room contents, employee item usage, entry item report from vendor, university order report, labs reports, and warehouse item.
Description	The user chooses reports service icon, then choose anyone of the previous reports.
Inputs	(just choose)
Source	User.
Outputs	Report about selected.
Destination	Reports maker.
Requires	Reports output.
Pre-condition	The report option are viewed for the user
Post-condition	The chosen report is viewed.
Side-effects	None.

Fig 3.10 Introducing Reports

5. Store, view and delete room items information

Function	Store room items information (Add).
Description	A user chooses the items service icon, then the add option, then input the items information.
Inputs	Item name, amount available and additional information
Source	User
Outputs	Item information.
Destination	Items database.
Requires	Item add window.
Pre-condition	the add window is displayed.
Post-condition	The items information is added to the items database.
Side-effects	None

Fig 3.11 Store item information system specification.

Function	View room items information.
Description	A user chooses the items service icon, then the view option, then input the item name.
Inputs	Item name.
Source	User
Outputs	Item information.
Destination	Items database.
Requires	Item window.
Pre-condition	The order view window is displayed.
Post-condition	The item information is viewed to the user.
Side-effects	None

Fig 3.12 View item information system specification

Function Delete room items information.

Description A user chooses the items service icon, then the delete option, then input the item name.

Inputs Item name.

Source User

Outputs Item information.

Destination Items database.

Requires Item delete window.

Pre-condition The delete window is displayed.

Post-condition The items information is deleted from the items database.

Side-effects None

Fig 3.13 Delete item information system specification.

6. Control room contents

Function Control room contents.

Description A user can monitor the content room in the warehouse.

Inputs Room name.

Source User

Outputs Room content information.

Destination Items database.

Requires Room content window.

Pre-condition The room content window is displayed.

Post-condition The room information is shown from the items database.

Side-effects None

Fig 3.14 Control room contents

7. Save destroyed, lost, changed items

Function	Save destroyed items
Description	A user choose the item service icon, then the save option, then destroyed item will be saved
Inputs	destroyed item
Source	These inputs come from the user.
Outputs	item destroyed information.
Destination	item database.
Requires	item destroyed save window.
Pre-condition	The destroyed item window is open and displayed on the user's screen
Post-condition	The information is added to item's database.
Side-effects	None

Fig 3.15 Save destroyed items

Function	Save lost items
Description	A user choose the item service icon, then the lost option, then lost items will be saved
Inputs	lost item
Source	These inputs come from the user.
Outputs	item lost information.
Destination	item database.
Requires	item lost save window.
Pre-condition	The lost item window is open and displayed on the user's screen
Post-condition	The information is added to item's database.
Side-effects	None

Fig 3.16 Save lost item

Function Save changed items

Description A user choose the item service icon, then the changed option, then changed items will be saved

Inputs changed item

Source These inputs come from the user.

Outputs item changed information.

Destination item database

Requires item changed save window.

Pre-condition The changed item window is open and displayed on the user's screen

Post-condition The information is added to item's database.

Side-effects None

Fig 3.17 Save changed items

8. Make supplies transaction

Function Make supplies transaction

Description A user choose the supplies service icon, then the transaction option, then the supplies transaction will be appear

Inputs supplies transaction

Source These inputs come from the user.

Outputs supplies transaction information.

Destination supplies database.

Requires supplies window.

Pre-condition The supplies transaction window is open and displayed on the user's screen

Post-condition The information is added to supplies database.

Side-effects None

Fig 3.18 Make supplies transaction

9. Make usage transaction

Function	Make usage transaction
Description	A user choose the item service icon, then the usage option, then usage items will be appeared
Inputs	usage transaction
Source	These inputs come from the user.
Outputs	usage transaction information.
Destination	item database.
Requires	usage transaction window.
Pre-condition	The usage transaction window is opened and displayed on the user's screen
Post-condition	The information is added to usage transaction database.
Side-effects	None

Fig 3.19 Make usage transactions

10. Graphical User Interface

The system will have a graphical user interface that allows the user to choose the system services in a friendly way.

This is described in the system architecture.

Non-functional system requirements

The system will have the following nonfunctional requirements:

1. **Speed:** the system shall store and retrieve vendors, orders and items information in a fast and easy way.

This can be achieved by using a Pentium 3 computer with 64-128 RAM.

2. **Adequate size:** the size of the database where the vendors, items and orders information are to be stored, should be adequate Database.

This can be achieved by using 20 or more GiB Hard disk.

3. **Ease of use:** the user interface should help the user to choose services in an easy way, and the system shall have help.

This can be achieved by using a graphical user interfaces so that the user can choose options, add information, delete information and view information easily.

4. **System Reliability:** there should be a backup for system data.

5. **Portability:** the system user shall have the ability to transfer system data.

This can be achieved by using a database program, which makes the system to be easily saved and moved to other computers.

6. **Delivery date:** the product should be delivered by the end of the semester.

This can be achieved by working on the project schedule.

3.3 Software Requirements Analysis

Here Viewpoints, which represent the system stakeholders' views and opinions, are described. Also scenarios, which represent the system behavior, are also described.

3.3.1 View-Point Oriented elicitation

Viewpoint hierarchy and templates will be described using hierarchal chart notation.

3.3.1.1 Viewpoint hierarchy

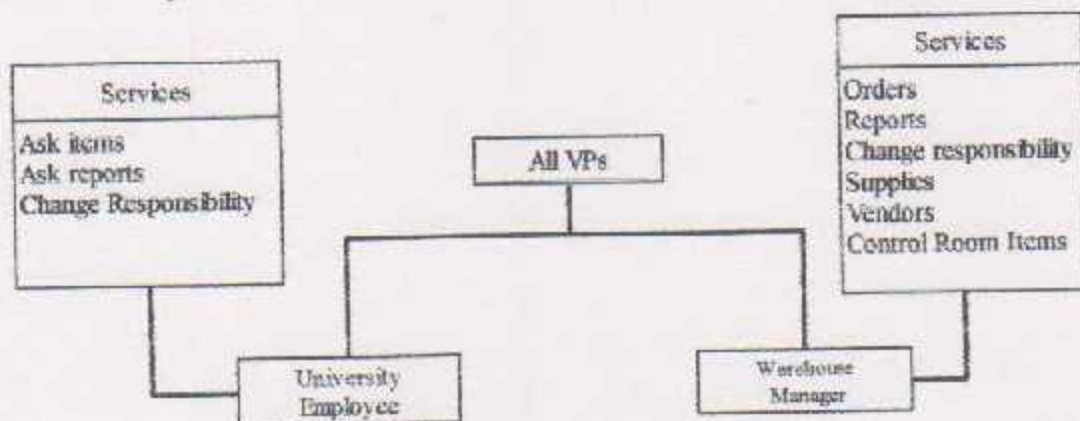


Fig 3.20 Make Viewpoint hierarchy

1. View-point templates

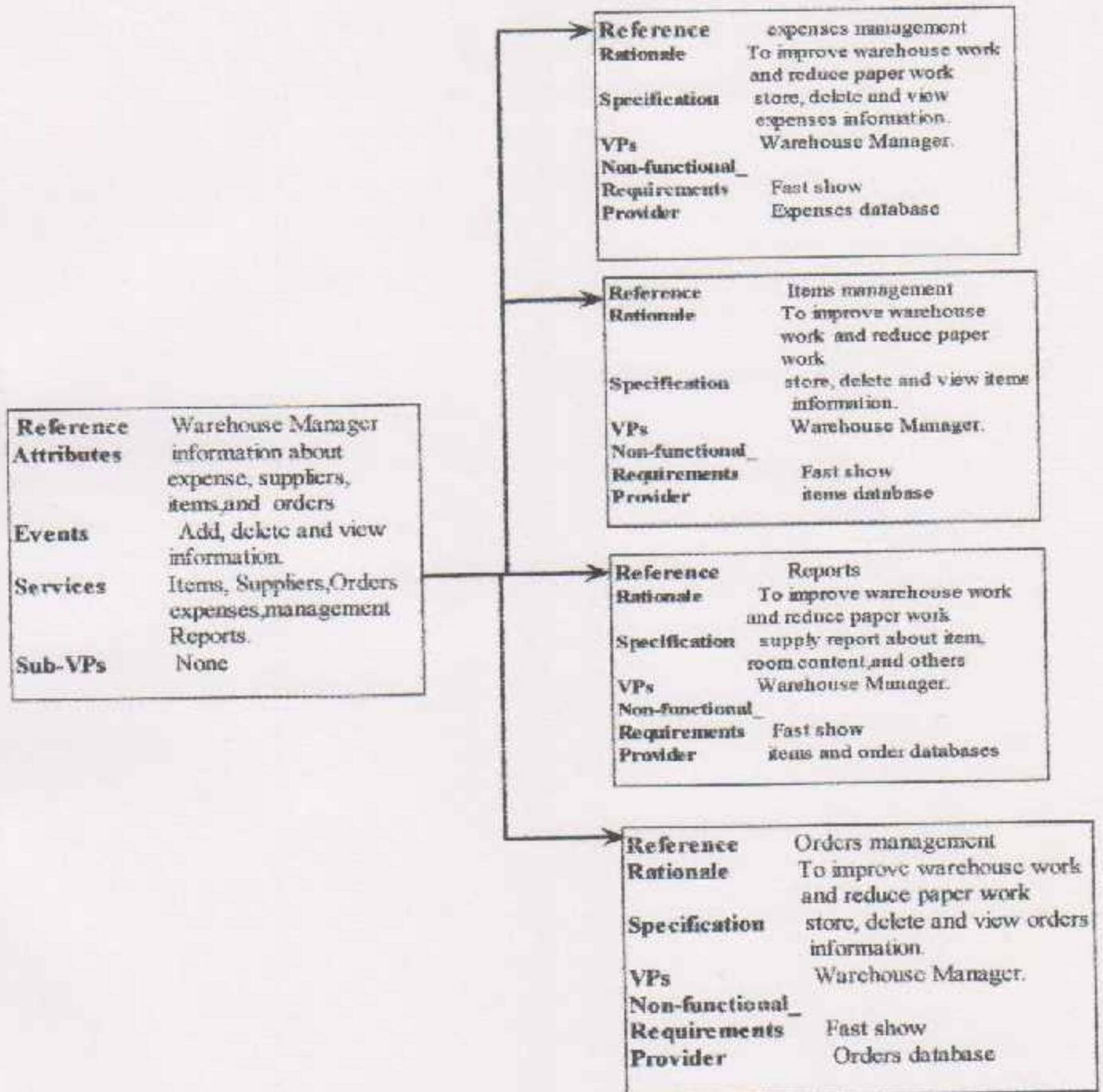


Fig 3.21 Viewpoint template for warehouse manager

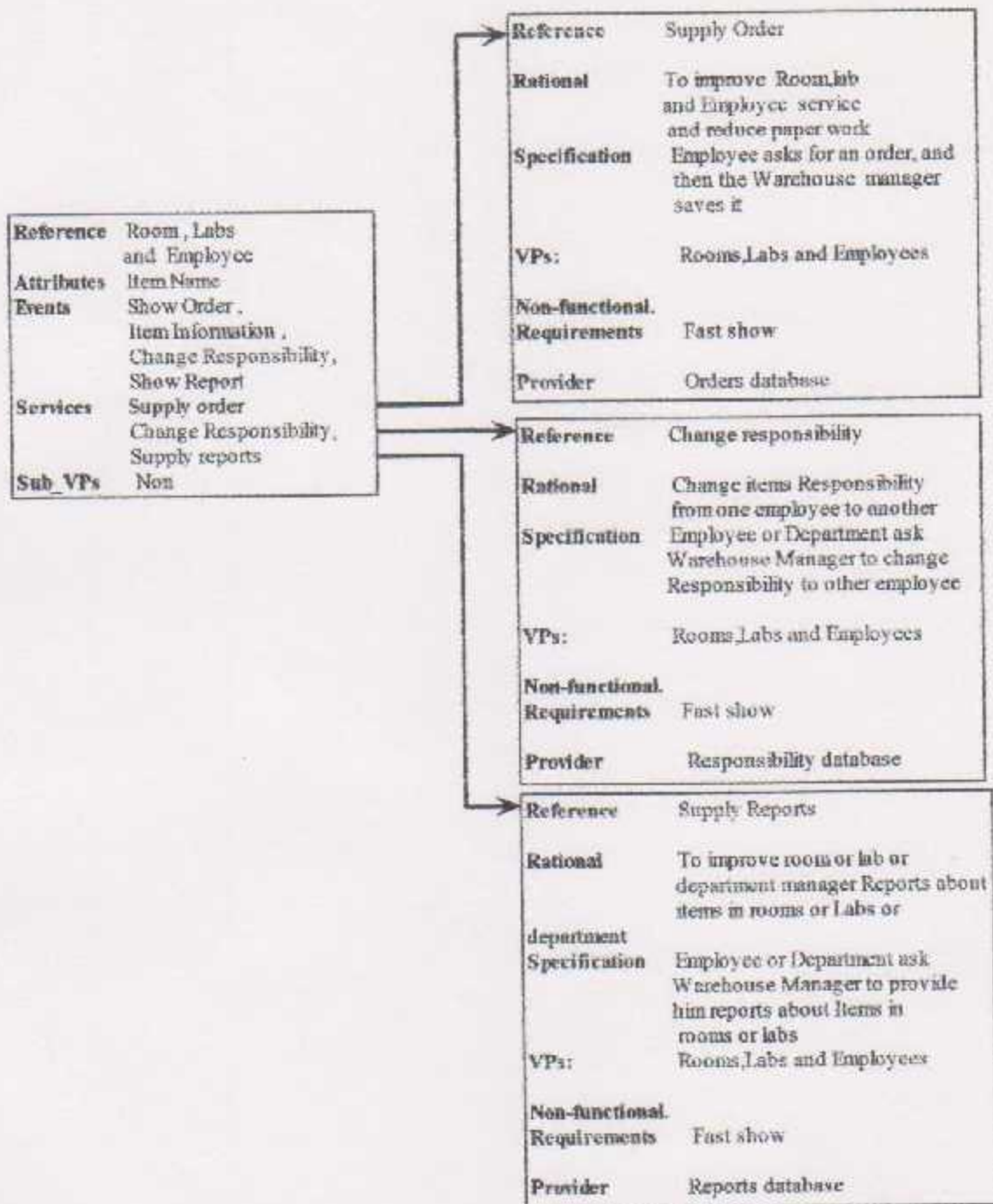


Fig 3.22 Viewpoint template for Room, Labs and employee

3.3.2 Scenario

A number of possible scenarios could be:

A room asks for an item, the warehouse worker looks for the item in the items database and finds the available amount and other information.

The warehouse manager finds that an item ran out, and then he looks for a possible vendor in the vendor's database, then he phones the vendor or goes to him so as to buy the item.

3.3.2.1 Event Scenario

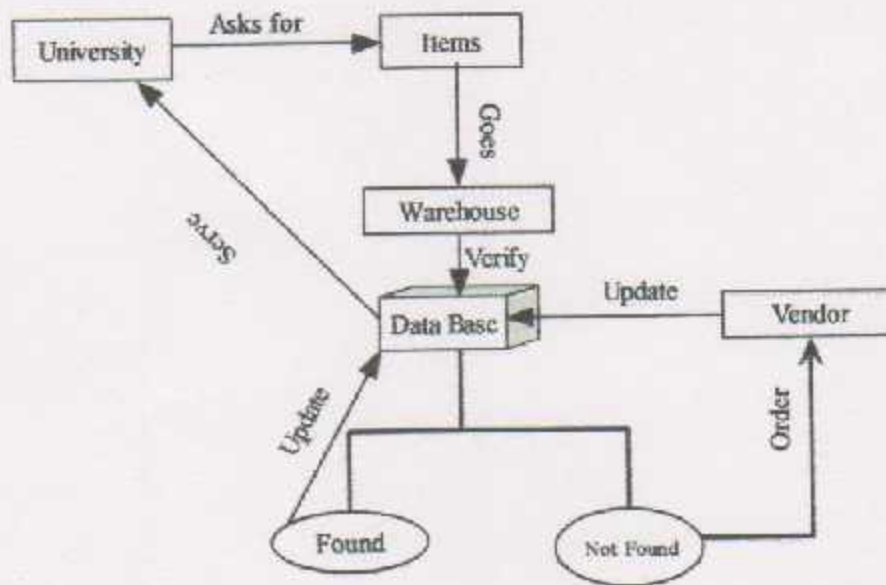


Fig 3.23 Event Scenarios

3.4 System Models

This section shows the models for the system that helps describe its operation.

3.4.1 System context Model

We choose to divide the warehouse system into subsystems that corresponds to the system requirements that were gather and analyzed in the requirement and requirement analysis processes. These subsystems are shown in figure 3.24

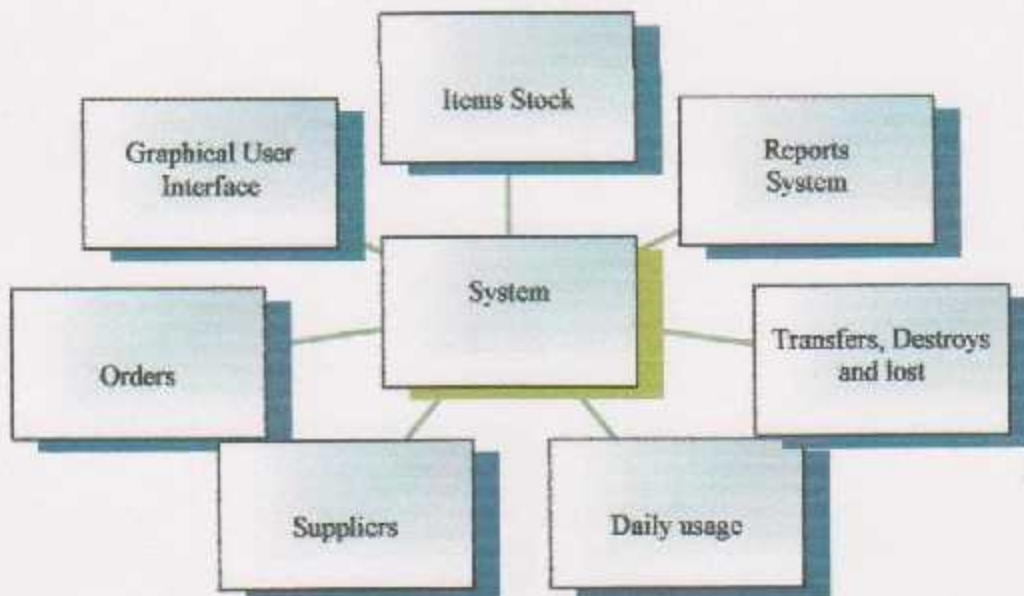


Fig 3.24 System subsystems

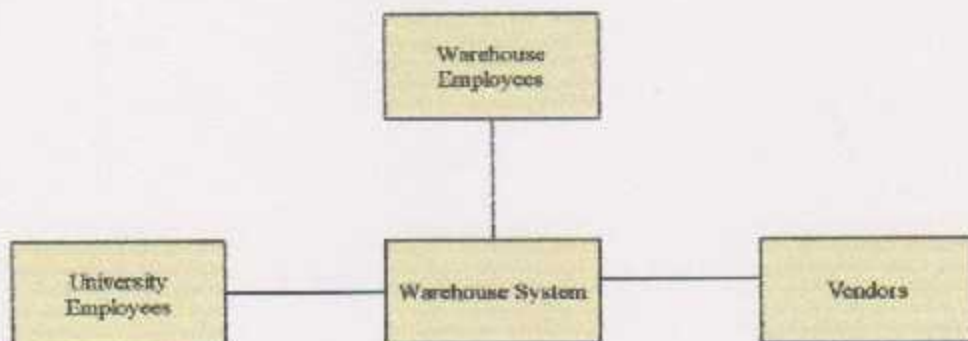


Fig 3.25 System Environment

3.4.2 Data Flow Diagram (DFD)

The notation that is used for DFD consists of circles, squares, and arrows. A large circle designates the application, the squares identify external entities, and the direct lines indicate the movement of data between entities and the application.

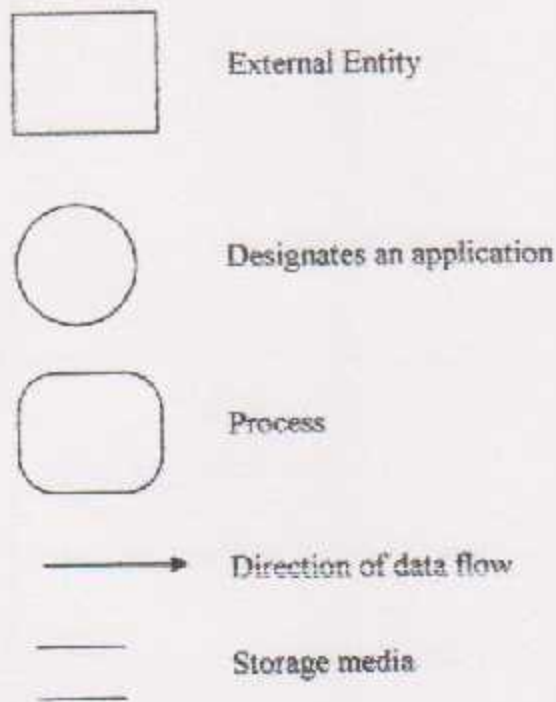


Fig 3.26 DFD Notation

The following figure represents the context diagram, which depicts the scope of the project. The items like computers, printers, tables, and many others, are of different categories. These items come from vendors, installed in the university rooms, and used or controlled by university employees.

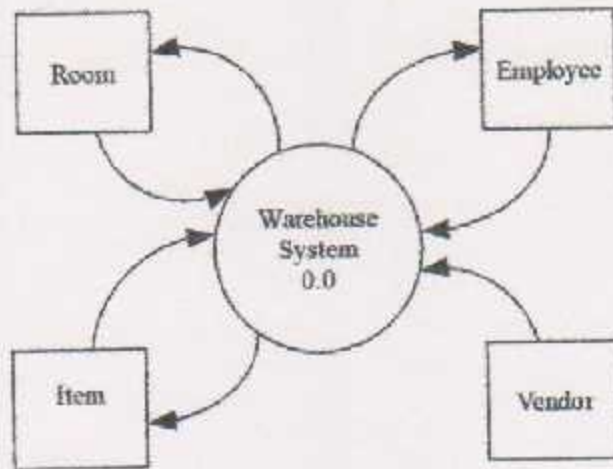


Fig 3.27 Context Model

The next figure looks inside the circle, represents the application to define the major functions and files.

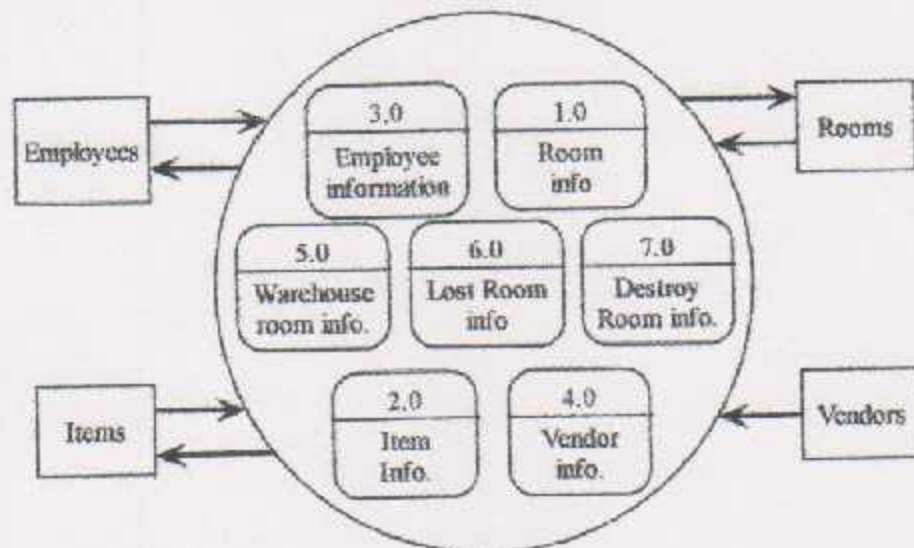


Fig 3.28 Context Model expansion decomposition

The next figure represents the main operations (lost, order, transfer, and destruction) performed by room and stores information in room file.

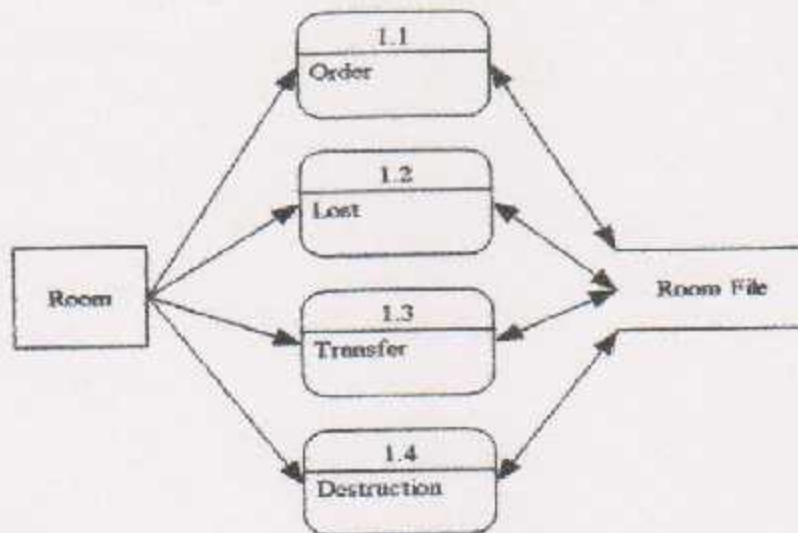


Fig 3.29 Room level 1.0 DFD

The next figure represents the main operations (lost, order, exchange, and destruction) performed by each employee, and stores information in employee file.

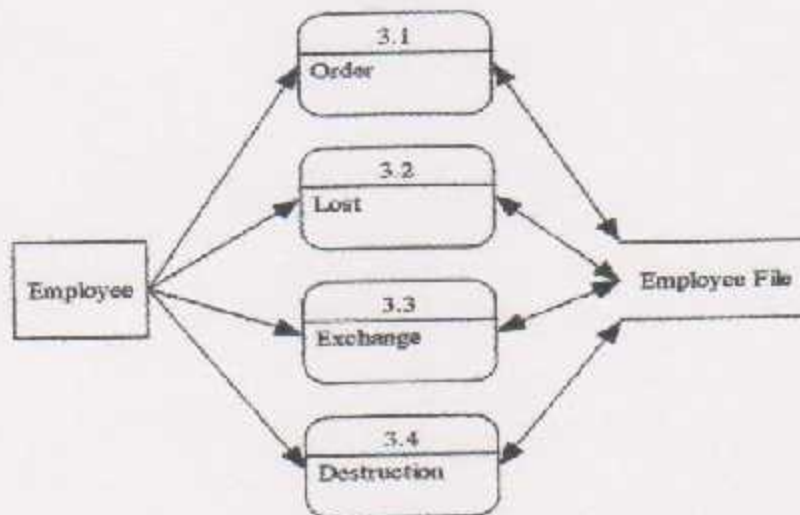


Fig 3.30 Employee level 3.0 DFD

The next figure represent the main operation (supply) performed by vendor and store information into vendor file.

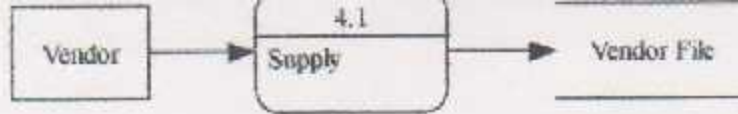


Fig 3.31 Vendor 4.0 level 4.0 DFD

The next figure represents how room order item from warehouse, then store item, order, and room information into item, order, and room file.

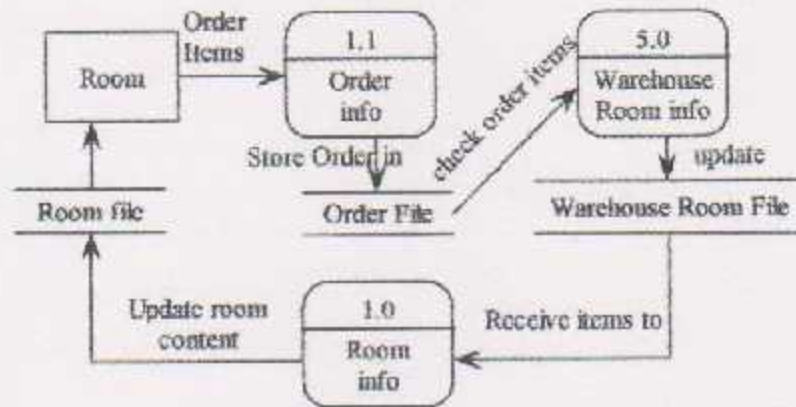


Fig 3.32 Room order level 1.1 DFD

The next figure represents how room lost item, then store item, lost, and room information into item, lost, and room file.

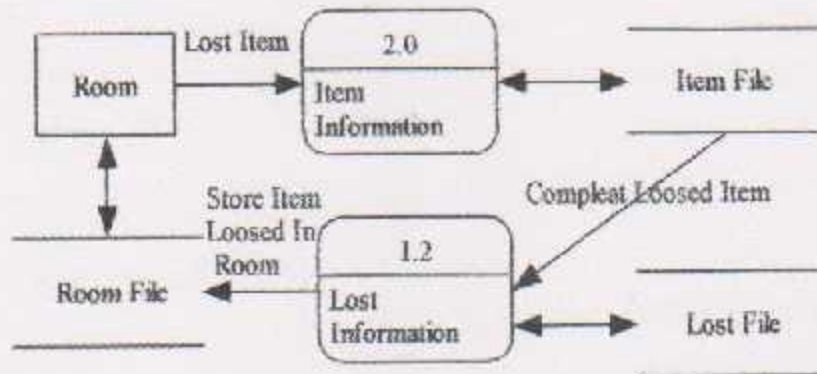


Fig 3.33 Room Lost item level 1.2 DFD

The next figure represents how room destruct item, then store item, destruction, and room information into item, destruction, and room file.

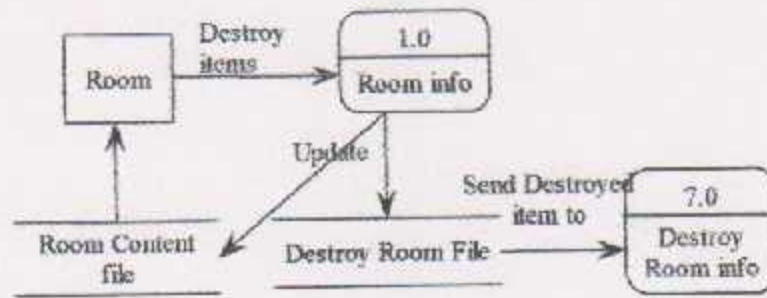


Fig 3.34 Room Destroyed items level 1.3 DFD

The next figure represents how room transfer items from one room to another room, then store item, and rooms' information into item, and rooms file.

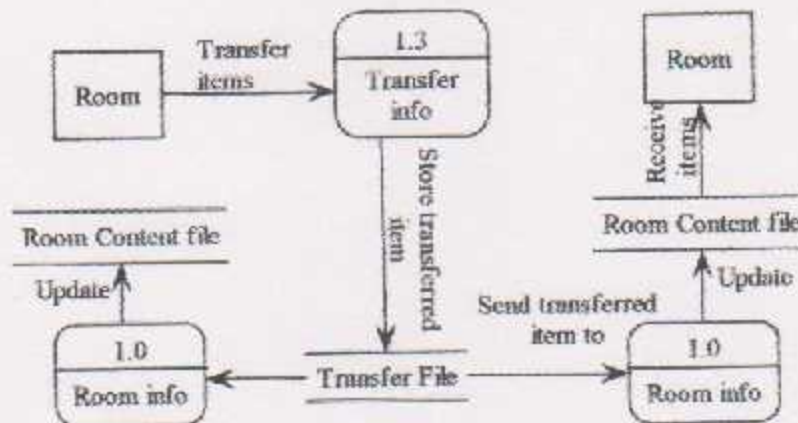


Fig 3.35 Room Transfer items level 1.4 DFD

The next figure represents how employee order item from warehouse, then store item, order, and employee information into item file, order file, and employee file.

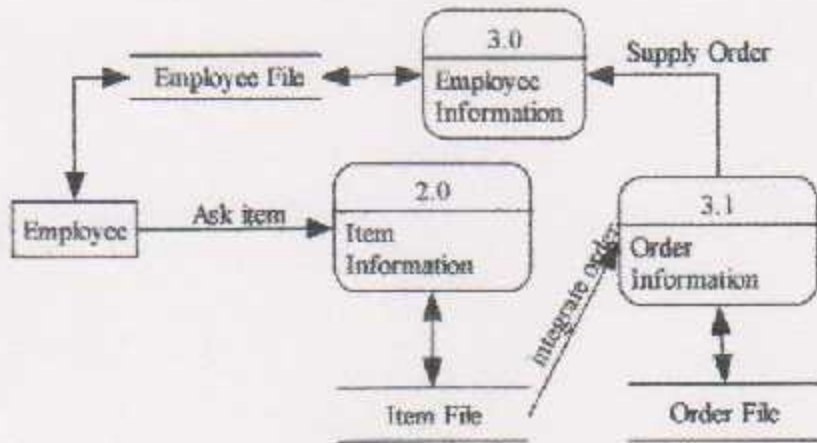


Fig 3.36 Employee order items level 2.1 DFD

The next figure represents how employee lost item, then store item, lost, and employee information into item file, lost file, and employee file.

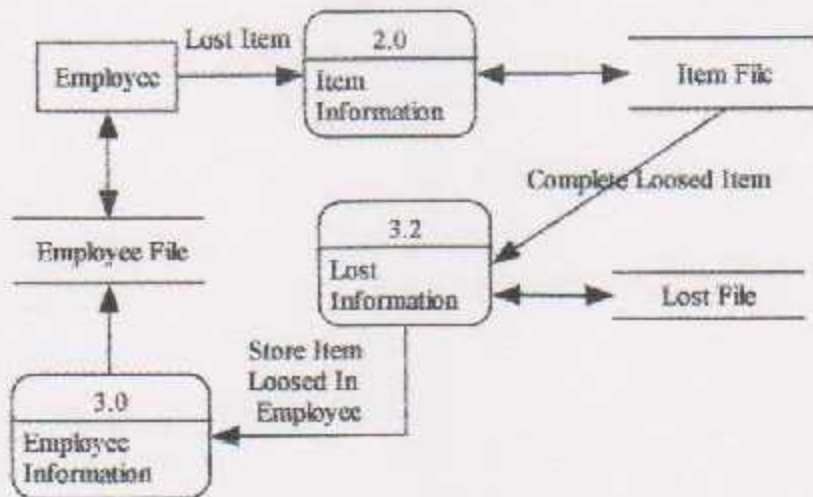


Fig 3.37 Employee Lost items level 2.2 DFD

The next figure represents how employee destroyed item, then store item, destruction, and employee information into item file, destruction file, and employee file.

