CAPSTONE PROJECT REPORT

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E-Learning

Submitted by

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Programme and Section- B.Tech (Hons.) M.TECH (CSE), K18E4

Under the Guidance of

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DECLARATION

I, Prashant Puri, student of B.Tech (Hons.)- M.Tech (CSE) under Department of LHST of Lovely Professional University, Punjab, hereby declare that all the information furnished in this capstone project report is based on my own intensive research and is genuine.

This Capstone project report does not, to the best of my knowledge, contain part of my work which has been submitted for the award of my degree either of this university or any other university without proper citation.

Date: Signature and Name of the student

Registration No.

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of the task would be incomplete without the mention of the people whose Ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success. We are grateful to our Project Guide Ms. Palvi Jassi for the inspiration and the constructive suggestions that helped us in preparation of the project E-Learning.

CERTIFICATE

This is to certify that Prashant Puri bearing Registration no. - 10800712 has completed his capstone project titled, **"E-Learning"** under my guidance and supervision. To the best of my knowledge, the present work is the result of her original investigation and study. No part of the work has ever been submitted for any other degree at any University.

The project is fit for submission and the partial fulfilment of the conditions for the award of Degree

Signature and Name of the Research Supervisor
Designation
School
Lovely Professional University
Phagwara, Punjab.

Date :

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1. Organization Overview

This project is open source and is not for any specific organization. It can be used by any educational institution or organization for good motive and can edit it according to their requirements.

2. Profile of the Problem

The problem is to find means by which learners can study from anywhere, anytime through an online portal and to make extensive use of all possible resources to serve the learning purpose.

3. Existing System

I. Introduction

Features of existing system are:-

There are three different users who will be using the existing product:

- The Administrator.
- Teachers
- Students

The features that are available to the Administrator are:

- Can create/delete an account.
- Can view the accounts.
- Can change the password.
- Insert/delete/edit the information of available on portal.
- Can access all the accounts of the teachers and students.

The features available to the teachers are:

- Can manage courses and students
- Can upload/download assignments, reading materials for students

The features available to the Students are:

- Can download/upload different categories of material available in their account.
- Can view the various reading material.
- Can view and modify its profile but can modify it to some limited range.

II. