Palestine Polytechnic University

College Of Information Technology and Computer Engineering
Department of Information Technology

Re-building a New E-Learning
For
Palestine Polytechnic University

Team Members

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This project is to complement the graduate attributes of bachelor degree for Information Technology field of study

2014 – 2015

Abstract

Based on a study of Palestine Polytechnic University current e-Learning system we came to the conclusion that it severely suffers from complexity, ambiguity, lack of privacy and bad interface design that leads to an extremely low usage of the system. Moreover, a large set of students and instructors tend to use social media networks (like Facebook) to communicate with each other instead of using the current e-learning. The project is to build a new e-learning that is elegant, simple and easy to learn, easy to understand and with no complexities. This e-learning creates a fully social environment between instructors and students using modern social networking patterns and methods used also in social networks. This will keep students in connection with the system at all time and with all what's new in his university courses like exams, homework…etc. Hoping that the usage of this e-learning will increase the usage of the e-learning among all the university colleges. This project was implemented within 28 weeks of work, beginning with planning all phases of the project and ending with testing a fully functional e-learning system waiting for installation on the university servers.

بناءً على دراسة أجريت على نظام التعليم الالكتروني في جامعة بوليتكنك فلسطين، تم التوصل إلى نتيجة بأن النظام الحالي يعاني من الكثير من التعقيدات وعدم الوضوح إضافةً إلى قلة الخصوصية لمستخدميه وسوء واجهات النظام من حيث المظهر والألوان، الأمر الذي أدى إلى الشُّح في استخدامه . إضافةً إلى أنَّ عدد كبير من الطلاب والمدرسين يتجهون إلى استخدام مواقع التواصل الاجتماعية كالفيسبوك للتواصل فيما بينهم بدلاً من استخدام نظام التعليم الالكتروني الموجود حالياً. المشروع عبارة عن إنشاء موقع تعليم الكتروني جديد لجامعة بوليتكنك فلسطين جميل المظهر، سهل الإستخدام، سريع التعلم، بسيط وبعيد عن التعقيدات.هذا النظام يخلق بيئة تواصل اجتماعية بين الطلاب والمدرسين عن طريق استخدام اساليب وتقنيات حديثة متبعة في مواقع التواصل الاجتماعية الحديثة بحيث تبقي الطالب على اتصال دائم مع النظام وكل ما هو جديد في مواده من اعلانات وواجبات...الخ. على أمل ان يزيد هذا النظام من كمية استخدام موقع التعليم الالكتروني في كليات الجامعة. تم إنجاز المشروع خلال فترة عمل امتدت لثمانٍ وعشرين أسبوعاً، ابتداءً بالتخطيط لجميع مراحل المشروع وانتهاءً بفحص نظام كامل ينتظر تنصيبه على خادم الجامعة.

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Section One
Introduction

1.1 Project overview

The project aims to re-build a new E-learning System for Palestine Polytechnic University. This system will include the main and the most used functionalities of the original system. In addition to enhanced features that will be added to the system based on social networking patterns and methods.

The current E- learning system is an old model that was released in 2003. Based on a small research made by the project team on the current system, it appears that it has a lot of problems in many aspects. These problems include complexity, bad usability, ambiguity, lack of privacy, bad interface design.

The new system will be elegant, simple, unambiguous, user friendly, with a high privacy level. Different strategies will be used, such as not providing unused and ambiguous functionalities of the current system. This will solve its major problems. In addition, the new system will include social aspects to increase the interaction between students, and Instructors as well. These improvements aim to expand the range of users, which is currently limited to a very narrow range.

1.2 Motivation

The research led by the project team concluded that the majority of Instructors don't use the current system (see figure 4), and the ones who does only use a limited range of features.

As observed in figure 5; the largest number of e-learning usage come from College of IT & Computer Engineering, and we think the reason is that the system is not friendly with users with no IT background. Moreover, from our study of the current e-learning usage in College of IT & Computer Engineering the majority of e-courses are only used for file uploading/downloading and assignments. In addition to the current system limited usage, we realized that most of Instructors and students use the social networks to communicate with each other instead of using the e-learning website.
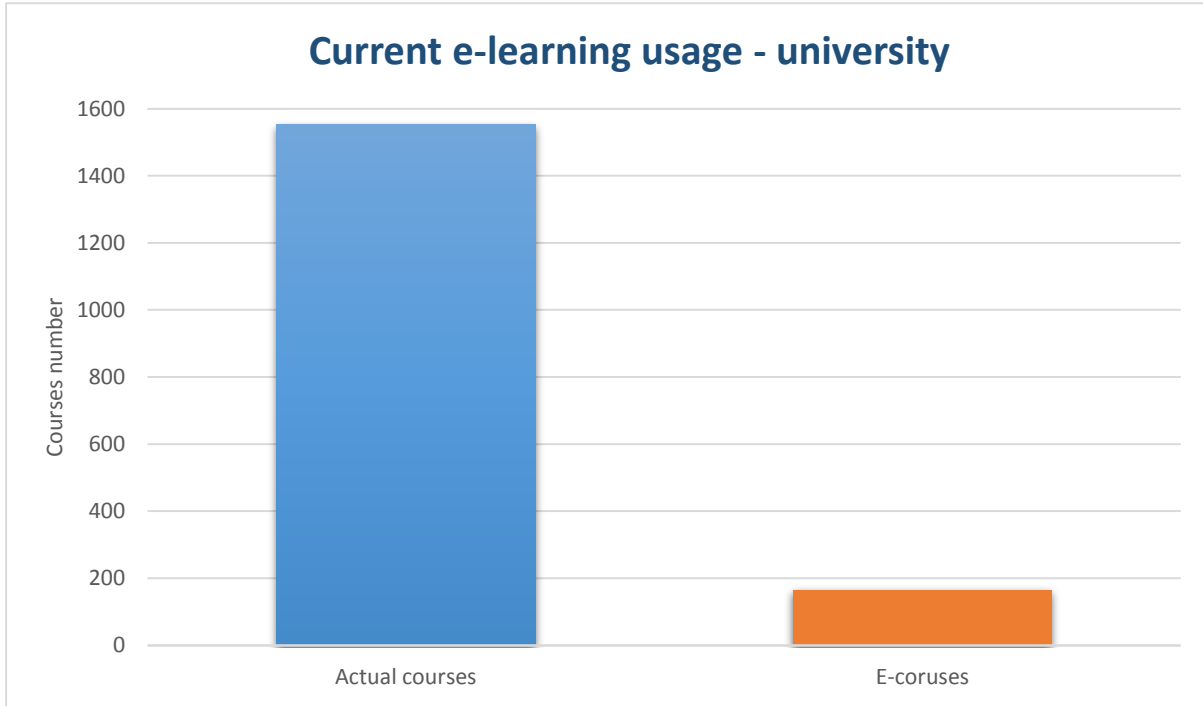
1

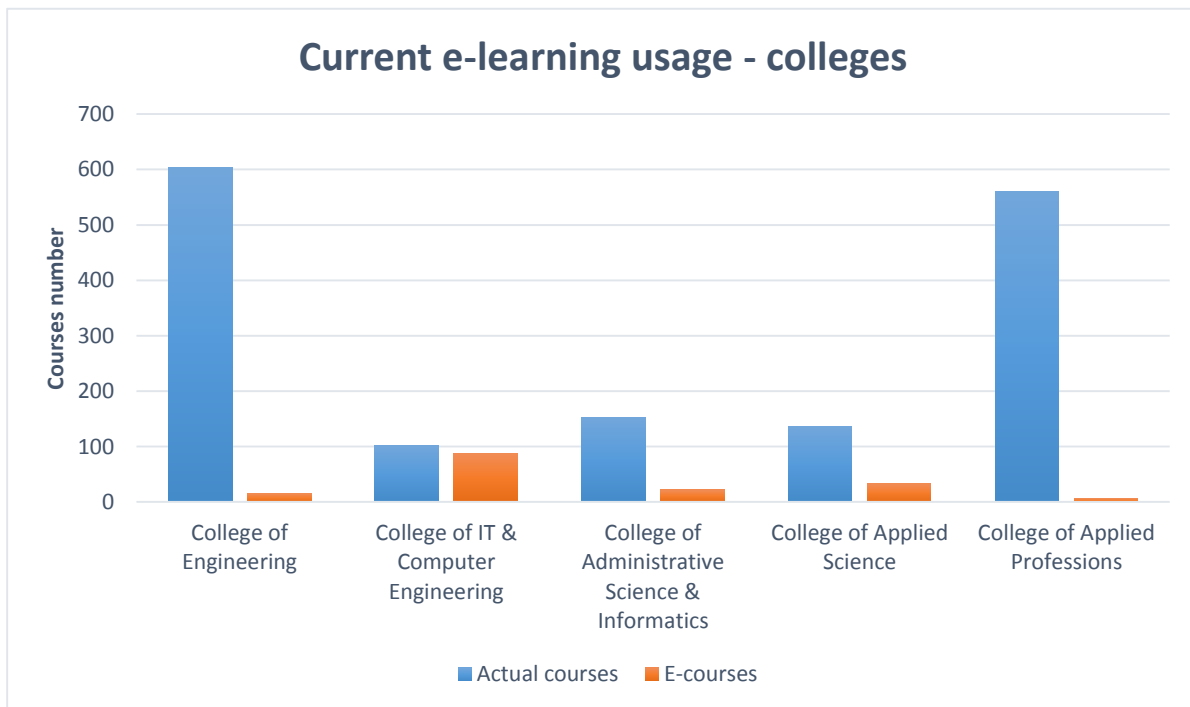*Figure 1 Current e-learning usage for the whole university - first semester 2014/2015*

Figure 2 Current e-learning usage for colleges - first semester 2014/2015

1.3 Scope:

The scope of the project is included within Palestine Polytechnic University Instructors, students and courses.

1.4 Objectives

Our objectives are:

- Create a system that will be elegant, simple, unambiguous and friendly, with high level of privacy in order to increase the usage of e-learning system within Palestine Polytechnic University colleges.
- Introduce enhanced features based on social networking patterns and methods to substitute the usage of social network websites.

1.5 Methodology

The project will be concluded using the agile system development life cycle.

1.6 Short project description

In general, the System provides the ability to create e-courses that are managed by one or more instructors. These E-courses are joined by students using a specific password set by the instructor. Unlike the original system, once the instructor is authenticated and grant permissions by the system administrator, he can create as many courses as he wants.

E-courses contain two main parts, a static one called "E-course Main page" and only the teacher can create contents in it, and those contents can be assignments, announcements and resources. The second part comes with a social flavor called "Discussion Room", which substitutes the usage of social networks. In discussion rooms any participant, either student or instructors, can create contents and place likes, comments on them.

A notification sub-system will be provided for each user that will inform him about events happening in e-courses he participated in; for example, "a new announcement has been published".

Another one is the "messages sub-system" that will provide users the ability to communicate simultaneously with each other like all modern conversation system. Every user will be reachable by his profile; within this space any user will be able to send him messages. Unlike the current system which only provides the ability to send messages between participants of the same course.

The profile is a space provided for each user, it contains his/her personal information. Including profile image, email, phone number …etc.

After user login, he will be redirected to his homepage. In this space any new feeds coming from discussion rooms in e-courses he enrolled will be delivered according to its recency.

Finally, a special kind of users called "administrator" are able to control and manage the whole system. For example, register students and instructors, Delete e-courses.

Section two

Planning

2.1 Overview

This section will contain the development mechanisms of the project. First, we will include the team members, their roles and tasks. In addition, we will state the resources needed in the project; the developmental and operational resources. Finally, we insert the project phases and timeline.

2.2 Project team members' roles and responsibilities

The project team is composed of two members. We will share and distribute tasks among us; that Include documentation, analyzing, designing and the implementation of the system.

Co-working strategy will be done as following:

- A large number of Team meetings will take place regularly through all project life cycle.
- The project documentation will be generated mainly in the regular meetings.
- The designing and implementation phase, team members will work in parallel, each from his workplace. The conjunction of the work will mainly occur in the team meetings.
- A connection between team members will take place regularly using online conversation services like Skype.

2.3 Development resources

2.3.1 Physical resources

Few physical resources will be needed for each team member through project phases (see table 1).

Table 1 Physical resources for each team member

Physical Resource	Features	Quantity
Laptop computer	**Processor :** Intel Core i5 CPU 2.67 GHz **Memory:** 6.00 GB DDR3 Ram **HDD :** 500 GB **Screen** : 15.6"	1
Desktop computer	**Processor :** Intel Core i5 CPU 3.30 GHz **Memory:** 6.00 GB DDR3 Ram **HDD :** 500 GB **Screen** : 20.0"	1

2.3.2 Software resources

Table 2 Software resources

Software Resource	Version	Quantity
Windows OS	Windows 8.1 embedded Industry	4
Adobe Dreamweaver CS6	12.0	2
Xampp	3.2.1	2
Adobe Photoshop CS6	13	4
Microsoft Office	2013	4
Notepad++	5.9.8	4
WANdisco Subversion	1.8.8-1	2

2.3.3 Human resources

As mentioned previously in section 2.2 the team will be composed of two members. Those team members will share roles shown in table 3.

Table 3 Human resources

Role	Quantity
Web designer	2
Web developer	

2.4 Operational Resources

The resources needed to operate the system are divided into three:

1. **Physical resources**: used to access the system and control it.
2. **Software resources**: programs needed in order to use the system.
3. **Human resources:** users of the system.

2.4.1 Physical resources

1- **Internet infrastructure** includes the server that hosts the website, taking into consideration that the server is already provided by the university.
2- **Computer** for each user to use the system.

2.4.2 Software resources

Software resources include an operating system with a modern browser.

2.4.3 Human resources

A computer center unit within the university already exists, so it's his responsibility to manage and maintain the system.

We assume the following roles will be assigned to the staff of the computer center unit regarding this system:

1- Administration
2- Maintenance

2.5 Project phases and timeline

2.5.1 Project phases

The life of the project is composed of four phases, which are:

Information gathering phase: This phase is considered as a preparatory phase of the project to gather information about the current e-learning. A study on the old system will be made to highlight its weakness points and drawbacks. This study includes unstructured interviews with students and some teachers, and a visit to the Center for Excellence in the university to discuss the current system drawbacks.

Development Phase: at this phase the construction of the project will be started using the appropriate languages for developing web applications. These languages are programming languages (PHP, JavaScript) and descriptive languages (HTML, CSS).

Implementation Phase: The implementation and the test of the project will be in this phase. This work will be done in collaboration with the e-learning department in the university.

Documentation Phase: At which all the steps performed, from the beginning of system planning till the start of working on the project, will be documented.
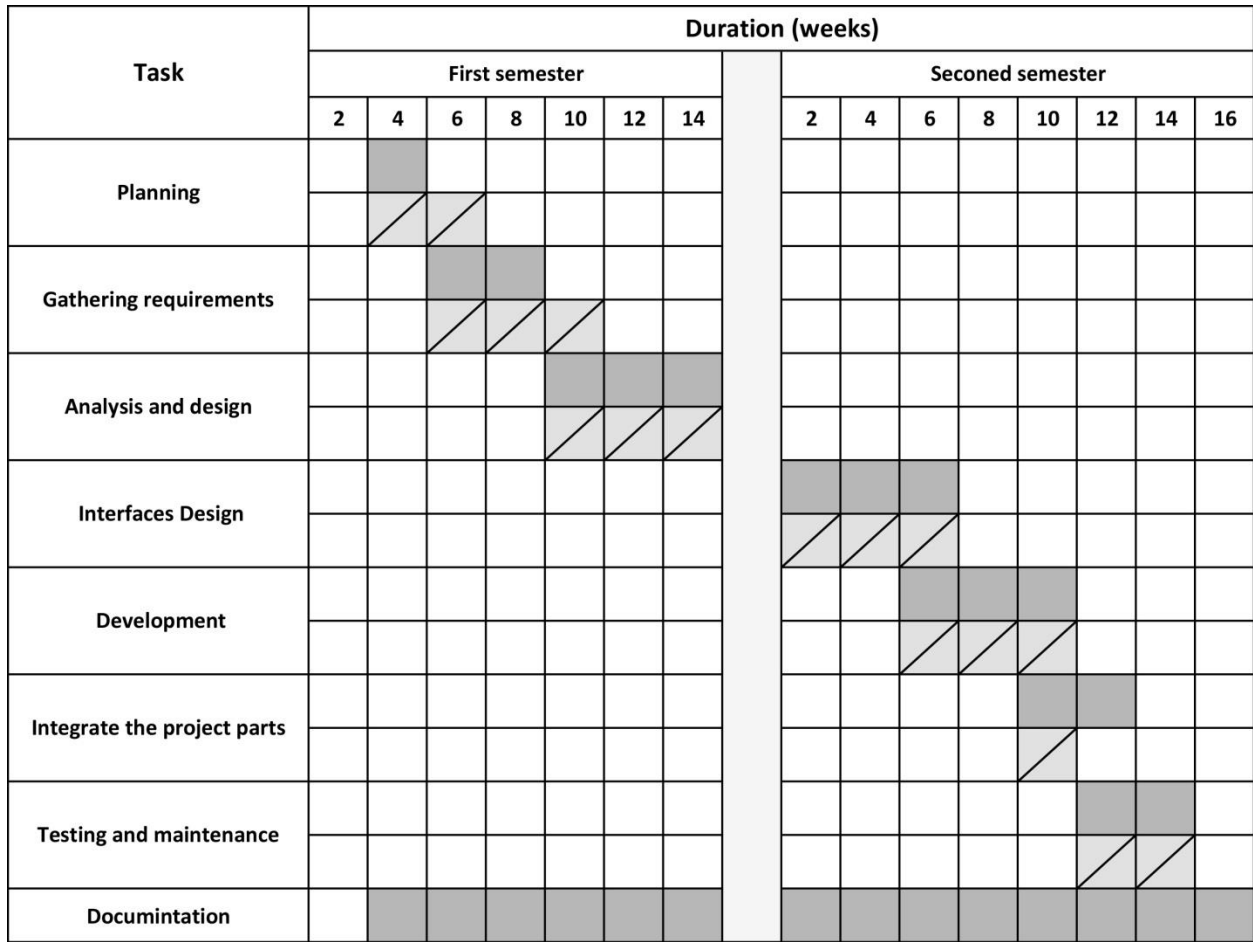
2.5.2 Project Timeline

Table 4 Project timeline

Task number	Task Name	Duration (weeks)
1	Project planning	4
2	Gathering Project requirements	4
3	Analysis and Project design	12
4	Project development	8
5	Project testing and maintenance	4
6	Documentation	28

2.5.3 Gantt Chart

Table 5 Gantt chart

Task	Duration (weeks)															
	First semester								Seconed semester							
	2	4	6	8	10	12	14		2	4	6	8	10	12	14	16
Planning		�©														
Gathering requirements			▩	▩												
Analysis and design					▩	▩	▩									
Interfaces Design									▩	▩	▩					
Development											▩	▩	▩			
Integrate the project parts													▩	▩		
Testing and maintenance														▩	▩	
Documintation		▩	▩	▩	▩	▩	▩		▩	▩	▩	▩	▩	▩	▩	▩

▩	Estimated time		◰	Actual time

Section Three

Software requirements Specification

3.1 Overview

Project requirements describe what to be done in the project and things that must be achieved. These requirements are divided into functional and non-functional requirements. This section illustrates these requirements in addition to a brief definition of each one.

3.2 Functional requirements

3.2.1 **User system enrollment:** The system will provide the administrator the ability to enroll users into the system.

3.2.2 **Create e-courses:** Instructors can create as much e-courses as they need without going back the administrator.

3.2.3 **Equip e-course with social media features:** A discussion room will be embedded within each e-course; on which the Instructors and students can post discussions and interact with each other.

3.2.4 **Equip instructors with management capabilities on e-courses:** Instructors are able to manage and control their e-courses. For example, they can add and remove resources.

3.2.5 **Provide a notification system for users.** This system will have the specialty of notifying users with new events in e-courses they enrolled in; for example, new announcements by the instructor.

3.2.6 **Provide messages (conversation) system between all users:** Users will be able to start conversations with each other.

3.2.7 **Provide a profile page for each user:** Each user will have his own profile page that contains main and personal information about him.

3.2.8 **Provide a personal homepage for each user:** It provides automatic updates of the latest feeds from discussion rooms in e-courses the user joined, upcoming assignments and latest announcements.

3.2.9 Supply an Administrator management and controlling system: The administrator will control and manage the whole website, users, courses…etc.

3.3 Non-Functional requirements

3.3.1 Simplicity: The website design will be simple to use and to deal with, unlike the current system which is complex and full of unneeded functionalities.

3.3.2 Elegant design: The system will have an elegant color schema and appropriate layouts for its webpages.

3.3.3 High usability: Easy to use, easy to learn, easy to remember, and helpful to users.

3.3.4 High level of privacy: A high level of privacy will be given to each user.

3.3.5 Extensibility & **Maintainability**: The project design will have the ability to be extended in the future; in case of having new functionalities to be added.

3.3.6 Compatible with all known browsers (earlier versions)

3.3.7 High code quality : In programming, the code is generally read more than written, so our code will be clear, well structured, easy to test and will be supported by code comments.

3.3.8 Security: The system will have appropriate security mechanisms ensuring the whole website security.

3.3.9 Performance: Reasonable response time for users with moderate internet access speed.

3.3.10 Documentation: The system will be well documented.

3.3.11 Backup: The system can make copies of the files or databases, so that they will be preserved in case of equipment failure or other catastrophe.

Section Four
Analysis and Design

4.1 Overview

This section contains diagrams that describe the system; to make it clearer. These diagrams include; class diagram, use cases, database schema.

4.2 Project Use Case

4.2.1 Use Cases Description (see figure 3)

Create And Manage E-course Scenario

An Instructor can create e-courses. The creation of theses e-courses goes through some steps; for instance, Provide required information of the new e-courses in 'create e-course' forum. The Instructors can add resources to the e-course homepage like assignments. They can also post discussions to their students on the discussion room; so they can interact with their students on e-course. Using this room, the instructors do not need to use any other social websites; like Facebook.

The following scenario illustrates the process of creating and managing e-courses:

1- Login to the system.
2- Click on create e-course button.
3- Provide required information (e-course name, password …etc.).
4- Submit the creating request, he will be redirected to the e-course main page.
5- Add some resources (files, images) to his students on the e-course main page.
6- Turn to the discussion room page for this e-course.
7- Add some posts to discuss with his students.

Notes:
- Administrator can do the same steps for e-courses.

User registration

For the student registration, students enroll to E-learning website automatically after the activation of their accounts on the registration system. Instructors Registration will be also done automatically when they have their email accounts on the university website.

View feeds from e-course

Users will get the latest updates from discussion rooms in e-courses they joined

Edit user profile

Each user has his own profile page to which other users can access. This page contains the main and personal information about the user, also he can edit those information.

Manage messages and Receive notifications

Users can start conversation between each other. An indicator will appear to the user if a new message is received.

The notification sub-system will keep the user updated with the latest news and updates on e-courses participated in. These include; announcements and assignments added.

4.2.2 General Use case Diagram
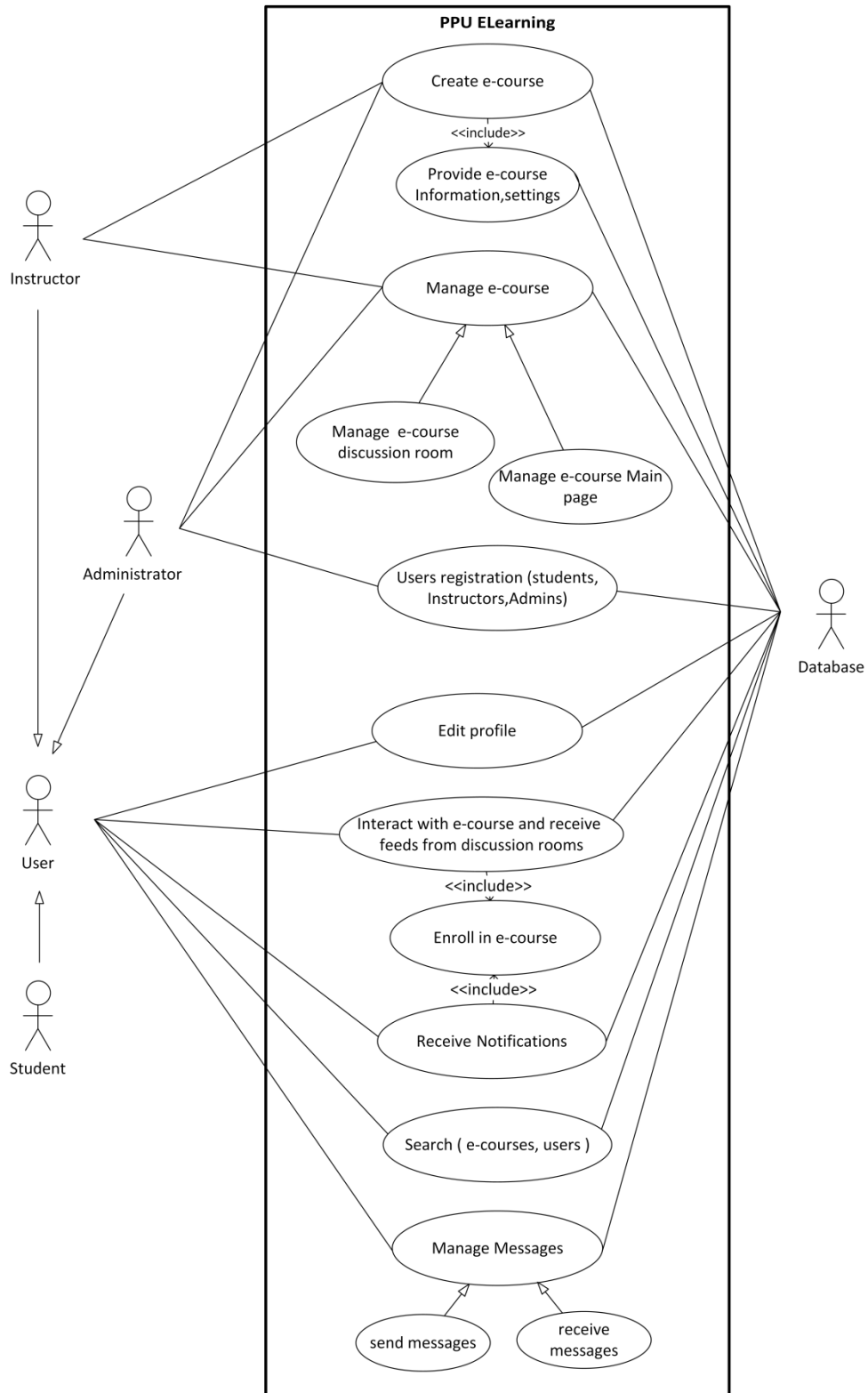
Figure 3 Use case diagram

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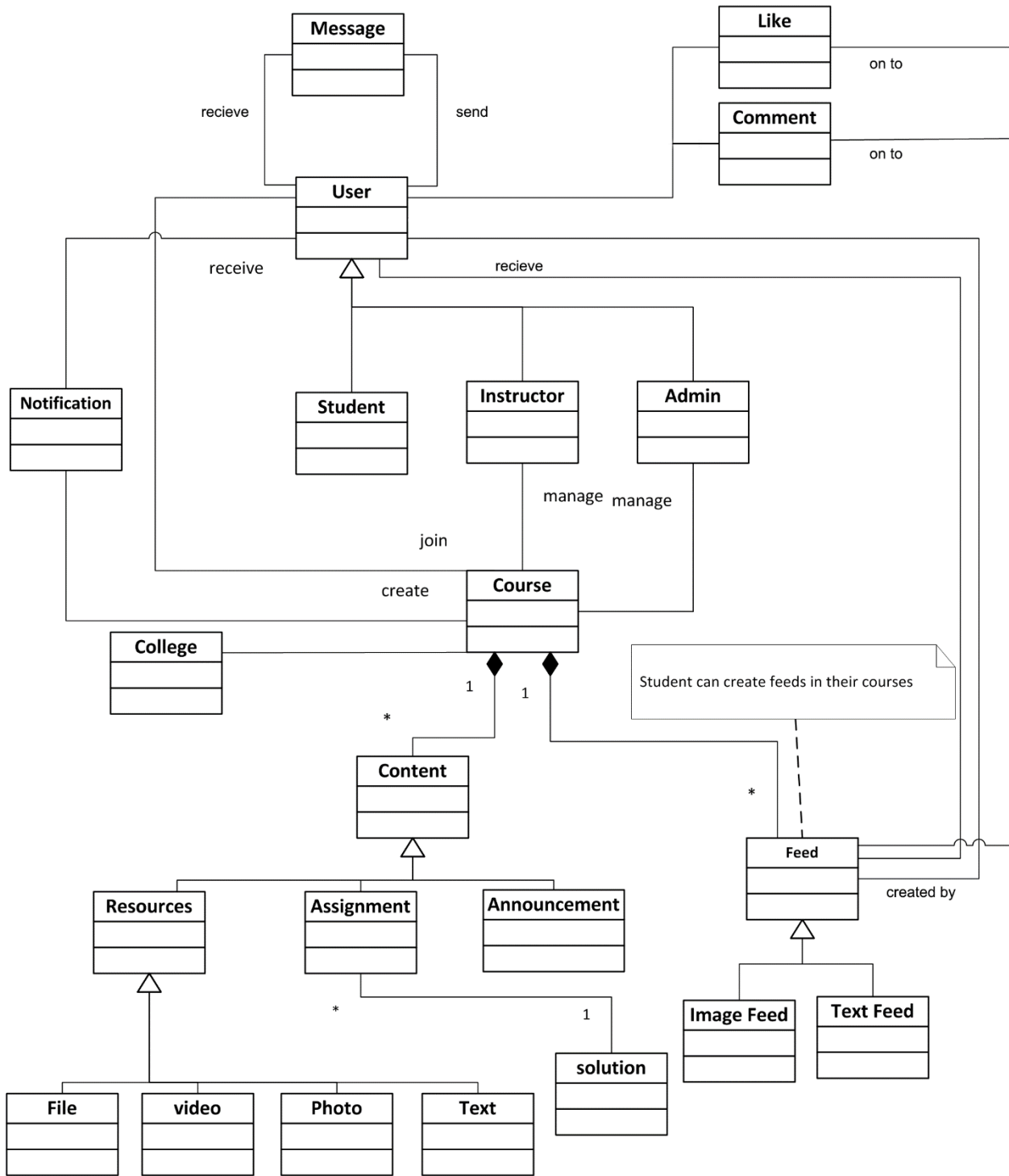
4.3 Class diagram

Figure 4 Class diagram

4.4 **Database UML diagram**
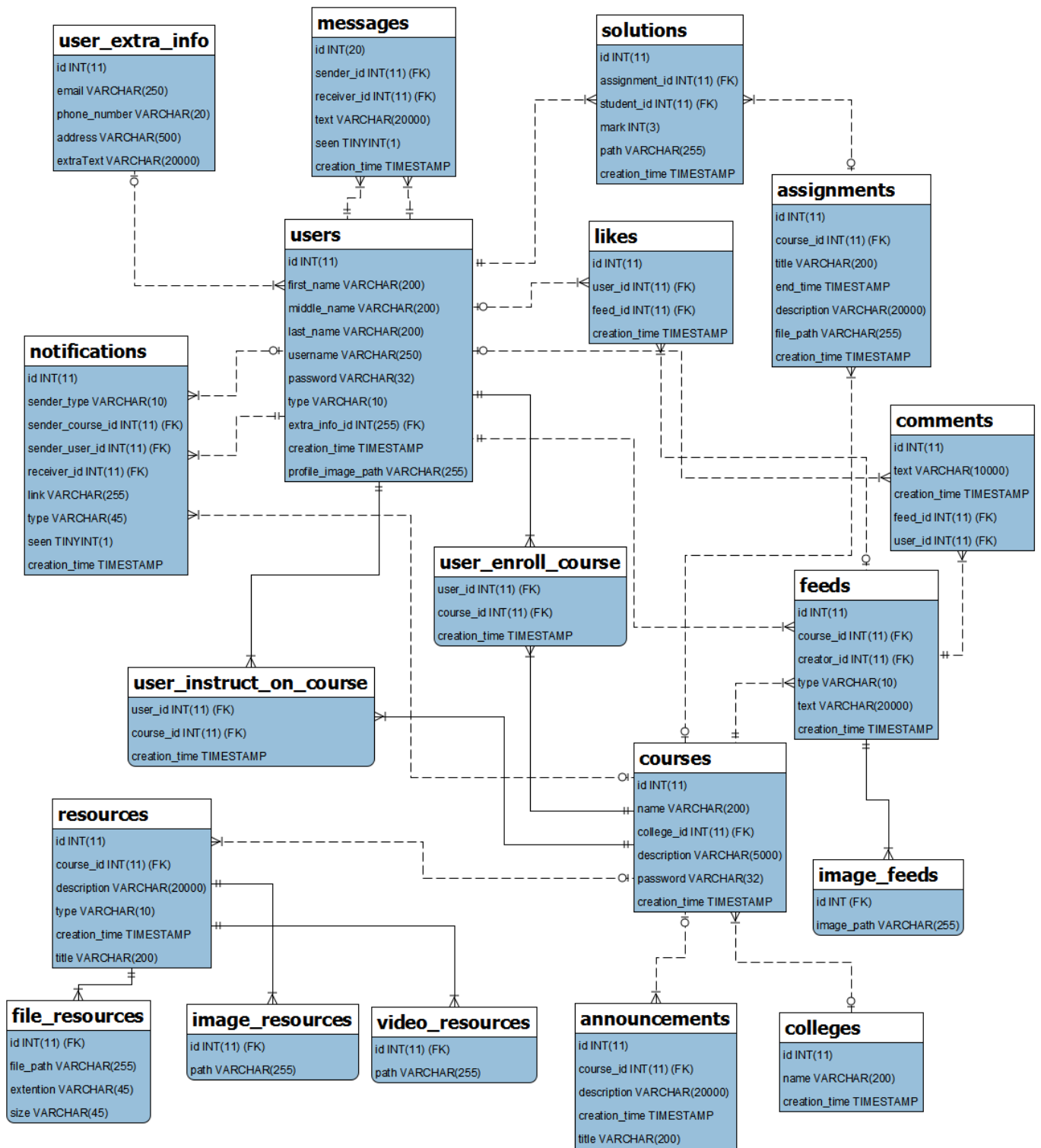
Figure 5 Database UML diagram

Section Five
Software Implementation

5.1 Overview

In this section we will demonstrate the developed software. Including the implementation details and what software we used to carry on the work.

5.2 User Interface

5.2.1 Homepage

This page is the first page any user will see in order to access the website. It's divided into two parts; the first part contains the sign in form (see Figure 6), the other one contains the Instructions on how to sign in and a list of the university colleges.
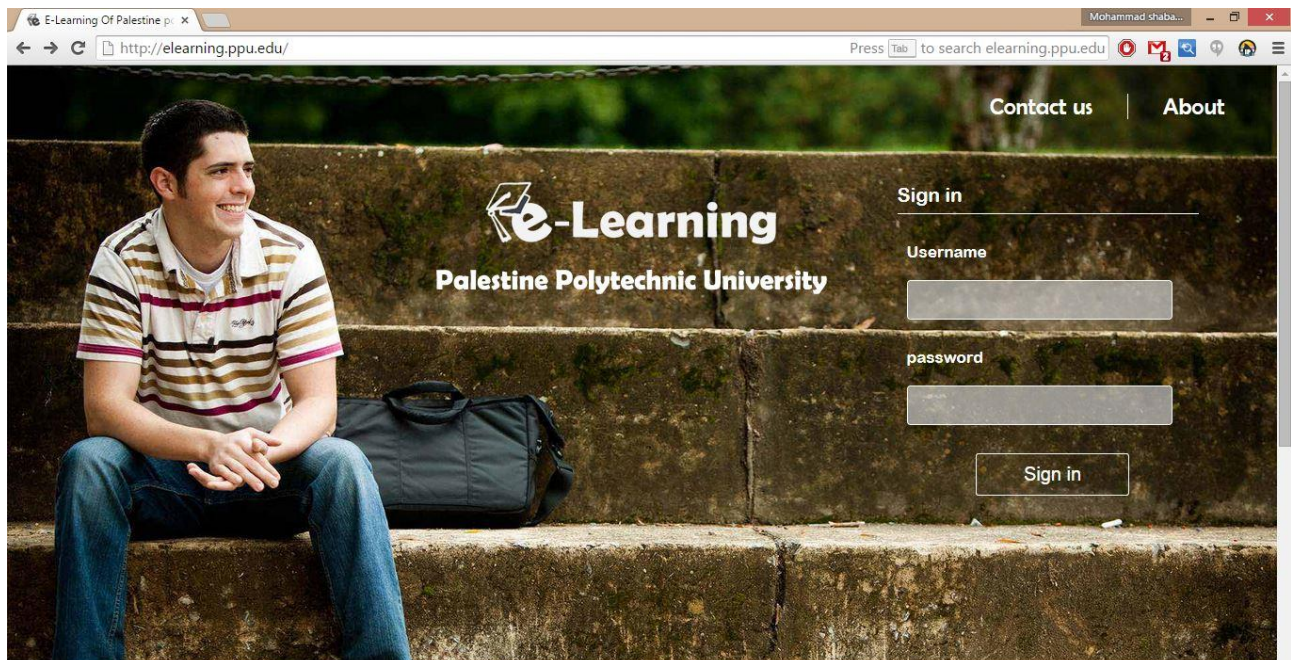
Figure 6 Homepage snapshot

5.2.2 Course Page

The course page contains course resources, announcements, assignments and short course description. Those are added and managed by course instructors only. This page is compound of two sub-pages; the main page where the course resources are displayed in a full mode (see Figure 7).

Figure 7 Course Page (Main) snapshot

The other one is the discussion room where the students and instructors can socially interact by posting feeds, comments and likes (see Figure 8).

Figure 8 Course Page (Discussion room) snapshot

5.2.3 User Homepage

Every user has his own homepage which displays all his (enrolled in) courses, upcoming assignments, latest announcements and all feeds that come from his courses (see Figure 9).

Figure 9 User homepage snapshot

5.2.4 Create E-course Page

This page consists of a very simple form for Instructors to create new courses. Unlike the old system, once the instructor is authenticated and grant permissions by the system administrator, he can create as many courses as he wants from this form (see Figure 10).

Figure 10 Create e-course snapshot

5.2.5 Course Control Panel Page

This control panel enables Instructors to fully manage their e-courses, and it's divided into four sections; beginning with a section where the instructor can edit course general information. Then there is the instructors and students managing sections. Finally, there is the section where the instructor can empty or delete the course which called "course section" (see Figure 11).
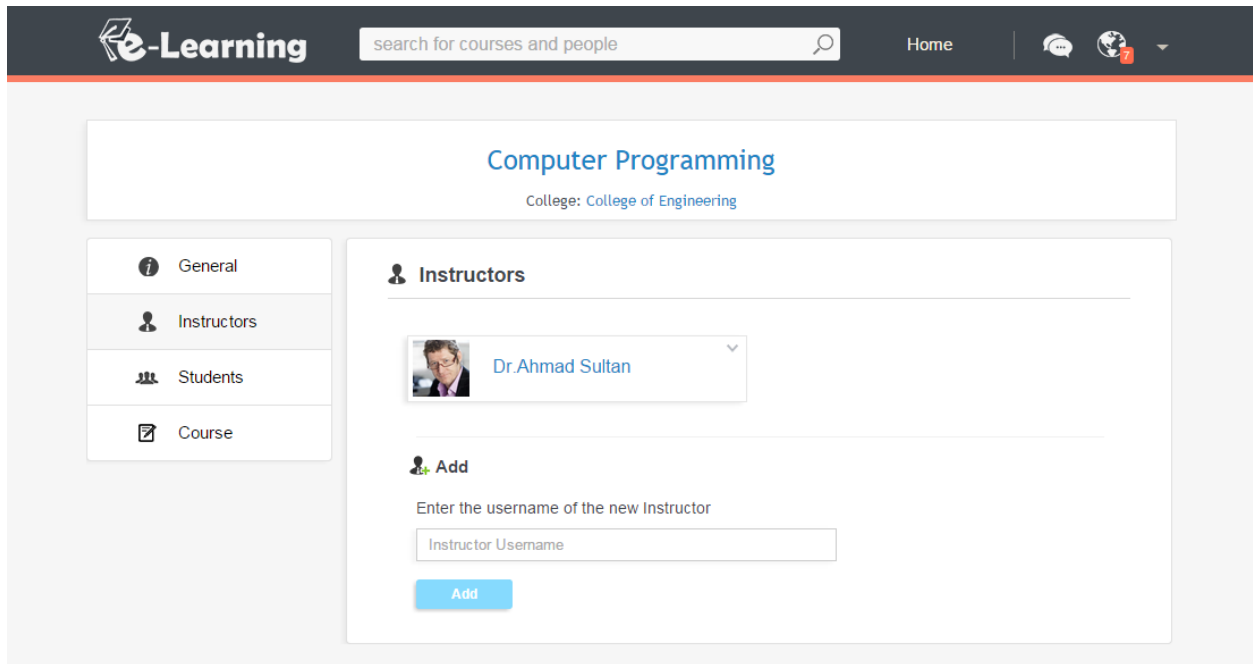
Figure 11 Course control panel snapshot

5.2.6 Profile Page

Every user has his own profile page which contains his/her personal information. Including profile image, email, phone number …etc. (see Figure 12).
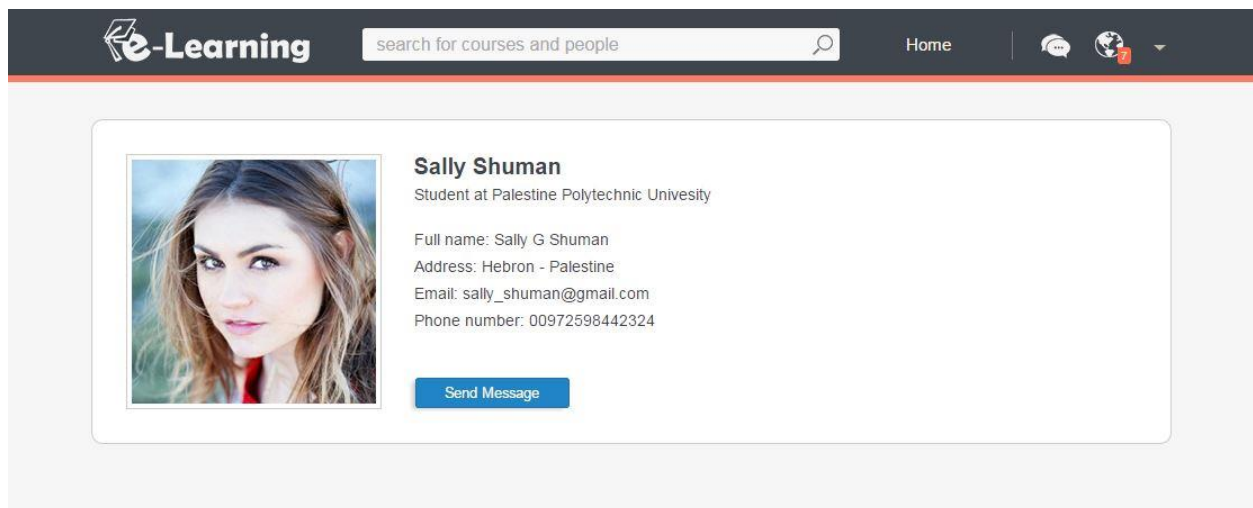
Figure 12 Profile Page snapshot

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5.2.7 Header

Every page a signed in user access has a header which contains a search bar, notification, messages and account options. (See Figure 13).
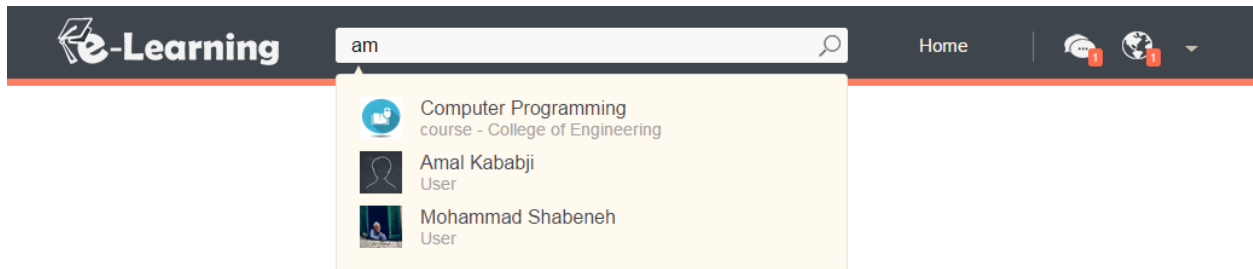
Figure 13 Header snapshot

5.2.8 Messages page

Using this page any two users will have the ability to communicate with each other. (See Figure 14).
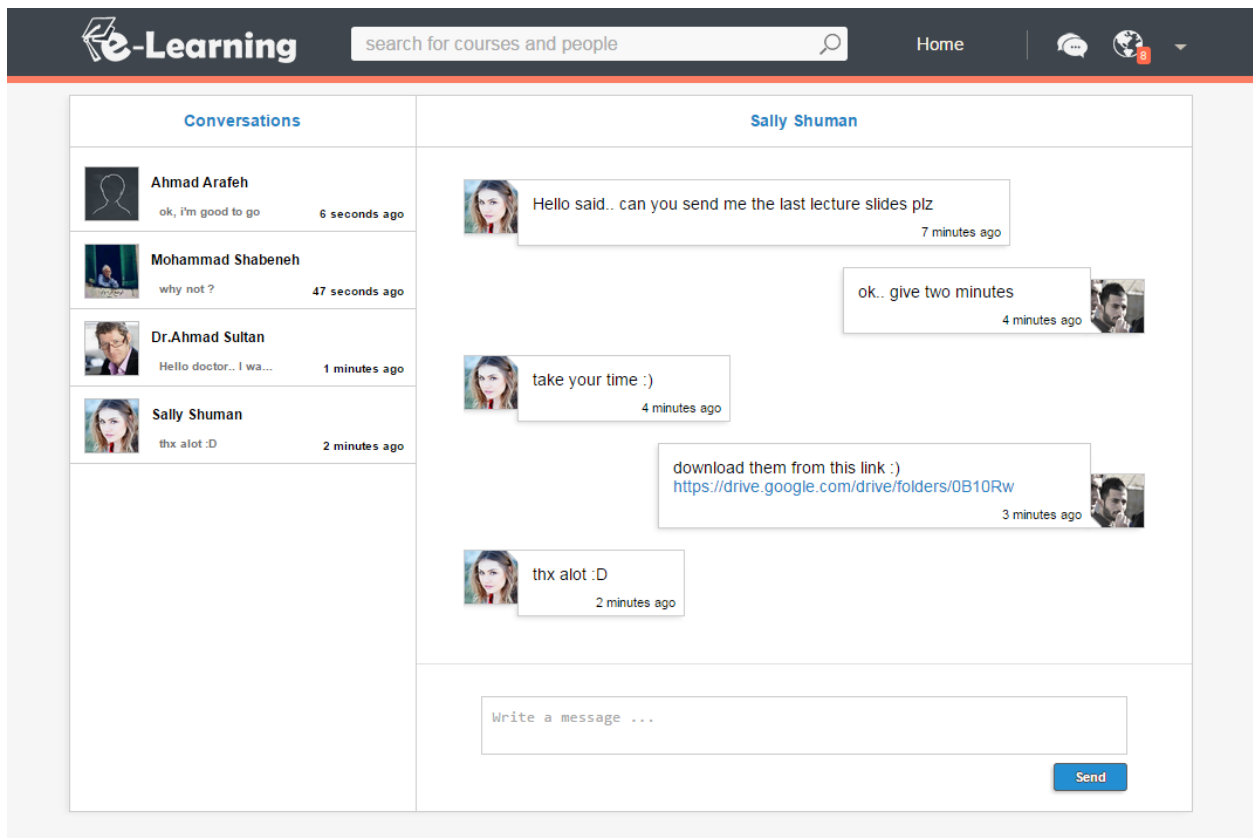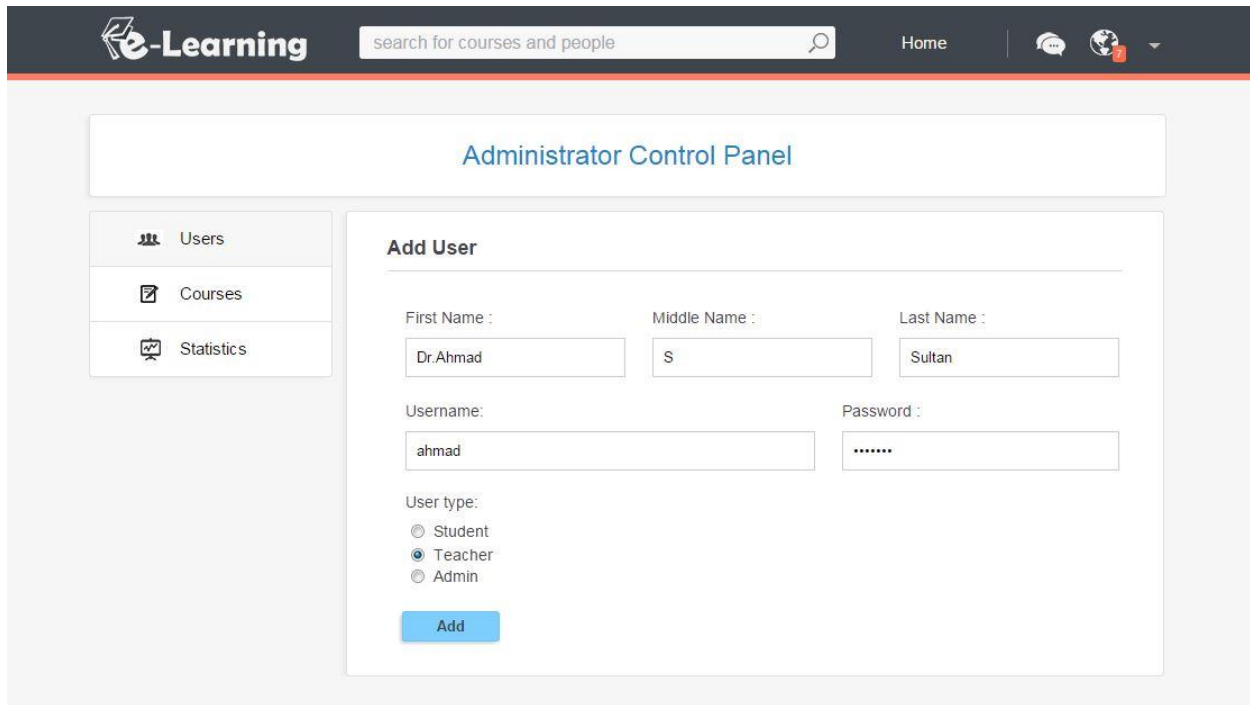
Figure 14 Messages page snapshot

5.2.9 Admin Control Panel Page

Using this page Administrators have the ability to control and manage the whole system. For example, register users, Delete e-courses …etc. (See Figure 15).

Figure 15 Admin Control Panel page snapshot

5.3 Implementation Tools

5.3.1 Adobe Dreamweaver CS6

Adobe Dreamweaver is a web design and development application that provides a visual editor and a code editor with standard features such as syntax highlighting, code completion, and code collapsing as well as more sophisticated features such as real-time syntax checking and code introspection for generating code hints to assist the user in writing code.

5.3.2 Xampp

Xampp is a free and open source cross-platform web server solution stack package, consisting mainly of the Apache HTTP Server, MySQL database, and interpreters for scripts written in the PHP and Perl programming languages.

5.3.3 Notepad++

Notepad++ is a free source code editor which supports several programming languages running under the MS Windows environment.

5.3.4 Inspection Tool in Google Chrome, Opera Browsers

Inspector is a tool that can be used to inspect and edit the live DOM of any web document.

Section Six
Software Testing

6.1 Overview

In this section we documented the website functionalities testing plan which is clustered into groups each one representing a website page.

6.2 Functionality Testing

Table 6 Functionality Testing

#	Functionality Description	Status (pass/fail)
	Homepage	
1	Sign in form	pass
	User Homepage	
2	Display page contents	pass
3	feeds wall	pass
4	Delete wall feeds by different user types	pass
5	Add, Delete comments	pass
6	Like, unlike feeds	pass
7	Show who liked this feed popup	pass
8	See more feeds on scroll down	pass
9	Create a new course button	pass
10	Home side panels (assignments, announcement, courses)	pass
	Profile page	
11	Display page contents	pass
12	Edit profile button	pass
13	Change user profile photo	pass
14	Send message	pass
	Edit profile page	
15	Display page contents	pass
16	Add user information for the first time	pass
17	update user information	pass
	Admin control panel page	

18	Display page contents	pass
19	Add a new user (Instructor, student, admin)	pass
20	Empty, Delete courses	pass
21	Overall website statistics	pass
Course page - Main		
22	Display page contents	pass
23	Add contents bar	pass
24	Resources wall	pass
25	Side panels (assignments, announcement, resources…etc.)	pass
26	Control panel button	pass
27	Discussion room button	pass
28	See more resources on scroll down	pass
29	Send notifications functionality	pass
Course page - Discussion		
30	Display page contents	pass
31	Add feeds	pass
32	feeds wall	pass
33	Side panels (assignments, announcement, resources…etc.)	pass
34	Control panel button	pass
35	Main room button	pass
36	Add, Delete comments	pass
37	Like, unlike feeds	pass
38	Show who liked this feed popup	pass
39	See more feeds on scroll down	pass
40	Send notifications functionality	pass
Course control panel page		
41	Display page contents	pass
42	Update name, description, password	pass
43	Add new instructor	pass
44	delete Instructors, students	pass
45	Empty, Delete course	pass
Create course page		
46	Add a new course	pass
College page		
47	Display page contents	pass
48	Enroll button	pass
Enrollment course page		