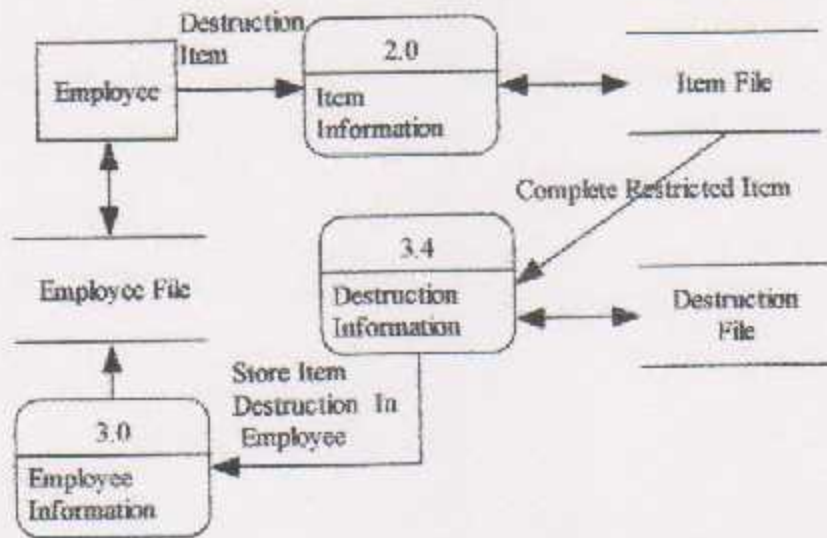


Fig 3.38 Employee Destroyed items level 2.3 DFD

The next figure represent how vendor supply item to warehouse, then store supplies, and vendor information into vendor file, and supply file.

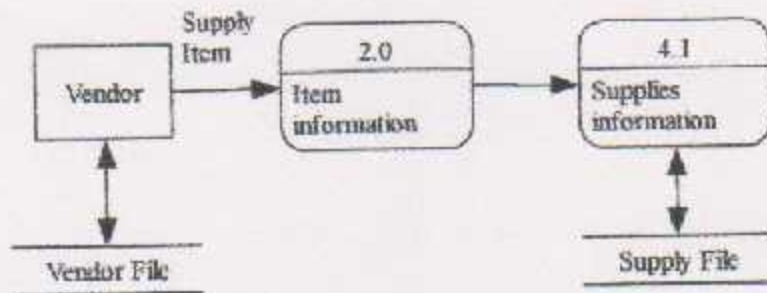


Fig 3.39 Vendor supply item level 4.1 DFD

3.4.3 Data models

The warehouse needs to store information, which was obtained from the software requirement analysis and this information includes the following:

- University rooms information.
 - Includes: room name, room items responsible, room number, and room responsible.
- University rooms items information.
 - Includes: item name, item quantity, item cost, item type.
- Vendor's information.
 - Includes: vendor name, vendor address, vendor id, vendor telephone.
- Orders information.
 - Includes: order number, order availability, order date, receipt date, administration agreement.
- Employee information.
 - Includes: employee number, employee name, employee department.
- Transfers of items information.
 - Includes: transfer number, transfer date, transferred items.
- Items information.
 - Includes: item name, item type, item category, item cost.
- Lost and destroyed items information.
 - Include: lost number, lost date, lost item, lost reason, lost quantity, destroyed number, destroyed date, destroyed reason, destroyed quantity.
- Daily usage information.
 - Includes: employee name, usage id, usage date.

- Supplies information.
 - Includes: supplies number, supplies date, recipient

All of these represent potential entity types, the entity types and the relationship types between them will be modeled using the Entity relationship model (ER model).

➤ ER Model for the system:

This model shows the system important entity types and the relationships types between these entity types, moreover all attributes of the relationships and entity types are shown. The key attributes are shown underlined and in bold. This model was drawn using smart draw program. Total Participation is shown using large black lines, the cardinality ratio of the relationship types are also shown. The ER model is shown in figure 3.40.

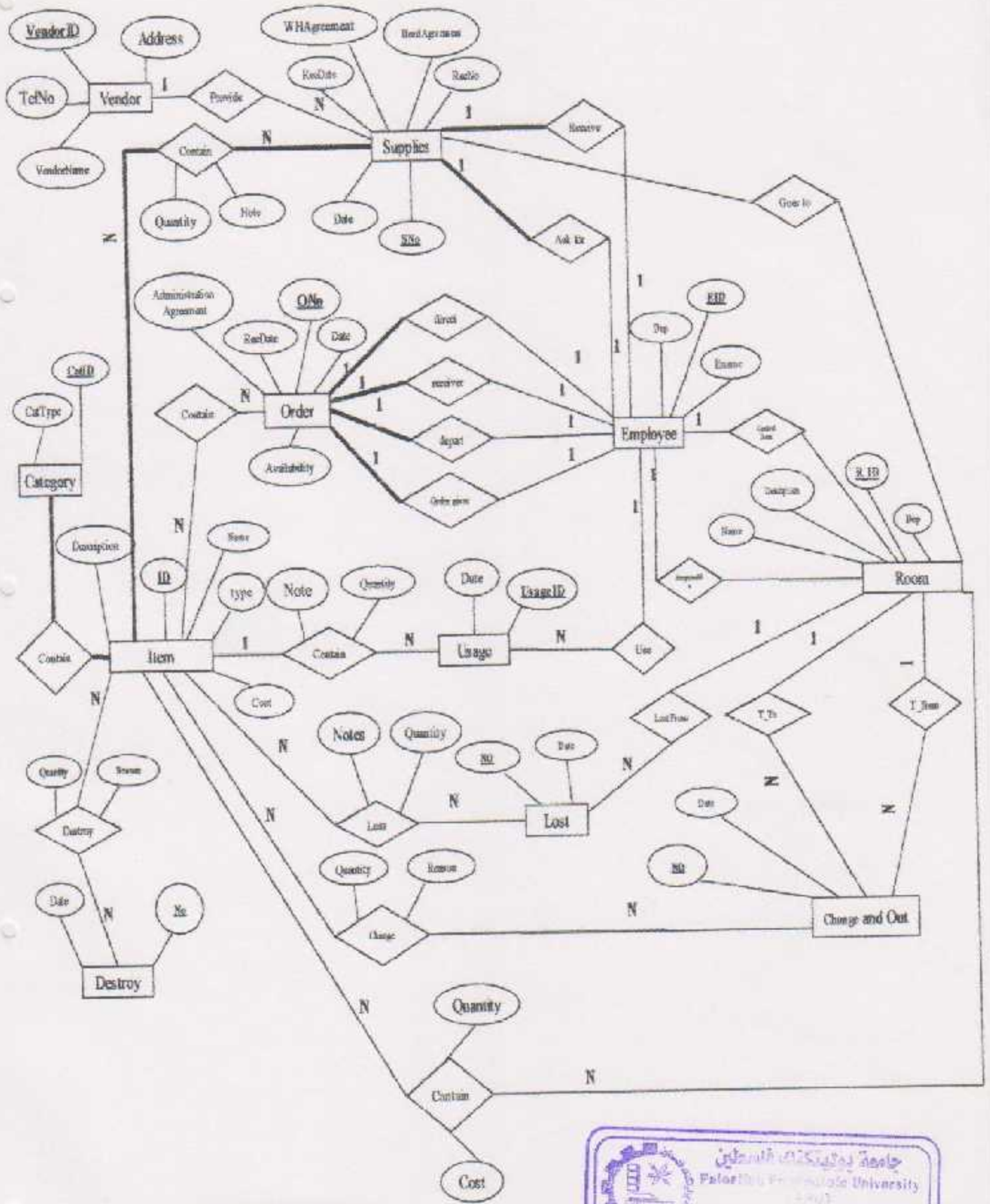


Fig 3.40 ER Diagram



Chapter Four

Software design

4.1 Preface

4.2 System Structuring

4.2.1 General Block Diagram

4.2.2 Subsystems Structure Charts

4.3 Control Models

4.4 Entity Relationship Model to Relational Data Model Mapping

4.5 Software Interface Design

Chapter Four

Software Design

4.1 Preface

In this chapter we are going to introduce the system software design. We are going to speak about system structuring general view, second the system control model will be described, then system modular decomposition will be introduced using dataflow models and data dictionaries, finally software interface design will be described.

4.2 System Structuring

This section describes the structure of the system showing the system and its subsystems.

4.2.1 General Block Diagram

The warehouse system consists of different subsystems that are described here in a figure. For example the figure shows the supplies subsystem which is used to save the delivered items that are supplied to the warehouse.

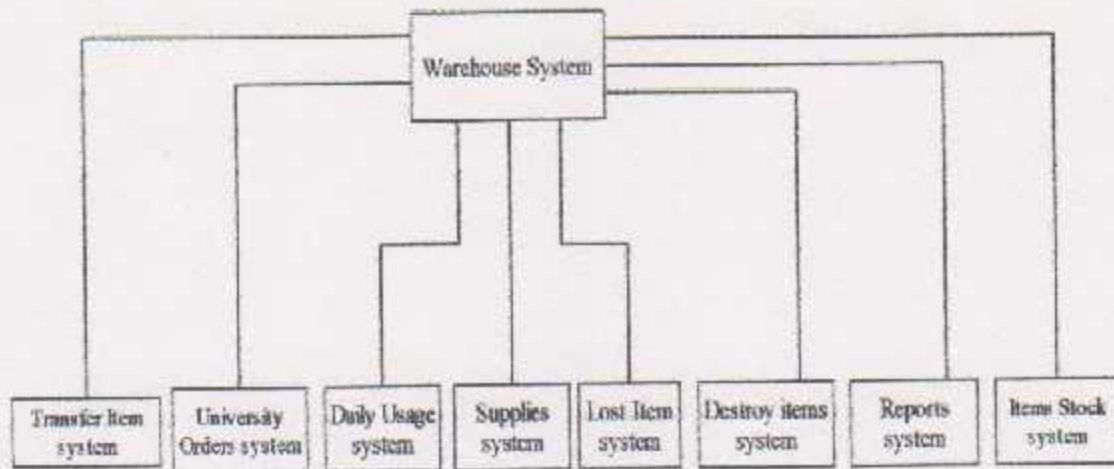


Fig 4.1 Structure Chart

4.2.2 Subsystems Structure Charts

The subsystems shown in the general block diagram are expanded / decomposed in the following figure

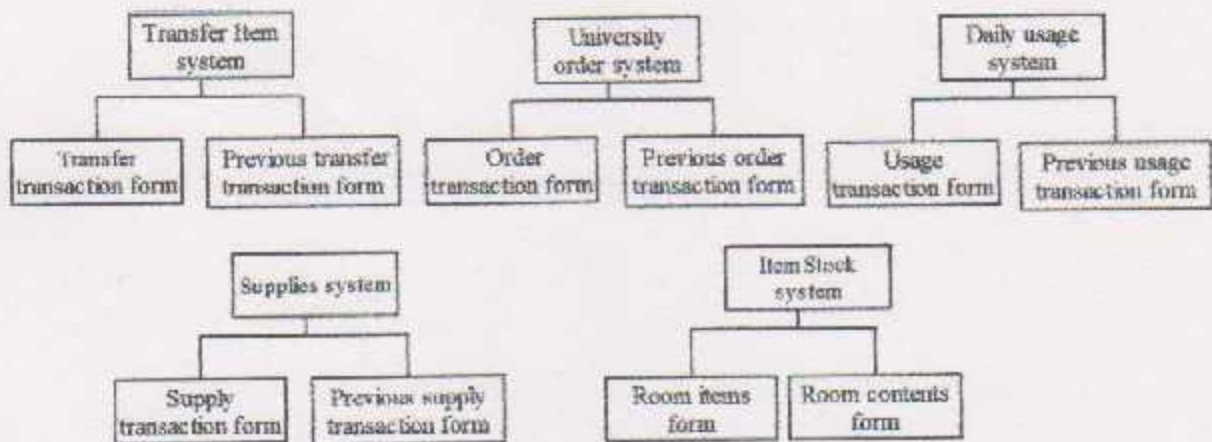


Fig 4.2 Subsystems structure chart

Each of the forms in fig 4.2 corresponds to operations that can be carried out in the subsystems; the subsystems also contain tables, which are part of the warehouse database, for storage.

The order transaction, daily usage transaction, and supplies transaction forms represent the enter and exit operations that are done in the warehouse, these enter and exit operation with the room contents and transfer transactions represent all the basics operations carried out in the university and controlled by the warehouse.

The report system is used to make reports for the other systems stored records. The reports that will be produced by the warehouse are shown in the figure 4.3

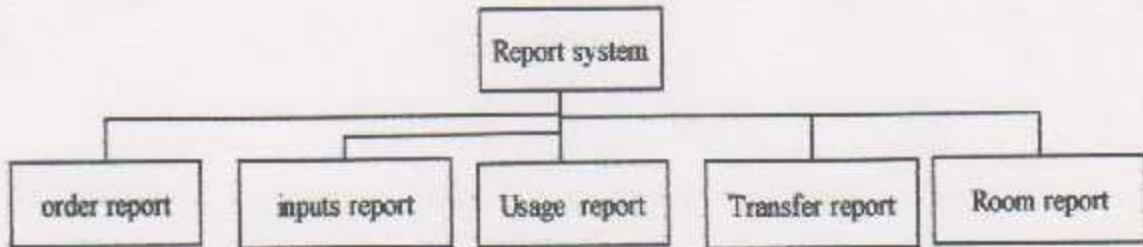


Fig 4.3 Report subsystem

The database stores information about vendors, employees, rooms, buildings, items, item categories, room categories, and departments, these are used by the subsystems. The system will be designed to support adding and viewing these information as depicted in the following figure

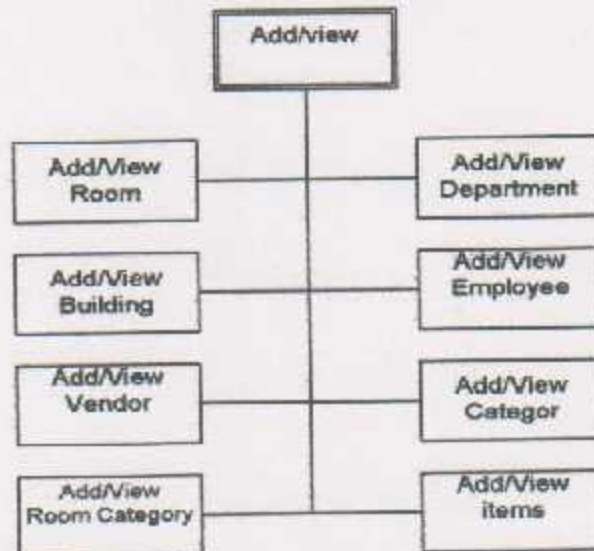


Fig 4.4 Add/View structure chart

4.3 Control Model

The control model describes how the system is controlled, is it centralized or not, and what are the component or components that control the system. So from the figure below one can see how the system is controlled by the main switchboard.

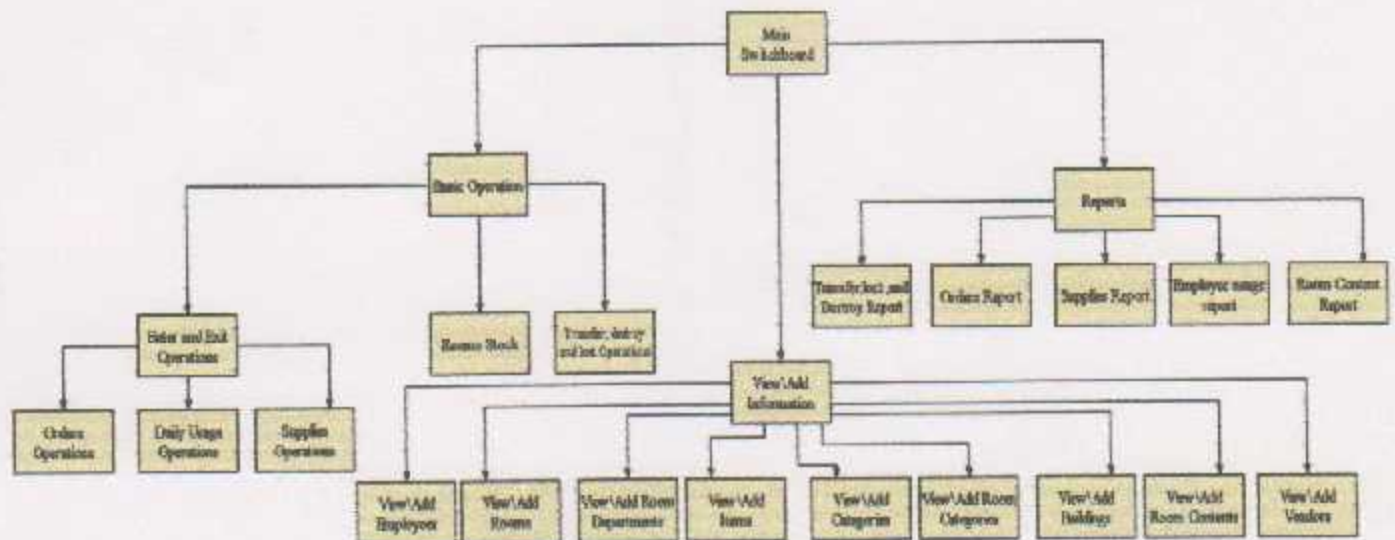


Fig 4.5 Expanded Structure Chart

4.4 Entity Relationship Model to Relational Data Model Mapping

This section is a mapping of the ER model found in chapter three. The entity types and the relationship types will be mapped to Relational Data Model Mapping.

It is important to note the following:

- Primary keys are underlined and bolded in black
- F.K refers to foreign key
- Table names are shown under the table column
- Normal attributes are shown in non bolded black font
- The ER mapping is divided into more than one table

Table	Attributes				
Item	<u>ItemID</u>	CategoryID F.k of Category	ItemType	ItemName	ItemDescription
Category	<u>CategoryID</u>	CategoryName			
University Order	<u>OrderNo</u>	DirectResponsible ID F.k of employee	ReceiverID F.k of employee	OrderID F.k of employee	PresidentID F.k of employee
	DateofOrder	ReceiveDate	ADminstrationAgree ment	availability	
Supplies	<u>SupplyNO</u>	AskPersonID F.k of employee	ReceiverID F.k of employee	VendorID F.k Vendors	RoomID F.k of room
	Date	WareHouseagreem ent	Headagreement	ReceiveDate	
Employee	<u>EmployeeID</u>	DepartmentID F.k of Department	Name	Address	
Vendor	<u>VendorID</u>	Name	Address	TelephoneNO	
Usage	<u>UsageNO</u>	User F..k of employee	Date		
Room	<u>RoomID</u>	BuildingNO F.k of Buildings	ItemsResponsibleID F..k of employee		
	DirectResponsibl eID F..k of employee	RCat F.k of Room Category	DepID F.k of Department	RoomName	Description
Room contents	<u>RoomID</u> F.k from rooms	<u>ItemID</u> F.k from items	Quantity	Cost	

Table 4.1 ER Mapping

Table	Attributes			
Room Category	<u>RCategoryNO</u>	CategoryName		
Departments	<u>DEptID</u>	Departmentname		
Building	<u>BNO</u>	BuildingName		
Change And out	<u>CHangeOutNO</u>	FromRoomID F.k of Room	ToRoomID F.k of Room	Date
Lost	<u>LostNO</u>	LostFromRoomID F.K of Room	Date	
Destroy	<u>DestroyNo</u>	Date		
Order Contents	<u>ItemID</u> F.k of Item	<u>OrderID</u> F.k of UniversityOrders	Quantity	Notes
Usage Contents	<u>ItemID</u> F.k of Item	<u>UsageNO</u> F.k of usage	Quantity	Notes
Supply Contents	<u>ItemID</u> F.k of Item	<u>SupplyNO</u> F.k of supplies	Quantity	cost Notes
ItemChange Contents	<u>ItemID</u> F.k of Item	<u>ChangeNO</u> F.k of Change	Quantity	Reason
Itemlost Contents	<u>ItemID</u> F.k of Item	<u>LostNO</u> F.k of lost	Quantity	Notes
Item Destroy Contents	<u>ItemID</u> F.k of Item	<u>DestroyNO</u> F.k of destroy	Quantity	Reason

Table 4.2 ER Mapping (cont.)

- **Tables**

The remaining part of this section details the ER mapped table, it shows each mapped table in a separate table.

Each table contains the following

- Attribute name
- Data type of the attribute
- Length of the data type
- Description of the attribute

Item

Attribute	Data Type	Length	Description
ItemID	Text	8	Primary Key for items that identifies each item
RoomID	Text	6	Foreign Key from room table that identifies the id of each room
CategoryID	Number	2	Foreign Key from category table that identifies the id of each category item
ItemType	Text	50	Identify the type of the item
ItemName	Text	50	Identify the name of the item
ItemDescription	Text	50	Identify the description of the item
AvailableQuantity	Number	8	Identify the amount of item in the warehouse
UnitCost	Currency		the cost of one unit of its type

Table 4.3 Item Attribute Specification

RoomsCategory

Attribute	Data Type	Length	Description
CategoryID	Number	3	Primary Key that identifies the id of category
RoomCategoryName	Text	50	Identify the name category of the room

Table 4.4 Room Category Attribute Specification

University Order

Attribute	Data Type	Length	Description
OrderNo	Number	8	Primary Key for orders that identifies each order
DirectResponsibleID	Number	8	Foreign Key from Employee table, that identifies the id of the direct responsible
ReceiverID	Number	8	Foreign Key from employee table, that identifies the id of the item receiver
OrdererID	Number	8	Foreign Key from employee table, that identifies the ID of the order
PresidentID	Number	8	Foreign Key from employee, that identifies the ID of the president
DateOfOrder	Date	--	Identify the date of the order
ReceiveDate	Date	--	Identify the date of receive
Availability	Number	8	Identify the availability of the item in the warehouse
AdministrationAgreement	Boolean		Identify the agreement of the administration

Table 4.5 University Order Attribute Specification

Buildings

Attribute	Data Type	Length	Description
Buildingnumber	Number	2	Primary Key for building that identify the number of the building
Buildingname	Text	50	identify the name of the building

Table 4.6 Buildings Attribute Specification

Department

Attribute	Data Type	Length	Description
DepartmentID	Number	2	Primary Key for department that identifies each department
DepartmentName	Text	50	identify the name of the department

Table 4.7 Departments Attribute Specification

Destroyed

Attribute	Data Type	Length	Description
DestroyID	Number	6	Primary Key for destroyed item that identifies each item destroyed
DateofDestroy	Date	--	identify the date of the destroyed item

Table 4.8 Destroyed Attribute Specification

DestroyContent

Attribute	Data Type	Length	Description
DestroyID	Number	6	Primary Key for destroyed Content that identifies each destroyed Content, FK for destroyed
ItemID	Number	6	Primary Key that identifies the ID of the item,FK from item table
Quantity	Number	4	identifies the quantity of the destroyed item
Reason	Text	50	reason of destroyed

Table 4.9 Destroy Content Attribute Specification

Employees

Attribute	Data Type	Length	Description
EmployeeID	Number	3	Primary Key for Employee that identifies each employee
DepartmentID	Number	2	Foreign Key from department table, that identifies each department
Employeename	Text	50	the name of the employee
Address	Text	50	Address of the employee

Table 4.10 Employees Attribute Specification

LostContent

Attribute	Data Type	Length	Description
LostID	Number	6	Primary Key for Lost item that identifies the lost item, FK for lost
ItemID	Number	6	Primary Key for item that identifies the item, FK from item table
Quantity	Number	4	the quantity of the item lost
Notes	Text	50	Notes

Table 4.11 Lost Content Attribute Specifications

Loss

Attribute	Data Type	Length	Description
LostID	Number	6	Primary Key for Lost item that identifies the lost item
FromroomID	Number	4	Foreign Key from room table ,that identifies the room that lost the item
Date	Date	--	date of lost

Table 4.12 Lost Attribute Specifications

OrderContent

Attribute	Data Type	Length	Description
OrderID	Number	6	Primary Key for order content that identifies the order content , FK from university order table
ItemID	Number	6	Primary Key for item that identifies the item ID , FK from item table
Quantity	Number	4	the quantity of each item ordered
Notes	Text	50	Notes

Table 4.13 Order Content Attribute Specification

RoomContent

Attribute	Data Type	Length	Description
ItemID	Number	6	Primary Key for Item ID that identifies the item for room content , FK from item table
RoomID	Number	4	Primary Key for room content that identifies the room content , FK from room table
Quantity	Number	4	the Quantity of item in the room
cost	Currency		the cost of each item in the room

Table 4.14 Room Content Attribute Specification

Room

Attribute	Data Type	Length	Description
RoomID	Number	4	Primary Key for Room that identifies the RoomID
ItemResponsibleID	Number	3	Foreign Key from employee table, that identifies the Responsible ID
DirectResponsibleID	Number	3	Foreign Key from employee table, that identifies the Direct Responsible ID ,
BuildingID	Number	2	Foreign Key from Building table ,that identifies the Building ID
RoomCatID	Number	2	Foreign Key from Room Category, that identifies the Room Category ID
DeptID	Number	3	Foreign Key from Department table ,that identifies the Department ID
RoomName	Text	50	The Name of the Room
RoomNumber	Number	4	Number of the Room
RoomDescription	Var Chare	100	Description of the room

Table 4.15 Rooms Attribute Specification

Supplies

Attribute	Data Type	Length	Description
DeliveryID	Number	3	Primary Key for Delivery ID that identifies the supplies
ReceiverID	Number	3	Foreign Key from employee table, that identifies the receiver
AskPersonID	Number	3	Foreign Key from employee table, that identifies the AskPerson ,
VendorID	Number	3	Foreign Key from vendor table id ,that identifies the vendor
RoomID	Number	4	Foreign Key from Room table, that identifies the Room
Date	Date	--	Date of supplies
ReceiptDate	Date	--	Date of Receipt
ReceiptNumber	Number	6	Number of Receipt
Headacceptance	Boolean	T/F	Yes/No
Warehouseacceptance	Boolean	T/F	Yes/No

Table 4.16 Supplies Attribute Specification

SupplyContent

Attribute	Data Type	Length	Description
SupplyID	Number	3	Primary Key for Supply id that identifies the Supply, FK from supplies table
ItemID	Number	6	Primary Key for item that identifies the Item id,FK from item table
Quantity	Number	4	Quantity of item
Notes	Text	50	Notes
cost	Currency	--	Cost of each item
flag	Boolean	T/F	
updateq	Number	4	Update

Table 4.17 Supply Content Attribute Specification

TransferContent

Attribute	Data Type	Length	Description
TransferID	Number	6	Primary Key for Transfer id that identifies the Transfer, FK from Transfer table
ItemID	Number	6	Primary Key for item ,that identifies the Item id, FK from item table
Quantity	Number	4	Quantity of Transferred Item
Reason	Text	50	Reason of Transfer

Table 4.18 Transfer Content Attribute Specification

Transfers

Attribute	Data Type	Length	Description
TransferID	Number	6	Primary Key for Transfer id that identifies the Transfer
FromroomID	Number	4	Foreign Key for FromRoom ,that identifies the FromRoom id , FK from Room table
ToroomID	Number	4	Foreign Key for ToRoom that identifies the ToRoom id, FK from Room table
Dateoftransfer	Date	--	Date of Transfer

Table 4.19 Transfers Attribute Specification

Usage

Attribute	Data Type	Length	Description
UsageID	Number	6	Primary Key for Usage id that identifies each Usage
EmployeeID	Number	3	Foreign Key from Employee table ,that identifies each Employee Usage
Date	Date	--	Date of Usage

Table 4.20 Usages Attribute Specification

UsageContent

Attribute	Data Type	Length	Description
UsageID	Number	6	Primary Key for Usage id that identifies each Usage, FK from Usage table
ItemID	Number	6	Primary Key for Item ,that identifies each item, FK from Item table
Quantity	Number	4	Quantity of used item
Notes	Text	50	Notes
Flag	Boolean		
updateq	Number	4	Update

Table 4.21 Usage Content Attribute Specification

Vendors

Attribute	Data Type	Length	Description
VendorID	Number	3	Primary Key for Vendors that identifies each Vendor
VendorName	Text	50	Name of the Vendor
PhoneNumber	Text	10	Telephone for the Vendor
Address	Var Chare	100	Address of the Vendor

Table 4.22 Vendors Attribute Specification

4.5 Software interface Design

The following section describes the menus and submenus of the warehouse system.

- This is the main menu of the warehouse, where the user can choose to add or view information, to make a main operation or to output a report.



Fig 4.6 General Warehouse Interface

- Main operations menu, from this menu, the user can choose to make an order, to save a Supply or to save a used item.

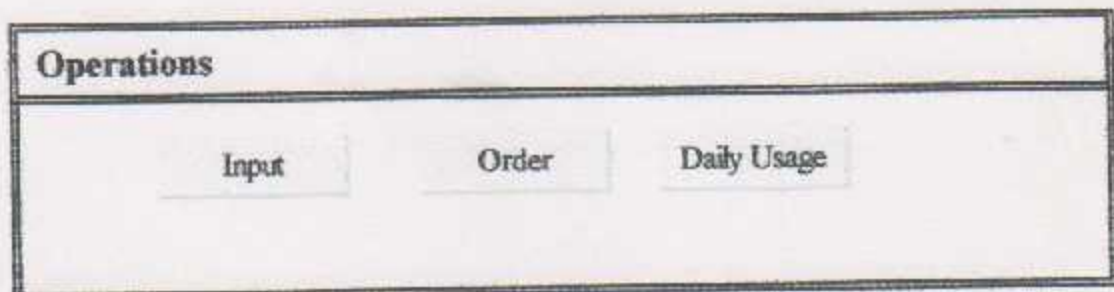


Fig 4.7 Main Operation Interface

- In this menu a user can save the information of a supply operation.

Input	
Order Number	Room ▾
Receiver Name ▾	Date
Order Name ▾	Reception Date
Receiver Name ▾	Reception No

Fig 4.8 Main Input Interfaces

- In this menu a user can save the information of an order operation.

Order		
Order Number	Order Name ▾	Order Date
Department ▾	Receiver Name ▾	Reception Date
Direct Responsible ▾	Room ▾	

Fig 4.9 Main Order Interface

- In this menu a user can save the information of a Daily usage operation.

Daily Usage	
Usage Number	
User Name	▼
Date	Change Materials

Fig 4.10 Main Daily Usage Interface

- In this menu a user can save the information about employee who order item from warehouse.

Employees	
Employee Number	
Employee Name	
Department	▼
Address	

Fig 4.11 Main Employee Interface

- In this menu a user can save the information each department in university.

Department
Department Number
Department Name

Fig 4.12 Main Department Interface

- In this menu a user can save the information of a room that contains items.

Rooms		
Room Number	Building ▼	Material Responsible ▼
Room Name	Department ▼	Direct Responsible ▼
Room Type ▼		

Fig 4.13 Main Rooms Interface

- In this menu a user can save the information Buildings of the PPU University.

Buildings
<input type="text" value="Building Number"/>
<input type="text" value="Building Name"/>

Fig 4.14 Main Buildings Interface

- In this menu describe the category of the room.

Rooms Category
<input type="text" value="Category Number"/>
<input type="text" value="Category Name"/>

Fig 4.15 Main Rooms Category Interface

- In this menu a user can choose one of submenu, as Add/View building.

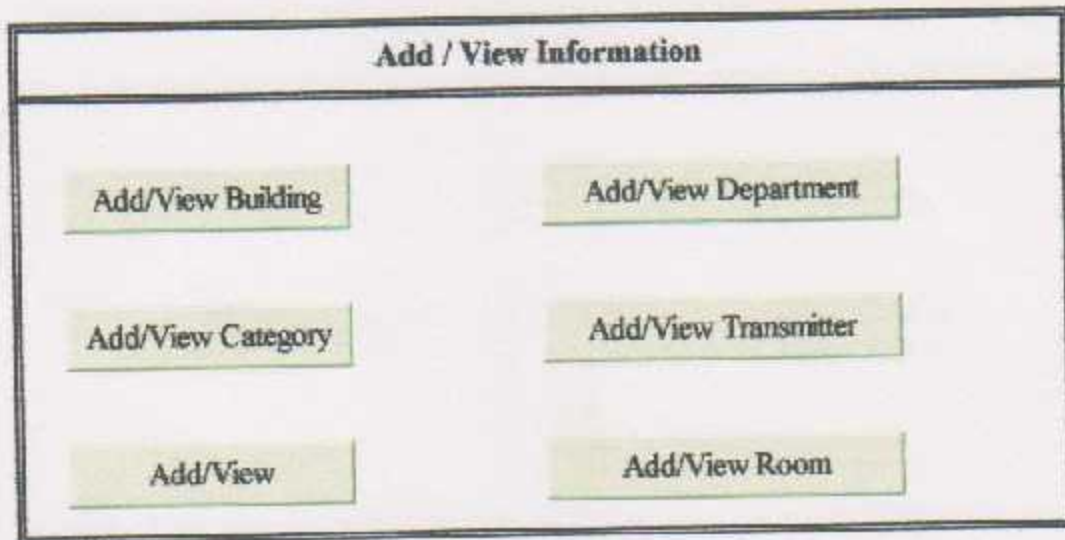


Fig 4.16 Main Add / View Information Interface

➤ **Software Output Report Design**

The following reports are output from the warehouse system. The first report represent order item from the warehouse. The second represents transfer of direct responsibility item to employee.

University Graduates Unions

رابطة الخليل / الخليل

Palestine Polytechnic University

جامعة بيرزك فلسطين

Financial Department - Warehouse

دائرة اللوازم المستودع

Tel: 2224978/2228912 Fax: 2217248

ت: ٢٢٢٤٩٧٨ / ٢٢٢٨٩١٢ ف: ٢٢١٧٢٤٨

طلب مواد من المستودع

تاريخ الطلب

رقم الطلب

-

ملاحظات	الكمية	المادة

Fig 4.17 (Report) Order Items from Warehouse

University Graduates Unions
Palestine Polytechnic University
Financial Department - Warehouse
Tel :2224978/2228912 Fax:2217248

رابطة الخليل / الخليل
جامعة بوليتكنك فلسطين
دائرة الموزم - المستودع

ت: ٢٢٢٨٩١٢ / ٢٢٢٤٩٧٨ ف: ٢٢١٧٢٤٨

تسليم عهدة مباشرة

رقم التسلسل _____

التاريخ _____ الطالب _____
تاريخ الفاتورة _____ المورد _____
رقم الفاتورة _____ إلى غرفة _____

ملاحظات	المجموع	السعر	الكمية	المدة
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/> المجموع الكلي				

المستلم

موافقة المستودع

موافقة المسؤول

Fig 4.18 (Report) Transfer Direct responsibility

University Graduates Unions

رابطة الخريجين / الخليل

Palestine Polytechnic University

جامعة بوليتكنك فلسطين

Financial Department - Warehouse

دائرة اللوازم المسودع

Tel: 2224978/2228912 Fax: 2217248

ت: ٢٢٢٤٩٧٨ / ٢٢٢٨٩١٢ ف: ٢٢١٧٢٤٨

الاستخدام من قبل الموظفين

اسم الموظف

حتى تاريخ / /

من تاريخ / /

ملاحظات

الكمية

المدة

Fig 4.19 (Report) Employee Daily Usage

University Graduates Unions
Palestine Polytechnic University
Financial Department - Warehouse
Tel: 2224978/2228912 Fax: 2217248

رابطة الخريجين / الخريبات
جامعة بوليتكنك فلسطين
دائرة اللوازم المستودع
ت: ٢٢٢٤٩٧٨ / ٢٢٢٨٩١٢ ف: ٢٢١٧٢٤٨

تحويل مواد بين الغرف

تاريخ التحويل / /

رقم التحويل _____

الى غرفة _____

من غرفة _____

السبب

الكمية

المادة

Fig 4.20 (Report) Room Item Transfer

Chapter Five

Implementation

5.1 Preface

5.2 System Pseudo Code

5.3 System Flow Chart

5.4 System Implementation

5.5 System Results

5.6 Conclusions

Chapter Five

Implementation

5.1 Preface

The system that we are developing it, is under construction, and this type of system is very useful cause it makes the operations in the warehouse to go easily, safety and decrease the efforts since all calculations is done by the computers and all information will be saved in a databases that can be go back at any time and reaches it in easy way.