49	Enroll into a course	pass
Announcement page		
50	Display page contents	pass
51	Delete Announcement	pass
Assignment page		
52	Display page contents	pass
53	Download attached file	
54	Solution submit	pass
55	Download solutions	pass
56	Set students marks	pass
Text Resource page		
57	Display page contents	pass
58	Delete resource	pass
Image Resource page		
59	Display page contents	pass
60	Delete resource	pass
Video Resource page		
61	Display page contents	pass
62	Delete resource	pass
File Resource page		
63	Display page contents	pass
64	Delete resource	pass
Notification page		
65	Display page contents	pass
Messages page		
66	Display page contents	pass
67	Send message	pass
68	live conversation	pass
Sign out page		
69	Sing out from the website	pass
General		
70	Search bar in the website header	pass
71	Messages in the website header	pass
72	Notification in the website header	pass
73	User account options in the website header	pass

Section Seven
Conclusion

7.1 Overview

In this final section of the project documentation we conclude our work and give some future recommendations we feel that if any work is to be done those most be the first.

7.2 Project Conclusion

After 28 weeks of work we can proudly say we finished developing a system that is elegant, simple, easy to learn, easy to understand and with no complexities. This system is simple in a way that anyone can easily use it, hoping it will increases the e-learning usage among all Palestine Polytechnic University colleges.

This e-learning includes not only functionalities like adding assignment, announcement and resources but also creates a fully social environment between instructors and students.

7.3 Future Recommendation

We recommend the following:

1- Build up a mobile application that contains at least a notification and messaging system. In order to keep students connected at all times not only when he is in front of a computer.
2- Provide more types of course contents like surveys, online lectures, exams…etc.
3- Adding more user registration technics not only by a 'one user at a time form' or a direct insertion into the database.
4- Enable admin to get a full website reports with numbers, percentages and graphs.
5- Provide a report system in order to keep the discussion rooms under control of the course instructor and administrators.
6- The website mainly and fully supports English language, other languages full support is to be recommended.
7- When uploading files, images and videos use more advanced uploading technics like progress bars, drag drop, more than one file upload…etc.
8- Use more Ajax in the course main section.
9- Provide users with more feed types like videos for example.

Appendices

Appendix A: Statistics about actual courses, first semester 2014/2015

جامعة بوليتكنك فلسطين / دائره القبول والتسجيل

رقم الكلية	إسم الكلية - E	عدد المساقات	السنة الدراسية	الفصل الدراسي
20	Engineering	603	2014	1
21	Administrative Sciences and Informatics	152	2014	1
22	Applied Sciences	136	2014	1
23	Information Technology and Computer Engineering	101	2014	1
26	Graduate Studies	17	2014	1
27	College of Applied Professions	560	2014	1

Appendix B: Statistics about using e-Courses, first semester 2014/2015

No.	Course Name	No. of Students	No. of Lecturers	Using Chat
College of Engineering				
1.	Electrical machines2	4	1	No
2.	Electrical Drives	---	1	No
3.	Advanced electrical machines	14	1	No
4.	Discrete Mathematics	68	2	No
5.	Programming Language	20	2	No
6.	Renweable Energy Source	25	1	No
7.	Physics Lab –Session8	12	1	No
8.	Physics Lab –Session28	6	1	No
9.	Physics Lab –Session24	4	1	No
10.	Physics Lab –Session14	4	1	No
11.	Physics Lab –Session12	12	1	No
12.	Computer Comm.Networks	25	1	No
13.	Renewable Energy System	12	1	No
14.	Computer Org. & Arch.	30	1	No
College of IT & Computer Engineering				
1.	Computer Programming	2	1	No
2.	Visual Programming Lab	73	1	No
3.	Object Oriented Programming	25	1	No
4.	Data Structure	18	1	No
5.	Computer Application	41	3	No
6.	Computer & Prog. Principles	57	1	No
7.	التدريب الميداني	24	1	No
8.	Recent Trends in IT	82	1	No
9.	Human Computer Interaction	19	1	No

10.	Data Structure Lab	18	1	No
11.	Human Computer Interaction	32	1	No
12.	Project Management	40	1	No
13.	Computer Network	51	1	No
14.	هندسة برمجيات	49	1	No
15.	تطوير تطبيقات اجهزة محمول	22	1	No
16.	Visual Prog.	38	1	No
17.	Internet Prog.	82	1	No
18.	Operating Systems Lab	73	2	No
19.	Object Oriented Prog.Lab	35	1	No
20.	DataBase Lab-Computer Eng.	25	1	No
21.	DataBase Lab-Mathematics	30	1	No
22.	Computer Prog. Lab	14	1	No
23.	Microprocessor & Interfacing1	31	1	No
24.	Prog For Internet	81	2	No
25.	Microprocessor and Microcontroller Lab – Session3	14	1	No
26.	Microprocessor and Microcontroller Lab – Session2	4	1	No
27.	Microprocessor and Microcontroller Lab – Session1	5	1	No
28.	Microprocessor Lab 2– Session2	19	1	No
29.	Microprocessor Lab 2– Session1	1	1	No
30.	Computer Ethics & Information Security	94	1	No
31.	Artificial Intelligent	34	2	No
32.	Digital Image Process.	35	3	No
33.	Seminar	24	1	No

34.	Computer Program.	166	13	No
35.	Advanced Sw Eng.	30	1	No
36.	Data Structure	89	1	No
37.	Computer & Programmimg Princibles -Training	308	13	No
38.	Distributed Systems	32	2	No
39.	Computer & Prog. Princibles	563	13	No
40.	Digital Logic	43	1	No
41.	Graduation Project	22	1	No
42.	Intro. To O.S	26	2	No
43.	DataBase Systems	32	1	No
College of Administrative Science & Informatics				
1.	Computer Application	17	1	No
2.	Computer Programming Lab	31	1	No
3.	Data Structure Lab	24	1	No
4.	Human Computer Interaction	26	1	No
5.	Multimedia Production	29	1	No
6.	Data Structure	28	1	No
7.	Decision Support System	25	2	No
8.	Management Info System	106	2	No
9.	Introduction to I.S	47	2	No
10.	Information System Project Management	33	2	No
11.	DB. Management System	20	2	No
12.	Intro. To I.S	33	2	No
13.	البرمجة المرئية	27	1	No
14.	التنمية في الوطن العربي	44	1	No
15.	Operation Management	43	1	No

16.	Computer Programming	20	1	No
College of Applied Science				
1.	حديقة منزلية	16	1	No
2.	Intro. To environmental Science	16	1	No
3.	General Biology for chemistry	7	1	No
4.	General Biology1	24	1	No
5.	Data Structure	35	1	No
6.	Physics1 Lab-Session31	16	1	No
7.	Electronic Lab1	7	1	No
8.	Network Analysis Lab	10	1	No
9.	English2	30	1	No
10.	Effective use of English Language	30	1	No
11.	Remedial English	22	1	No
12.	Intensive English	28	1	No
13.	Molecular Biology	43	1	No
14.	Microbiology	45	1	No
15.	Mathmatics for chemist	14	1	No
16.	Intro. To Statistics	3	2	No
17.	Differential Equation	35	8	No
18.	Calculus1	14	8	No
College of Applied Professions				
1.	هندسة البرمجيات	7	1	Yes
2.	تطبيقات الانترنت	9	1	No
3.	مقدمة في الحاسوب	21	1	No
4.	أتمتة مكاتب	17	1	No
5.	تطبيقات برمجية2	28	1	No
6.	تطبيقات برمجية1 للأتمتة	29	1	No
7.	تجارب في الميكانيكا والحرارة والضوء	18	1	No