And this type of system can be applied in this warehouse or any warehouse since all works in the warehouses is similar.

5.2 System Pseudo Code

In the following, the pseudo code for the structure charts is described, which shows the steps that the system should take to perform its operations.

1. Item form

Step1: Select item name from combo box

Step2: Read until find the item record based in the item id.

2. Daily Usage

Step1: If Employee exists on the data base

Begin

Select Employee

End

Else double-click on employee

Begin

If Department exists

```
Begin
  Select Department
End
Else double-click on department
  Begin
    Add Department
  End
  Add Employee
End
```

3. Department

Step1: Add Department

4. Employee

Step1: Select Department

If department exist

Begin

Add employcc

Add address

End

Else double-click on department

Begin

Add department

End

Add employee

End if

5. Employee Report

Step1: Select Employee from combo box

Step2: Enter range of date that employee uses items

Step3: Click Update

Step4: Click to output a report containing usage item at specified date

6. Items form

Step1: if Category exists

Begin

Select from combo box

End

Else

Begin

Double-click on category

Add category

End

End

Step2: Add Item

Step3: Optional: Add type, manufacturer, Descriptions, Model, Model no,

Sequence number, and Notes

7. Main form

Step1: Select

Begin

Case "Orders"

Go to Orders form

Case "Inputs"

Go to Inputs form

Case "Transferred"

Go to Transferred form

Case "Input/Output"

Go to Input/Output form

Case "Room and their Contents"

Go to Room and their Contents form

Case "Exchange Items"

Go to Exchange Items form

End

8. Room Category form

Step1: Add new Category

9. Rooms

Step1: If Employee exists

Begin

Select Employee

End

Else

Begin

Add new Employee

End

Step2: If Building Exist

Begin

Select Building

End

Step3: Enter Room symbol

Step4: If Room category exists

Begin

Select Room category

End

Else

Begin

Add new Category

End

Step5: If Department exists

Begin

Select Department

End

Else

Begin
 Add new Department
End

Step6: Enter Room Name

10. Room with Content

Step1: If Employee exists

 Begin
 Select Employee
 End

 Else

 Begin
 Add new Employee
 End

Step2: If Building Exist

 Begin
 Select Building
 End

 Else

 Begin
 Add new Building
 End

Step3: If Room category exists

 Begin
 Select Room category
 End

 Else

 Begin
 Add new Room Category
 End

Step4: If Department exists

 Begin

Select Department
End
Else
Begin
Add new Department
End

Step5: Enter Room name, Room Symbol, and Room Description

Step6: Fill content sub form with Item, Item quantity, and item cost

11. Supplies

Step1: if Receiver and Order exist in Employee data base

Begin
Select Receiver and Order from combo box
End
Else
Begin
Add new Employee
End

Step2: If vendor exists in data base

Begin
Select Vendor from combo box
End
Else
Begin
Add new Vendor
End

Step3: Select the room that asked item

Step4: Fill Date of order, Date of Bill, Bill number

Step5: Fill Item name, Item Quantity, Item Cost, and Notes in sub form

12. Transaction

Step1: Select

Begin

Case "Orders"

Go to Orders form

Fill form

Case "Inputs"

Go to Inputs form

Fill form

Case "Daily usage"

Go to Daily usage form

Fill form

End

13. Transfer

Step1: select or fill "from room"

Step2: select or fill "to room"

Step3: select or fill "date of transferred items"

Step4: select or fill "transferred item"

14. Vendor

Step1: Select

Begin

Case "Search"

Search for specific vendor

Case "Add or Update"

Add or Update information for new vendor

End

5.3 System Flow Charts

In this section, flow chart notation is used to describe the basic system operations.

The main flow chart describe the main operation in the system, the user can select one of the following:

- Main operation: if the user needs to save information about order operation or daily usage.
- Add/View: if the user needs to add or view information about employee or room or department or other.
- Output report: if user need report about any employee usage or other report, he choose the output report menu

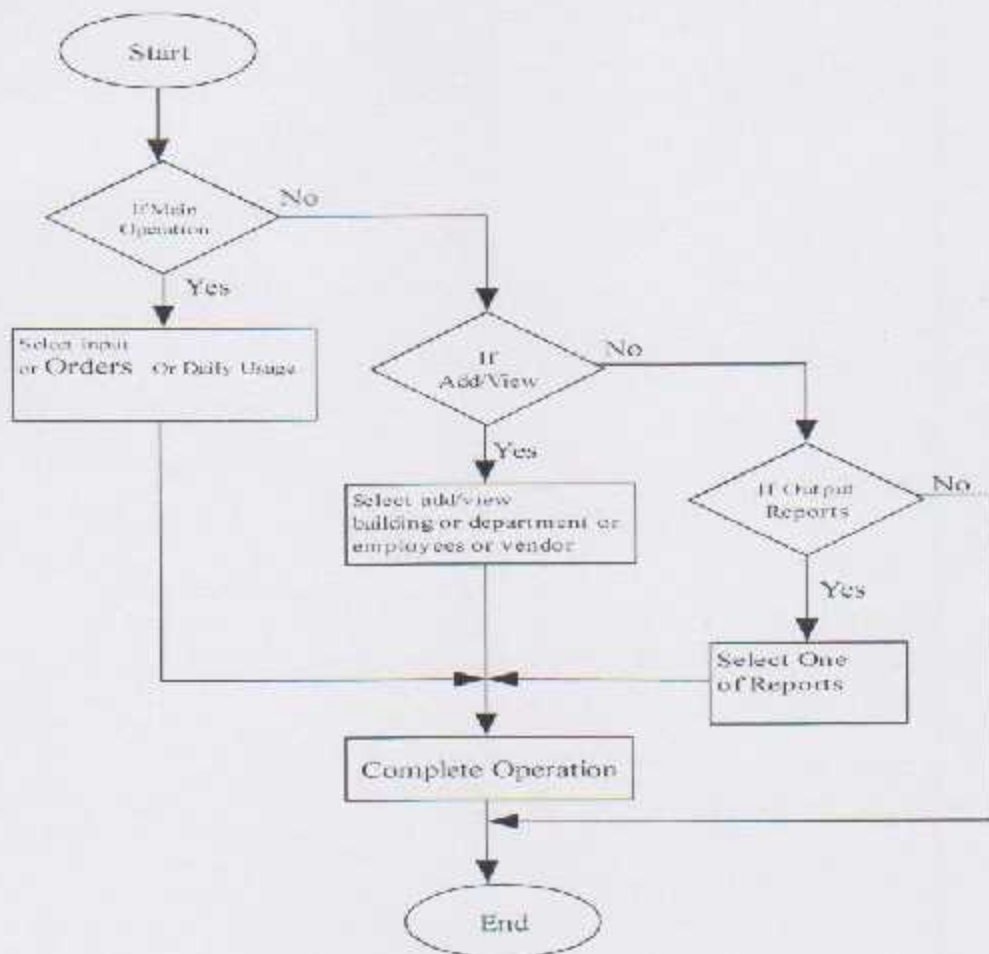


Fig 5.1 Main Operation

- The following flow chart represents how the user saves information about order.

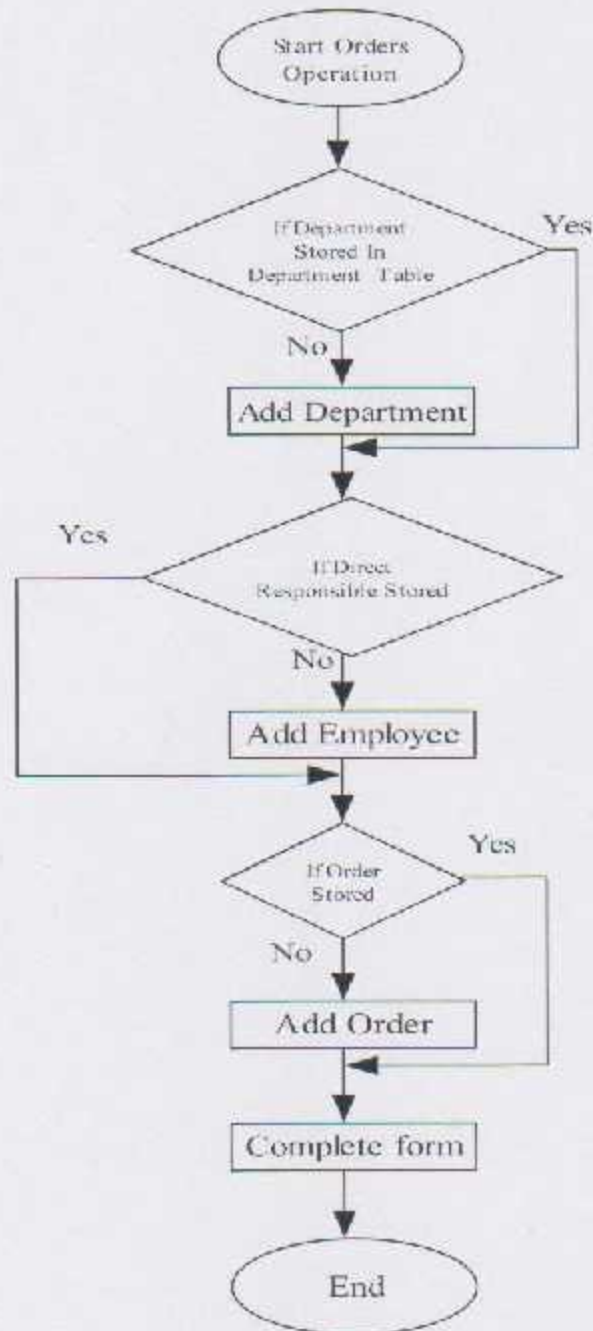


Fig 5.2 Order transaction

- The following flow chart represents how the user saves information about input operation.

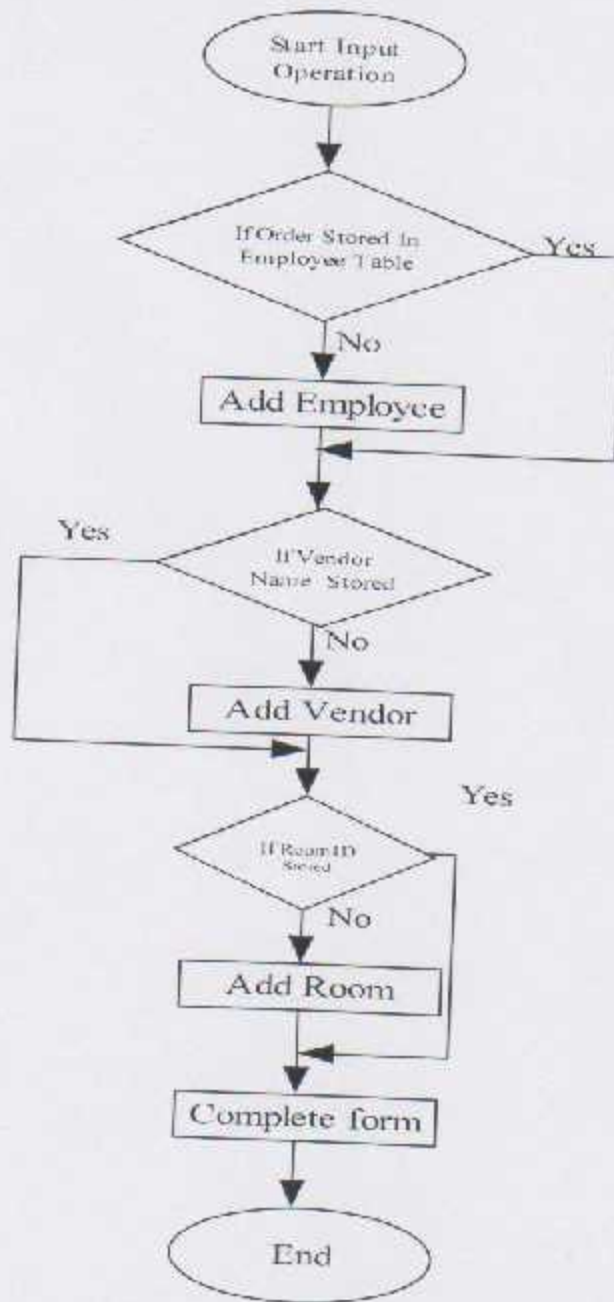


Fig 5.3 Input operations

- The following flow chart represents how the user saves information about daily usage operation.

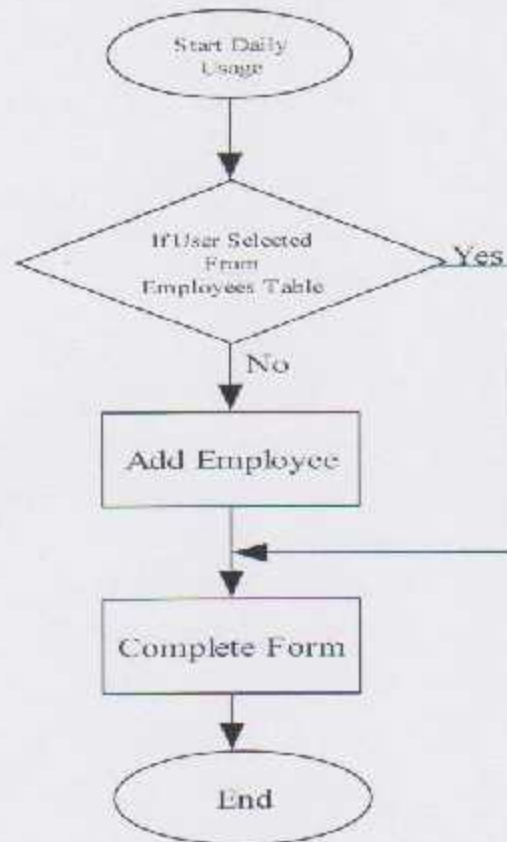


Fig 5.4 Daily Usages

5.4 System Implementation

Access is a database management system, developed by Microsoft and delivered with Microsoft office

Access DBMS (Database Management System) have several features listed, these includes:

- It is not expensive
- Easy to obtain
- Forth end and backend database support
- Easy to use and work with
- Visual basic language support

- Validation and masks for data fields support
- OLE objects support
- Comes with Microsoft office
- Database Documentation support
- Support creating web access pages

Access database specification is listed in the following table:

Attribute	Maximum
Microsoft Access database (.mdb) file size	2 gigabytes minus the space needed for system objects.
Number of objects in a database	32,768
Modules (including forms and reports with the HasModule property set to True)	1,000
Number of characters in an object name	64
Number of characters in a password	14
Number of characters in a user name or group name	20
Number of concurrent users	255

Table 5.1 Access Database Specification

We decided to choose access as the implementation program for the software system because of its features (listed above), and because our system requirements such as the size of the system are possible to implement using access DBMS.

The procedures that will be taken to develop the system are:

- Creating the tables that were obtained from the Entity relationship diagram
- Creating the relationships between the created tables

- Creating modules and queries needed for reports and forms
- Creating the UI (User interface) for the user forms
- Creating the VB code for the user forms
- Creating user reports interfaces and code
- Testing the application and refining the form design if needed
- Making an exe file for system installation
- Installing the program

5.5 System Results

This system will display different screens that contain information about:

1. Form of Order that will output report about specific order.
2. Form of Supplies that will output report about specific supplies.
3. Form of Transferred item that will output report about specific supplies whether it is lost, destroyed, or transferred.
4. Form of Employees that will view employee usage about specific employee.
5. Form of Main operations that will be able you to choose from Orders, Input, or daily usage and be able you to fill information.
6. Form of transferred item that will transfer item from room to another room, then output report.
7. Form of Room and their contents that will be able to search specific room and will show the entire information about the room, be able to add new room with its contents, and be able to output a report about specific room.
8. Form of add/view information, that be able to add/view item, employee, vendors, room with contents, and room.
9. Form of add/view other information, that be able to add/view building, category, room category, and department.

10. Form of Output Report that will output reports about employee usage, orders, supplies, and transfers.

5.6 Conclusions

In this chapter the pseudo code and the structure charts of the system were designed and analyzed, these were implemented using Access Database Management System.

Several queries and macros are used and were listed in appendix c

Chapter Six

Testing

6.1 Introduction

6.2 System Testing

Chapter Six

Testing

6.1 Introduction

The Warehouse system must be tested to ensure that every unit or component in the project works as it is expected to work and to check its functionality; this guarantees that the project works properly.

6.2 System Testing

Warehouse system consists of many forms, these forms are tested separately to insure the functionality of each component, and each form performs some functions that will be tested. This section will show the form before testing and the results of the tests.

6.2.1 General form



Fig 6.1: General Menu

This figure shows the general form, showing the options that the program presents.

6.2.2 Main form Operations



Fig 6.2: Main Operations

This figure shows the main operations of the application.

6.2.2.1 Supplies testing

- Supply form before filling

المادة	الكمية	المسعر	المسعر الكلي	ملاحظات
	1	\$1.00		

Fig 6.3: Supplies form before testing

This figure shows supply form before filling it with data. This form used to supply any room with any required data.

This form has validation that assures that the date of the bill must be less or equal to the current date.

Warehouse

التاريخ يجب ان يكون تاريخ اليوم او اول

OK

Fig 6.4 Date validation testing in supplies form

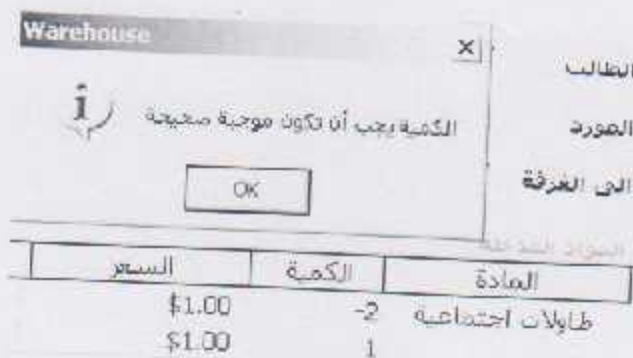


Fig 6.5 Quantity validation testing in supplies form

• Database before testing

رقم الغرفة	اسم الغرفة	التصنيف	اسم المادة	الكمية	السعر
1	المستودع	كهرباء والتلفزيون	مطبات كم	300	\$10.00
2	غرفة للمكثفات	المالية	مطبات كم	100	\$5.00
3	غرفة المعونات	المالية	مطبات كم	560	\$1.00
5139	مكتب الاجهزة الطبية	كهرباء والتلفزيون	مطبات كم	21	\$1,000.00
8212	مكتب تعليمات الحاسوب	كهرباء والتلفزيون	مطبات كم	3	\$0.00
8305	غرفة Server	كهرباء والتلفزيون	مطبات كم	211	\$7.00
9001	مكتب الكهرباء	كهرباء والتلفزيون	مطبات كم	300	\$10.00
2015	الأمثلة المناسبة	كهرباء والتلفزيون	مطبات كم	19	\$1.50
3201	مخازن التلفزيون	كهرباء والتلفزيون	مطبات كم	10	\$300.00
3333	مخازن B	كهرباء والتلفزيون	مطبات كم	0	\$0.00

Fig 6.6 Database for warehouse before adding items

The following table shows the number of items exists in database before addition

Item name	Item quantity in database
Computer	21
Printer	3

Table 6.1: Item quantity before adding

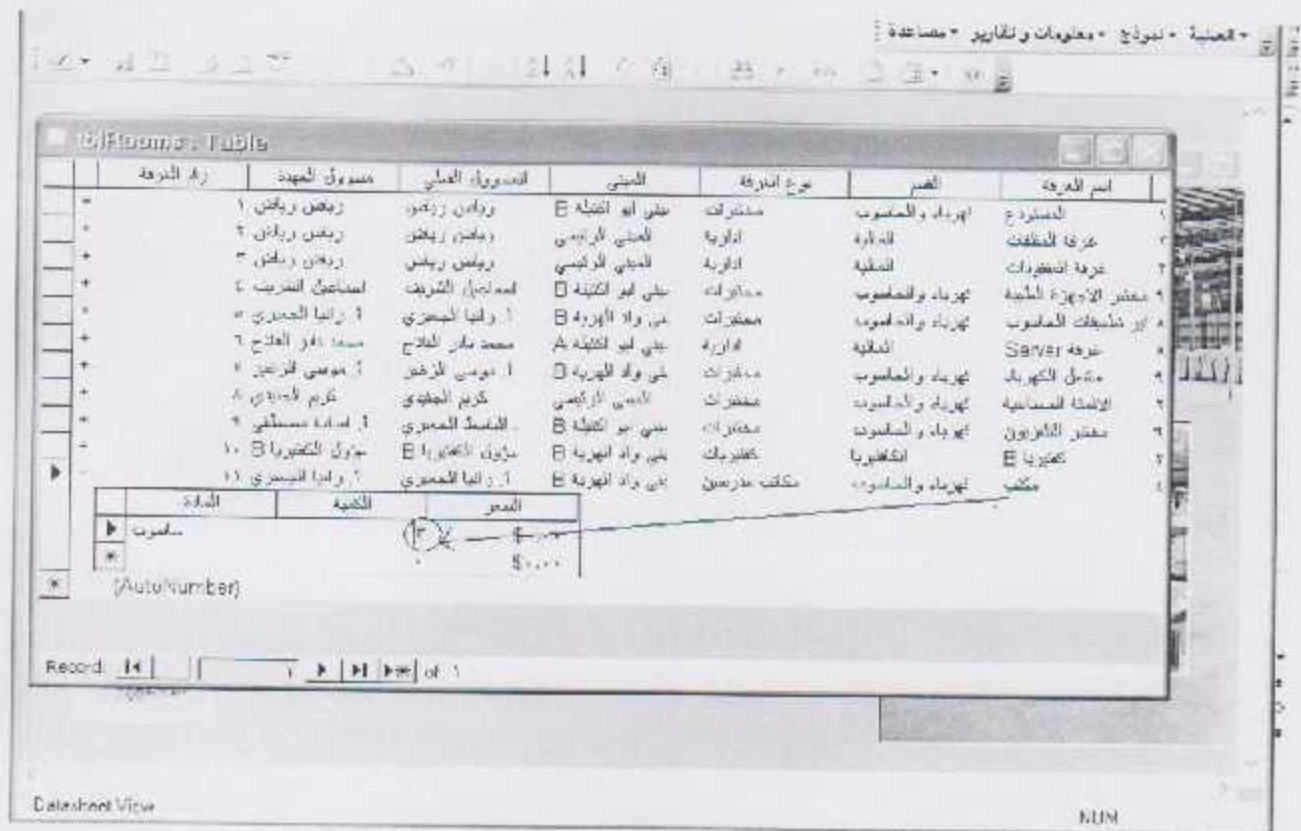


Fig 6.7 Database for office before ordering items

The following table shows the number of items exists in office database before Ordering

Item name	Item quantity in database
Computer	3

Table 6.2 Item quantity before Ordering

- Supplies form after filling

العربية • نموذج • معلومات وتقارير • مساعدة

الإصل الإسلامية إدخال الخراج

↓ العمل ↑ طباعت ↑ الاستخدام اليوم

12/1/2005 التاريخ			
7/1/2005 تاريخ الفاتورة	المستلم	استعمال الشركة	
0 رقم الفاتورة	الطالب	ملازم	
<input type="checkbox"/> موازنة المسحوق	المورد	الشركة العامة للكمبيوتر	
<input checked="" type="checkbox"/> موازنة المستودع	التي العرفه	المستودع	

ملاحظات	البيعه الكليه	السعر	الكمية	المادة
		\$400.00	3	حسبوت
		\$300.00	1	طابعة
		\$1.00	1	

Fig 6.8 Supplies form after testing

This figure shows supply form after filling it with data, this form used to supply warehouse with three computers and one printer.

The following table shows the number of items added to the warehouse

Item name	Quantity added
Computer	3
Printer	1

Table 6.3 Item quantity added

• Database after testing

العملية - نموذج - معلومات وتقرير - مساعدة

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

رقم الترخية	مسؤول المهمة	المسؤول الفني	الاسم	نوع الخدمة	العلم	اسم الخدمة
1	رياض ورياض	رياض ورياض	عبد الله بن عبد الله	مختبرات	توريد والاصحاب	المشروع
2	رياض ورياض	رياض ورياض	عبد الله بن عبد الله	الادوية	الملاحة	غرفة المبيعات
3	رياض ورياض	رياض ورياض	عبد الله بن عبد الله	الادوية	الملاحة	غرفة المبيعات
4	اسماعيل الشويخ	اسماعيل الشويخ	عبد الله بن عبد الله	مختبرات	توريد والاصحاب	مختبر الاحمراء الطبية
5	أ. واديا الحميري	أ. واديا الحميري	عبد الله بن عبد الله	مختبرات	توريد والاصحاب	توريد تطبيقات الحاسوب
6	محمد نقر الفلاح	محمد نقر الفلاح	عبد الله بن عبد الله	ادوية	الملاحة	توريد Server
7	أ. موسى الزعير	أ. موسى الزعير	عبد الله بن عبد الله	مختبرات	توريد والاصحاب	مشغل الكمبيوتر
8	كريم الحميري	كريم الحميري	عبد الله بن عبد الله	مختبرات	توريد والاصحاب	الاصالة المتكاملة
9	أ. اسفة مسلكي	أ. اسفة مسلكي	عبد الله بن عبد الله	مختبرات	توريد والاصحاب	تعدد الشبكات
10	مؤون الكعبريا	مؤون الكعبريا	عبد الله بن عبد الله	مختبرات	توريد والاصحاب	توريد E
11	أ. واديا الحميري	أ. واديا الحميري	عبد الله بن عبد الله	مكتب مدرسين	توريد والاصحاب	مكتب

Record: 1 of 1

Fig 6.9 Database for warehouse after ordering items

The following table shows the number of items exists in office database after Ordering

Item name	Item quantity in database
Computer	4

Table 6.4 Item quantity after Ordering

الغرفة	اسم الغرفة	القيم	نوع البنية	المبنى	المسؤول الفني	مسؤول البنية	رقم الغرفة																																																																																								
1	المستراح	كهرباء والحاسوب	مستويات	مبنى ابو الكيلة B	روان ريفان	ريمن ريفان	1																																																																																								
<table border="1"> <thead> <tr> <th>الغرفة</th> <th>اسم الغرفة</th> <th>القيم</th> <th>نوع البنية</th> <th>المبنى</th> <th>المسؤول الفني</th> <th>مسؤول البنية</th> <th>رقم الغرفة</th> </tr> </thead> <tbody> <tr> <td></td> <td>المطبخ</td> <td>100</td> <td>\$5.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>كراسي</td> <td>560</td> <td>\$1.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>مطبوع</td> <td>24</td> <td>\$1,000.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>Ventilator Te</td> <td>3</td> <td>\$0.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>طاولات استراحة</td> <td>212</td> <td>\$7.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>معدات Air</td> <td>300</td> <td>\$10.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>هوية</td> <td>19</td> <td>\$1.50</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>Deskjet</td> <td>10</td> <td>\$300.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>طابعة</td> <td>4</td> <td>\$300.00</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>*</td> <td>0</td> <td>\$0.00</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								الغرفة	اسم الغرفة	القيم	نوع البنية	المبنى	المسؤول الفني	مسؤول البنية	رقم الغرفة		المطبخ	100	\$5.00						كراسي	560	\$1.00						مطبوع	24	\$1,000.00						Ventilator Te	3	\$0.00						طاولات استراحة	212	\$7.00						معدات Air	300	\$10.00						هوية	19	\$1.50						Deskjet	10	\$300.00						طابعة	4	\$300.00						*	0	\$0.00				
الغرفة	اسم الغرفة	القيم	نوع البنية	المبنى	المسؤول الفني	مسؤول البنية	رقم الغرفة																																																																																								
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	مطبوع	24	\$1,000.00																																																																																												
	Ventilator Te	3	\$0.00																																																																																												
	طاولات استراحة	212	\$7.00																																																																																												
	معدات Air	300	\$10.00																																																																																												
	هوية	19	\$1.50																																																																																												
	Deskjet	10	\$300.00																																																																																												
	طابعة	4	\$300.00																																																																																												
	*	0	\$0.00																																																																																												
2	غرفة المبيعات	إدارية	إدارية	المبنى الرئيسي	روان ريفان	ريمن ريفان	2																																																																																								
3	غرفة المطبوعات	المطبخ	إدارية	المبنى الرئيسي	ريمن ريفان	ريمن ريفان	3																																																																																								
9109	مستقر الاجهزة الأخرى	كهرباء والحاسوب	مستويات	مبنى ابو الكيلة B	اسماعيل الشريف	اسماعيل الشريف	4																																																																																								
8212	مركز تطبيقات الحاسوب	كهرباء والحاسوب	مستويات	مبنى ابو الكيلة B	أ. رائد المحزون	أ. رائد المحزون	6																																																																																								
6300	غرفة Server	المطبخ	إدارية	مبنى ابو الكيلة B	محمد نادر الفلاح	محمد نادر الفلاح	6																																																																																								
9001	مستقر للكهرباء	كهرباء والحاسوب	مستويات	مبنى ابو الكيلة B	أ. موسى الزهر	أ. موسى الزهر	7																																																																																								
2015	الامانة للمطبخ	كهرباء والحاسوب	مستويات	المبنى الرئيسي	كريم المندي	كريم المندي	8																																																																																								
9201	مستقر التلفزيون	كهرباء والحاسوب	مستويات	مبنى ابو الكيلة B	د. الباسط الجمري	أ. اعلم مصطفى	9																																																																																								
3333	مستقر B	التقنيا	مستويات	مبنى ابو الكيلة B	مؤمل الشقران	مؤمل الشقران	10																																																																																								

Fig 6.10 Database for warehouse after adding items

The following table shows the number of items exists in warehouse room database after addition

Item name	Item quantity in database
Computer	24
Printer	4

Table 6.5 Item quantity after adding

• Output report after testing

رئاسة الجامعين بمحافظة الخليل
جامعة بوليتيكنك فلسطين
سلع تسليم العدة مباشرة

رقم التسلسل 6

تاريخ 7/1/2005	الطلب تاريخ الفاتورة	المستودع	اسم العنصر رقم الفاتورة 0	12/1/2005	التاريخ التفريغ العامة للبيانات
-------------------	-------------------------	----------	------------------------------	-----------	------------------------------------

الكمية	السعر	المجموع	ملاحظات
3	\$400.00	1200	
1	\$300.00	300	

1500 المجموع الكلي

موقعة المسؤول
[م]

موقعة المستودع
[م]

المبشم
اسماء التورق

Page 1 of 1

Fig 6.11 Output Supplies Report

This report indicates the items asked into supply form with quantities with costs

6.2.2.2 Orders testing

- Order form before filling

- العملية - نموذج - معلومات وتفاصيل - مساعدة

الإصمات الاستشفائية ادخال/الخروج

↓ ادخال ↑ طلبات ↑ الاستخدام اليومي

تاريخ الطلب		
تاريخ الاستلام		التنقسم / الأثر / العميد
<input type="checkbox"/> عواقبة الإدارة		المنسوب المباشر
<input type="checkbox"/> عنوان		التسليم
		الطالب
		العرق
		المرجع المستقرة

ملاحظات	الكمية	المادة

Fig 6.12 Orders form before testing

This figure shows order form before filling it of data.

• Database before testing

الدرجة	اسم البضاعة	القسم	نوع البضاعة	الاسم	المصدر المحلي	مسؤول البضاعة	رقم البضاعة
1	المستورد	كهرباء والمعلومات	مضغرات	مطابق ابو الكتيلة B	ريجنز ريفانز	ريجنز ريفانز	1
					الكمية	السعر	
					100	\$5.00	
					560	\$1.00	
					24	\$1,000.00	
					3	\$0.00	
					212	\$7.00	
					300	\$10.00	
					18	\$1.60	
					10	\$300.00	
					4	\$300.00	
					0	\$0.00	
2	غرفة المتفكك	المالية	ادارية	المبنى الرئيسي	ريجنز ريفانز	ريجنز ريفانز	2
3	غرفة السماعات	المالية	ادارية	المبنى الرئيسي	ريجنز ريفانز	ريجنز ريفانز	3
9109	مخبر الاجهزة الطبية	كهرباء والمعلومات	مضغرات	مبنى ابو كتيلة B	اصماعيل الشريف	اصماعيل الشريف	4
8212	مخبر الطبقات المسموم	كهرباء والمعلومات	مضغرات	مبنى واد الهرة B	رائد العمري	رائد العمري	5
8305	غرفة Server	المالية	ادارية	مبنى ابو كتيلة A	محمد بلال الفلاح	محمد بلال الفلاح	6
9001	مخبر الكهرباء	كهرباء والمعلومات	مضغرات	مبنى واد الهرة B	أ. موسى الزهير	أ. موسى الزهير	7
2015	اللائحة المساعدة	كهرباء والمعلومات	مضغرات	المبنى الرئيسي	كريم الجبدي	كريم الجبدي	8
9201	مخبر انطربون	كهرباء والمعلومات	مضغرات	مبنى ابو كتيلة B	د. الياس العمري	د. الياس العمري	9
3333	كهرباء B	الكهرباء	كهربويات	مبنى واد الهرة B	سوزان الكفوري B	سوزان الكفوري B	10
606	مكتب	كهرباء والمعلومات	مكتب مرسون	مبنى واد الهرة B	د. بيل عثمان	د. بيل عثمان	11

Fig 6.13 Database for warehouse before Ordering items

The following table shows the number of items that exists in database before Ordering

Item name	Item quantity in database
Computer	24

Table 6.6 Item quantity before Ordering

- Orders form after filling

Fig 6.14 Orders form after testing

This figure shows “order form” before filling it with data. This form asks for orders in 1/13/2005, and the orders delivered in 1/17/2005, and were delivered to Dr.Nabil Arman by Dr.Ghandi Manasrah

The following table shows the number of items ordered from the warehouse

Item name	Quantity ordered
Computer	1

Table 6.7 Item quantity Ordered

• Database after testing

الردية	اسم الترخية	الفهر	نوع الترخية	البيتي	المسؤول الفني	مسؤول الجهة	رقم الترخية
1	المستودع	كهرباء و الحاسوب	مستودعات	مبنى ابو كتيلة	ريضان رضان	ريضان رضان	1
					المعم	الكمية	السلة
					\$5.00	100	ورق
					\$1.00	560	كراسي
					\$1,000.00	23	Server
					\$0.00	3	Ventilator Te
					\$7.00	212	طاولات اجتماعية
					\$10.00	300	مطبات A4
					\$1.50	19	قهوة
					\$300.00	10	Deskset
					\$300.00	4	طابعة
					\$0.00	0	*
2	مخزن المبيعات	التعليق	ادارية	المبنى الرئيسي	ريضان رضان	ريضان رضان	2
3	مخزن المطارات	التعليق	ادارية	المبنى الرئيسي	ريضان رضان	ريضان رضان	3
9109	مستودع الاجهزة الطبية	كهرباء و الحاسوب	مستودعات	مبنى ابو كتيلة B	اسماعيل الشريف	اسماعيل الشريف	4
8212	مخزن لمعدات الحاسوب	كهرباء و الحاسوب	مستودعات	مبنى واد الهيرة B	ا. رابعا الحميري	ا. رابعا الحميري	5
0305	مخزن Server	الادارة	ادارية	مبنى ابو كتيلة A	محمد بن الفلاح	محمد بن الفلاح	6
9001	مخزن الكهرباء	كهرباء و الحاسوب	مستودعات	مبنى واد الهيرة B	ا. مومني الزهير	ا. مومني الزهير	7
2015	الادارة المتداخلة	كهرباء و الادارة	مستودعات	المبنى الرئيسي	كريم الحميدي	كريم الحميدي	8
9201	مخزن الطابعات	كهرباء و الحاسوب	مستودعات	مبنى ابو كتيلة B	د. الناصب الحميري	د. الناصب الحميري	9
3333	مخزن B	التعليق	مستودعات	مبنى واد الهيرة B	سواول الكفريا	سواول الكفريا	10
606	مكتب	كهرباء و الحاسوب	مكتب مدرسين	مبنى واد الهيرة B	د. سينا حرمي	د. سينا حرمي	11

Fig 6.15 Database for warehouse after ordering items

The following table shows the number of items exists in database after Ordering

Item name	Item quantity in database
Computer	23

Table 6.8 Item quantity after Ordering

6.2.2.3 Daily Usage testing

- Daily usage form before fill

The screenshot shows a web application interface with the following elements:

- Navigation Menu:** Located at the top, it includes links for "العناية" (Care), "نموذج" (Model), "معلومات وتدابير" (Information and Measures), and "مساعدة" (Help).
- Header:** A dark bar with the text "الاتصال الإسمية أمثال/إخراج" (Nominal connection/Output).
- Buttons:** Below the header, there are three buttons: "إدخال" (Input) with a downward arrow, "طلبات" (Requests) with an upward arrow, and "الاستخدام اليومي" (Daily Use) with an upward arrow.
- Form Fields:** The main area contains several input fields, including "تاريخ المستخدم" (User Date) and "المستخدم" (User).
- Table:** A table with the following columns: "ملاحظات" (Remarks), "الكمية" (Quantity), and "المادة" (Material). The table is currently empty.

Fig 6.17 daily usage form before testing

This figure shows daily usage form before filling it of data, this form used to see where different daily usage is performed

• Database before testing

الدرجة	اسم البند	القسم	نوع البند	الاسم	المسؤول الفني	مسؤول البند	رقم البند
1	المستودع	كهرباء والحاسوب	مكاتب مدرسين	المبنى الرئيسي	زيد بن زيدان	زيد بن زيدان	1
						الكمية	السعر
						98	\$5.00
						560	\$1.00
						21	\$1,000.00
						3	\$0.00
						211	\$7.00
						300	\$10.00
						18	\$1.50
						8	\$300.00
						0	\$0.00
2	غرفة للمطبخ	المبنى	ادارية	المبنى الرئيسي	زيد بن زيدان	زيد بن زيدان	2
3	غرفة المحادثات	المبنى	ادارية	المبنى الرئيسي	زيد بن زيدان	زيد بن زيدان	3
9109	مكتب الأمانة العامة	كهرباء والحاسوب	مكتبات	مبنى ابو الكتيلة B	محمد بن الشريف	محمد بن الشريف	4
0212	مكتب تطبيقات الحاسوب	كهرباء والحاسوب	مكتبات	عن واد الهريه A	أ. رانيا العسوي	أ. رانيا العسوي	5
8305	غرفة Server	المبنى	ادارية	مبنى ريف الكتيلة A	محمد بن الفلاح	محمد بن الفلاح	6
9001	مبنى الكهرباء	كهرباء والحاسوب	مكتبات	عن واد الهريه B	أ. موسى الرزقي	أ. موسى الرزقي	7
2015	الإمتداد الصناعية	كهرباء والحاسوب	مكتبات	المبنى الرئيسي	كريم العبدوي	كريم العبدوي	8
9201	مكتب الطلاب	كهرباء والحاسوب	مكتبات	مبنى ابو الكتيلة B	د. الناصر العبدوي	د. الناصر العبدوي	9
3333	مكتبة B	المكتبة	مكتبات	عن واد الهريه B	سؤوك الكحلان B	سؤوك الكحلان B	10

Fig 6.18 Database for warehouse before daily usage

The following table shows the number of items exists in database before performing daily usage

Item name	Item quantity in database
papers	98

Table 6.9 Item quantity before performing daily usage

- Daily usage form after filling

• العناية • نموذج • معلومات وتعليق • مساعدة

الإصمات الإستمائية امثال/الخراج

↓ اذخال ↑ طلبات ↑ الاستخدام اليومي

المستخدم

التاريخ

د. غاندي ماجزه

1/1/2005

شماره الحسابية

	ملاحظات	الكمية	المادة
▶	ماعتون	5	ورق
✦			

Fig 6.19 Daily usage form after testing

This figure shows daily usage form after filling it of data.

• Database after testing

المرقة	اسم المرقة	القسم	نوع المرقة	المرقى	المستوى الثاني	المستوى الاولى	رقم المرقة
1	المستودع	كهرباء والمعلومات	مخلفات مخرب	المبنى الرئيسي	رياض رياض	رياض رياض 1	
					الكمية	الاسم	المادة
					93	\$5.00	ورق
					550	\$1.00	كراسي
					21	\$1,000.00	خامرون
					3	\$0.00	Ventilator fan
					211	\$7.00	مطويات اضافية
					300	\$10.00	مطبات 4x
					18	\$1.50	قهوة
					3	\$300.00	Deskjet
					0	\$0.00	*
2	غرفة المثلثات	ادارة	ادارية	المبنى الرئيسي	رياض رياض	رياض رياض 2	
3	غرفة المبيعات	التمهنة	ادارية	المبنى الرئيسي	رياض رياض	رياض رياض 3	
9105	مختر الاجهزة الطبية	كهرباء والمعلومات	مختبرات	مبنى ابو الكيلة B	اسماعيل الشريف	اسماعيل الشريف 4	
5212	مخر تطبيقات الحاسوب	كهرباء والمعلومات	مختبرات	مبنى ابو الكيلة B	ا. رابا الحميري	ا. رابا الحميري 5	
5305	غرفة Server	ادارة	ادارية	مبنى ابو الكيلة A	محمد نقر الفلاح	محمد نقر الفلاح 6	
9001	مشاة الكهرباء	كهرباء والمعلومات	مختبرات	مبنى ابو الكيلة B	ا. موسى الزعير	ا. موسى الزعير 7	
2015	الامانة المستعملة	كهرباء والمعلومات	مختبرات	المبنى الرئيسي	كريم الكندي	كريم الكندي 8	
9201	مختر التلفزيون	كهرباء والمعلومات	مختبرات	مبنى ابو الكيلة B	د الشمس الحميري	ا. امدان مستطفي 9	
3333	كهرباء B	الكهرباء	كهرباء	مبنى ابو الكيلة B	مروان الكندي A	مروان الكندي B 10	

Fig 6.20 Database for warehouse after daily usage

The following table shows the number of items exists in database after performing daily usage

Item name	Item quantity in database
papers	93

Table 6.10 Item quantity after performing daily usage

Chapter Seven

System Installation

7.1 Installation

7.2 Maintenance and Reporting

Chapter Seven

System Installation

7.1 Installation

Before the system will be installed the following applications should be installed:

- Windows XP with Arabic language support
- Office XP

The system is advised to work in parallel with the previous system, which means using the new system while continuing using the previous system, so as ensure the system stability and accuracy.

7.2 Maintenance and Reporting

The users of the new system will be supplied with following reports

Error message	The form where the error occurred	Cause of the error
---------------	-----------------------------------	--------------------

Table 7.1 User report of program errors

These reports will be used for maintaining the system.

Chapter Eight

Conclusion and Future Work

8.1 Conclusion

8.2 Future Work

Chapter Eight

Conclusion and Future Work

8.1 Conclusion

There are many conclusions that are concluded after working with this project and in this section a description of the resulted conclusions will be pointed out:

- Access database management system is a powerful program that supports database creation and development.
- In designing a database for any system, it's important to analyze and investigate every aspect of the system.
- Putting the system in use doesn't mean that the development of the system has ended, but more development can be done to improve the efficiency and easiness
- Any database system should be monitored by a database administrator.

8.2 Future Work

The warehouse system could be improved and modified, and the following points can be implemented as future work:

- More forms, validation rules and reports for the warehouse database can be created based on warehouse demands.
- Expanding the warehouse to make it deals with all departments in the University Graduates Union.
- Implementing the Warehouse using different languages (i.e. ASP.NET, VB.NET).
- Web-Enabling the system, so the contact between university departments will be easier, reliable and saves time for ordering items.

Appendices

Appendix A: System Source Code

Appendix B: System User Manual

Appendix C: System Queries and Macros

Appendix A

System Source Code

- **Supplies Form VB Code**

Option Compare Database

```
Private Sub AskPersonID_DblClick(Cancel As Integer)
```

```
On Error GoTo Err_AskPersonID_DblClick
```

```
'adding a new employee
```

```
DoCmd.RunMacro "addemployee"
```

```
AskPersonID.Requery
```

```
ReceiverID.Requery
```

```
Exit_AskPersonID_DblClick:
```

```
Exit Sub
```

```
Err_AskPersonID_DblClick:
```

```
MsgBox Err.Description
```

```
Resume Exit_AskPersonID_DblClick
```

```
End Sub
```

```
Private Sub printsuppliescontents_Click()
```

```
On Error GoTo Err_printsuppliescontents_Click
```

```
Dim x As Integer
```

```
x = MsgBox("Are you sure you want to print", vbOKCancel)
```

```
If x = vbOK Then
```

```
If Headacceptance = True And Warehouseacceptance = True Then
```

```
DoCmd.OpenQuery "qupdatesupplies"
```

```
End If
```

```
DoCmd.OpenReport "rptsupplies", acViewPreview
```

```
Flag = True
```

```
End If
```

Form.Refresh

Exit_printsuppliescontents_Click:

Exit Sub

Err_printsuppliescontents_Click:

MsgBox Err.Description

Resume Exit_printsuppliescontents_Click

End Sub

Private Sub Form_Load()

DoCmd.GoToRecord , , acNewRec

End Sub

Private Sub printsuppliescontents_Exit(Cancel As Integer)

On Error GoTo Err_printsuppliescontents_Exit

If Flag = True Then

DoCmd.GoToRecord , , acNewRec

End If

Exit_printsuppliescontents_Exit:

Exit Sub

Err_printsuppliescontents_Exit:

MsgBox Err.Description

Resume Exit_printsuppliescontents_Exit

End Sub

Private Sub ReceiverID_DbClick(Cancel As Integer)

On Error GoTo Err_ReceiverID_DbClick

'adding a new employee

DoCmd.RunMacro "addemployee"

ReceiverID.Requery

AskPersonID.Requery

Exit_ReceiverID_DblClick:

Exit Sub

Err_ReceiverID_DblClick:

MsgBox Err.Description

Resume Exit_ReceiverID_DblClick

End Sub

Private Sub RoomID_AfterUpdate()

On Error GoTo Err_RoomID_AfterUpdate

'requering the contents of the room after it is updated

Dim cnt As Control

Set cnt = SupplyContent_subform.Controls("ItemID")

cnt.Requery

Exit_RoomID_AfterUpdate:

Exit Sub

Err_RoomID_AfterUpdate:

MsgBox Err.Description

Resume Exit_RoomID_AfterUpdate

End Sub

Private Sub RoomID_DblClick(Cancel As Integer)

On Error GoTo Err_RoomID_DblClick

'adding a new room

DoCmd.RunMacro "addroom"

RoomID.Requery

Exit_RoomID_DblClick:

Exit Sub

Err_RoomID_DblClick:

MsgBox Err.Description

Resume Exit_RoomID_DblClick

End Sub

Private Sub VendorID_DblClick(Cancel As Integer)

On Error GoTo Err_VendorID_DblClick

'adding a new vendor

DoCmd.RunMacro "addvendor"

VendorID.Requery

Exit_VendorID_DblClick:

Exit Sub

Err_VendorID_DblClick:

MsgBox Err.Description

Resume Exit_VendorID_DblClick

End Sub

- **University Orders Form VB Code**

```
Private Sub DirectresponsibleID_DblClick(Cancel As Integer)
```

```
On Error GoTo Err_DirectresponsibleID_DblClick
```

```
'adding a new employee
```

```
DoCmd.RunMacro "addemployee"
```

```
DirectresponsibleID.Requery
```

```
OrdererID.Requery
```

```
PresidentID.Requery
```

```
ReceiverID.Requery
```

```
Exit_DirectresponsibleID_DblClick:
```

```
Exit Sub
```

```
Err_DirectresponsibleID_DblClick:
```

```
MsgBox Err.Description
```

```
Resume Exit_DirectresponsibleID_DblClick
```

```
End Sub
```

```
Private Sub OrdererID_DblClick(Cancel As Integer)
```

```
On Error GoTo Err_OrdererID_DblClick
```

```
'adding a new employee
```

```
DoCmd.RunMacro "addemployee"
```

```
DirectresponsibleID.Requery
```

```
OrdererID.Requery
```

```
PresidentID.Requery
```

```
ReceiverID.Requery
```

```
Exit_OrdererID_DblClick:
```

```
Exit Sub
```

```
Err_OrdererID_DblClick:  
  MsgBox Err.Description  
  Resume Exit_OrdererID_DblClick  
End Sub
```

```
Private Sub PresidentID_DblClick(Cancel As Integer)  
On Error GoTo Err_PresidentID_DblClick
```

```
'adding a new employee  
DoCmd.RunMacro "addemployee"  
DirectresponsibleID.Requery  
OrdererID.Requery  
PresidentID.Requery  
ReceiverID.Requery
```

```
Exit_PresidentID_DblClick:  
Exit Sub
```

```
Err_PresidentID_DblClick:  
  MsgBox Err.Description  
  Resume Exit_PresidentID_DblClick  
End Sub
```

```
Private Sub ReceiverID_DblClick(Cancel As Integer)  
On Error GoTo Err_ReceiverID_DblClick
```

```
'adding a new employee  
DoCmd.RunMacro "addemployee"  
DirectresponsibleID.Requery  
OrdererID.Requery  
PresidentID.Requery
```

ReceiverID.Requery

Exit_ReceiverID_DbClick:

Exit Sub

Err_ReceiverID_DbClick:

MsgBox Err.Description

Resume Exit_ReceiverID_DbClick

End Sub

Private Sub report_Click()

On Error GoTo Err_report_Click

x = MsgBox("Are you sure you want to print", vbOKCancel)

If x = vbOK Then

If Administrationacceptance = True And Availability = True Then

DoCmd.OpenQuery "qryItemsforOrderstobeappended"

DoCmd.OpenQuery "orderuniversityupdate"

DoCmd.OpenQuery "orderuniversityupdate2"

End If

DoCmd.OpenReport "rptorders", acViewPreview

Flag = True

End If

Exit_report_Click:

Exit Sub

Err_report_Click:

```

    MsgBox Err.Description
    Resume Exit_report_Click
End Sub
Private Sub Form_Load()
' DoCmd.GoToRecord , , acNewRec
End Sub

Private Sub report_Exit(Cancel As Integer)
    If Flag = True Then
        DoCmd.GoToRecord , , acNewRec
    End If
End Sub

Private Sub RoomID_DblClick(Cancel As Integer)
On Error GoTo Err_RoomID_DblClick

'adding a new employee
    DoCmd.RunMacro "addroom"
    RoomID.Requery

Exit_RoomID_DblClick:
    Exit Sub

Err_RoomID_DblClick:
    MsgBox Err.Description
    Resume Exit_RoomID_DblClick
End Sub

```

- **Daily Usages Form VB Code**

Option Compare Database

Private Sub EmployeeID_DblClick(Cancel As Integer)

On Error GoTo Err_EmployeeID_DblClick

'adding a new employee

DoCmd.OpenForm "frmEmployees", acNormal, "", "", acAdd, acDialog

EmployeeID.Requery

Exit_EmployeeID_DblClick:

Exit Sub

Err_EmployeeID_DblClick:

MsgBox Err.Description

Resume Exit_EmployeeID_DblClick

End Sub

Private Sub Form_Error(DataErr As Integer, Response As Integer)

[EmployeeID].SetFocus

If [EmployeeID].Text = "" Then

DoCmd.RunMacro "mcremployeerequiredindu"

Response = acDataErrContinue

End If

End Sub

- **Transfers Form VB Code**

```
Option Compare Database  
Private Sub Form_Activate()  
On Error GoTo Err_Form_Activate
```

```
Form.Refresh
```

```
Exit_Form_Activate:
```

```
Exit Sub
```

```
Err_Form_Activate:
```

```
MsgBox Err.Description
```

```
Resume Exit_Form_Activate
```

```
End Sub
```

```
Private Sub FromRoomID_Change()
```

```
On Error GoTo Err_FromRoomID_Change
```

```
Dim cnt As Control
```

```
Set cnt = tblTransferContent_Subform.Controls("ItemID")
```

```
cnt.Requery
```

```
Exit_FromRoomID_Change:
```

```
Exit Sub
```

```
Err_FromRoomID_Change:
```

```
MsgBox Err.Description
```

```
Resume Exit_FromRoomID_Change
```

```
End Sub
```

```
Private Sub FromRoomID_Db1Click(Cancel As Integer)
```

```
'adding a new room
```

```
DoCmd.RunMacro "addroom"
```

```
FromRoomID.Requery
```

```
ToroomID.Requery
```

```
End Sub
```

```
Private Sub ToroomID_Db1Click(Cancel As Integer)
```

```
'adding a new room
```

```
DoCmd.RunMacro "addroom"
```

```
FromRoomID.Requery
```

```
ToroomID.Requery
```

```
End Sub
```

```
Private Sub Type_AfterUpdate()
```

```
On Error Go To Err_Type_AfterUpdate
```

```
'to provide the to room for the destroyed and lost items
```

```
If [Type].ListIndex = 0 Then
```

```
    ToroomID.Value = 3
```

```
    ToroomID.Enabled = False
```

```
Else
```

```
    If [Type].ListIndex = 2 Then
```

```
        ToroomID.Value = 2
```

```
        ToroomID.Enabled = False
```

```
    Else
```

```
        ToroomID.Enabled = True
```

```
        ToroomID.SetFocus
```

```

        ToroomID.Value = 0
    End If
End If

Exit_Type_AfterUpdate:
    Exit Sub

Err_Type_AfterUpdate:
    MsgBox Err.Description
    Resume Exit_Type_AfterUpdate

End Sub

Private Sub update_Exit(Cancel As Integer)
    On Error GoTo Err_update_Exit

    If Flag = True Then
        DoCmd.GoToRecord , , acNewRec
    End If

Exit_update_Exit:
    Exit Sub

Err_update_Exit:
    MsgBox Err.Description
    Resume Exit_update_Exit

End Sub

Private Sub update_Click()
    On Error GoTo Err_update_Click

    x = MsgBox("Are you sure you want to print", vbYesNoCancel)

```



```

If x = vbYes Then
DoCmd.OpenQuery "qryItemsforTransfertobeappended"
DoCmd.OpenQuery "qupdatetransfers"
DoCmd.OpenQuery "qupdatetransfers2"
DoCmd.OpenReport "rptTransfers", acViewPreview
Flag = True
Elseif x = vbNo Then
x = MsgBox("Do you want to view report only and not change items", vbYesNo)
If x = vbYes Then
Flag = True
DoCmd.OpenReport "rptTransfers", acViewPreview
End If

End If

```

```
Exit_update_Click:
```

```
Exit Sub
```

```
Err_update_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_update_Click
```

```
End Sub
```

```
Private Sub Command18_Click()
```

```
On Error GoTo Err_Command18_Click
```

```
DoCmd.Close
```

```
Exit_Command18_Click:
```

```
Exit Sub
```

```
Err_Command18_Click:
```

```
MsgBox Err.Description
```

```
Resume Exit_Command18_Click
```

```
End Sub
```

Appendix B

System User Manual

❖ الدخول للبرنامج

ادخل اسم المستخدم وكلمة المرور ومن ثم ادخل للبرنامج بالنقر على زر دخول.



❖ تغير صلاحيات المستخدمين

ادخل اسم المستخدم وكلمة المرور ومن ثم انقر زر صلاحيات المستخدمين، يمكن الآن تعديل الصلاحيات (انظر الشكل)

1. اختر أحد المستخدمين

2. ضع إشارة صح أو أزلها بالنقر على المربع

3. فتح النموذج. إضافة سجلات في النموذج. تعديل سجلات في النموذج. حذف النموذج. حذف سجلات في النموذج

❖ تنفيذ عملية إدخال

يمكنك الوصول لنموذج الإدخال بطريقتين

- اختر عملية من القائمة الرئيسية، من ثم اختر إدخال وإخراج
- اختر عمليات أساسية من النموذج الأساسي، ومن ثم اختر إدخال وإخراج

بعد اختيار احد الطرق قم بتعبئة النموذج وانقر زر الطباعة لإتمام العملية، كما هو موضح في الشكل التالي

❖ تنفيذ عملية استخدام يومي

يمكنك الوصول لنموذج الاستخدام اليومي بطريقتين

- اختر عملية من القائمة الرئيسية، من ثم اختر إدخال وإخراج، ثم اختر الاستخدام اليومي
- اختر عمليات أساسية من النموذج الأساسي، ومن ثم اختر إدخال وإخراج، ثم اختر الاستخدام اليومي

بعد اختيار احد الطرق قم بتعبئة النموذج وانقر زر تعديل المواد لإتمام العملية، كما هو موضح في الشكل التالي

نموذج الاستخدام اليومي

الأعمال الأساسية ادخال/إخراج

إعداد طبقات الاستخدام اليومي

زر تعديل المواد

ملاحظات	الكمية	الحالة
	1	

1 of 1

❖ تنفيذ عملية تحويل

يمكنك الوصول لنموذج تحويل بطريقتين

- اختر عملية من القائمة الرئيسية، من ثم اختر تحويل
- اختر عمليات أساسية من النموذج الأساسي، ومن ثم اختر تحويل

بعد اختيار احد الطرق قم بتعبئة النموذج وانقر زر حول المواد لإتمام العملية، كما هو موضح في الشكل التالي

نموذج التحويل

❖ إضافة سجل غير موجود

انقر مرتين للإضافة، وهي الطريقة المتبعة في جميع النماذج. مثال على ذلك إضافة قسم جديد بالنقر مرتين على قائمة الاسم في نموذج الموظفين.

❖ عمل تقرير عن المواد التي استخدمها موظف ما خلال فترة محددة

يجب أولاً فتح نموذج المستخدمين ويمكن عمل ذلك بطريقتين

- اختر من النموذج الأساسي إخراج تقارير ثم اختر الاستخدام من قبل الموظفين
- من نموذج المستخدمين انقر زر تقرير

بعد اختيار احد الطرق قم بتعبئة النموذج وانقر زر تحديث وثم انقر زر تقرير، كما هو موضح في الشكل التالي

❖ روية أو إضافة أو حذف مواد من احد غرفة، أو عمل تقرير عن المواد في معرفة ما زر تقرير

يجب أولاً فتح نموذج الغرف و محتوياتها و يمكن عمل ذلك بطريقتين:

- اختر عملية من القائمة الرئيسية، من ثم اختر الغرف و محتوياتها
- اختر عمليات أسبوعية من النموذج الأساسي، ومن ثم اختر الغرف و محتوياتها

بعد اختيار أحد الطرق يمكنك رؤية أو إضافة أو حذف مواد من غرفة تختارها، أيضاً يمكنك عمل تقرير عن المواد في الغرفة التي تم اختيارها، والشكل التالي يوضح ذلك

الغرف ومحتوياتها

رقم الغرفة:

رمز الغرفة:

رقم الغرفة:

مسؤول العمدة:

المسؤول المحلي:

العنى:

نوع الغرفة:

لنحوي

الاسم	الكمية	الوحدة
	100	
	560	كراسي
	20	اجاليس

Record: 04

عمل تقرير

Appendix C

System Queries and Macros

Some of the important queries that were used in the system are listed below

➤ For Order Operation

○ qryItemsforOrderstobeappended Query

This query is used for appending the items that are not in the room for which the items where ordered to.

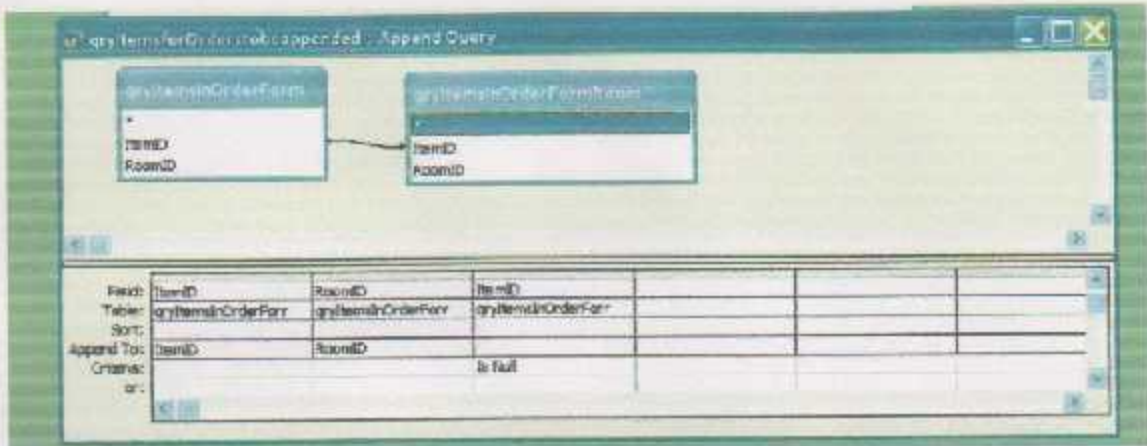


Fig 1 qryItemsforOrderstobeappended Query

○ OrderUniversityUpdate Query

This query is used to decrease the items quantity that where ordered from the warehouse and transferred to a room.

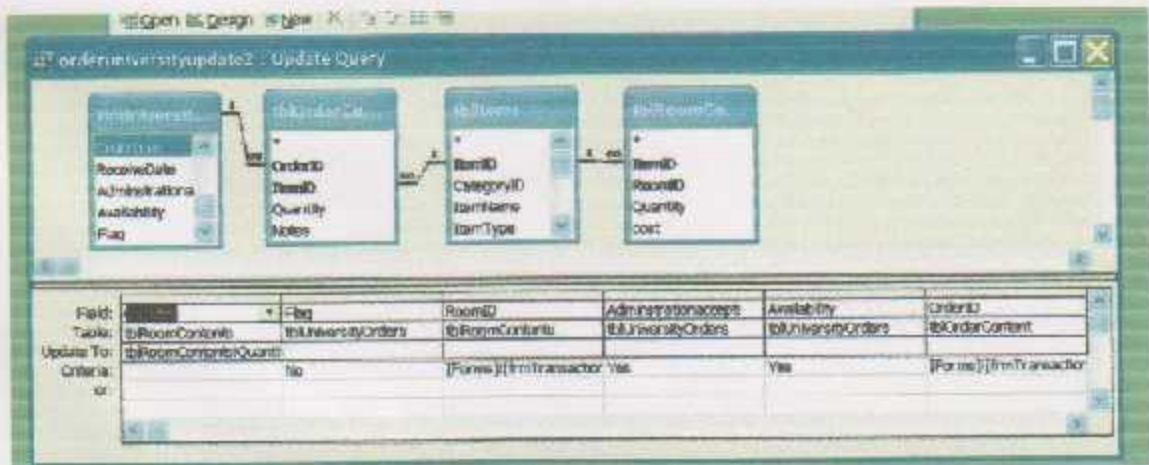


Fig 2 OrderUniversityUpdate Query

○ OrderUniversityUpdate2 Query

This query is used to increase the items quantity that where ordered from the warehouse and transferred to a room.

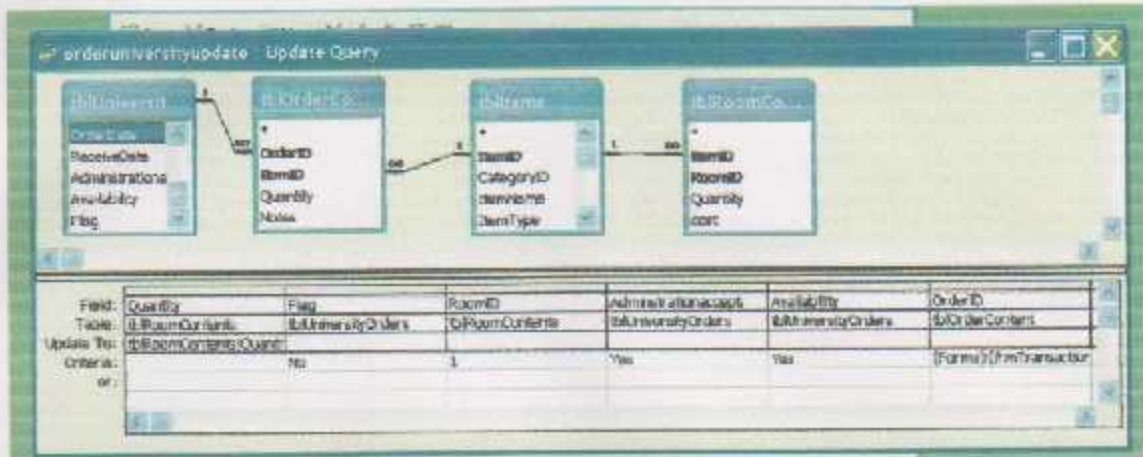


Fig 3 OrderUniversityUpdate2 Query

➤ For supplies operation

○ Qupdatesupplies Query

This query is used to update the quantity of the items that were supplied to the university

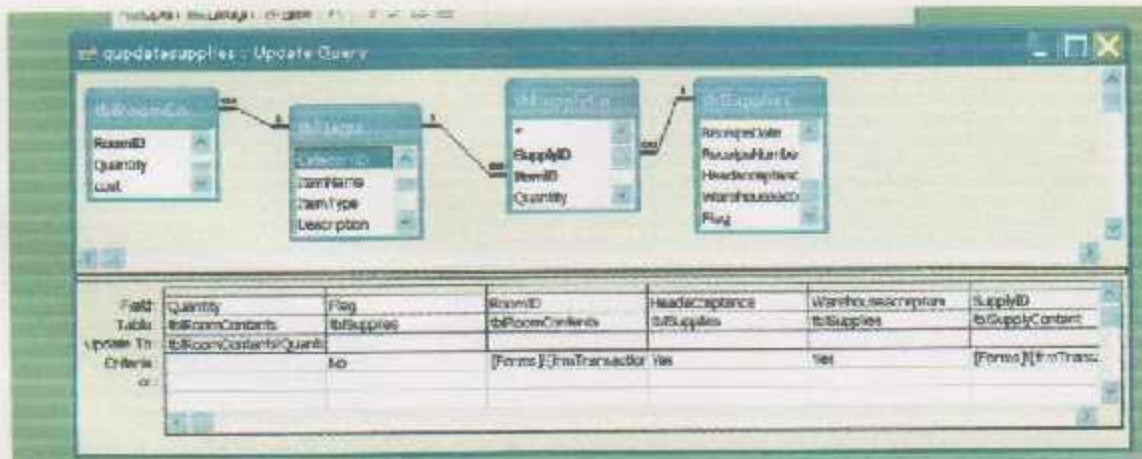


Fig 4 Qupdatesupplies Query

- For previous transfers
 - qryPreviousTransferContents

This query is used to select a previous transfer for viewing or reporting.

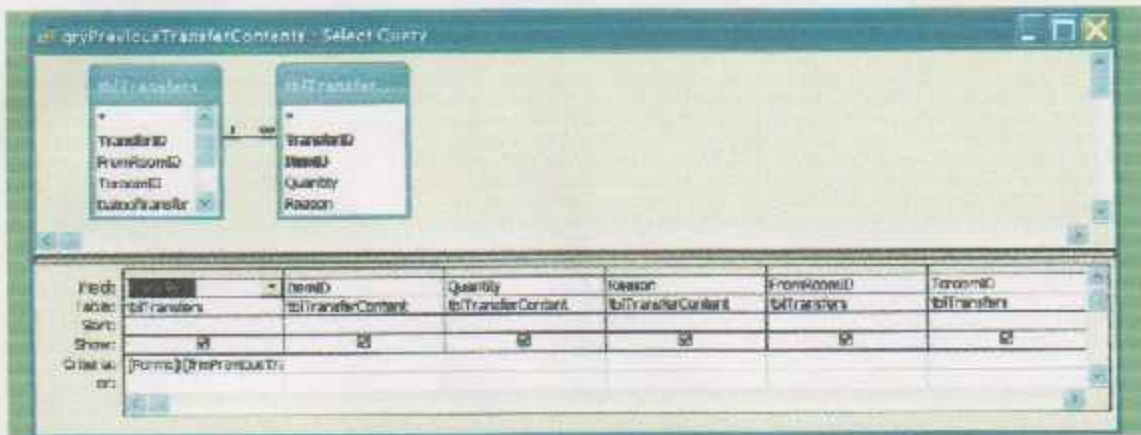


Fig 5 qryPreviousTransferContents Query

Examples of macros that were used in the system are listed below

- Mcropenbuildings Macro

This macro is used to open the buildings form in edit mode and go to new record in the form.

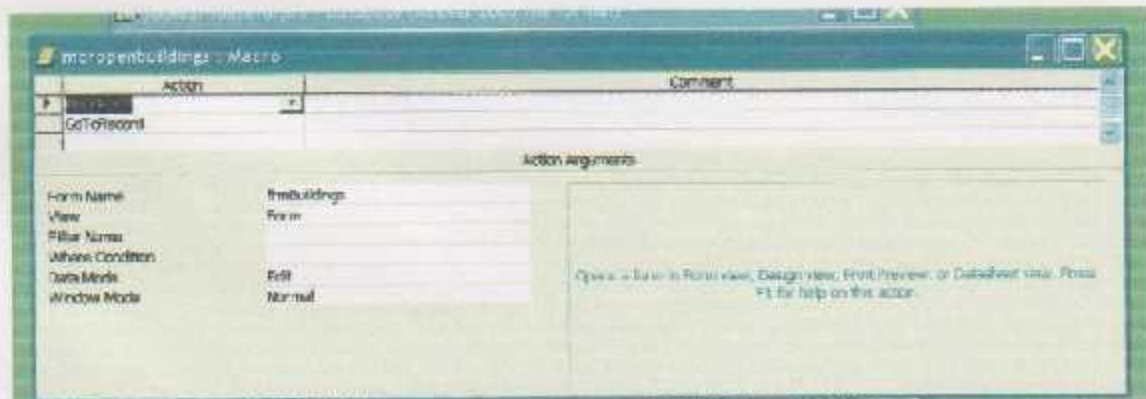


Fig 6 Mcropenbuildings Macro

➤ **Mcropentransfers Macro**

This macro is used to open the transfers form in edit mode and go to new record in the form.

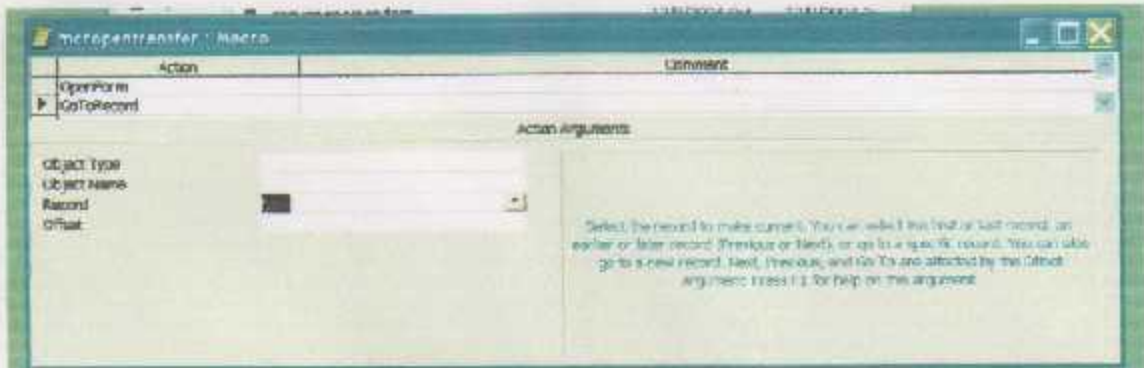


Fig 7 Mcropentransfers Macro

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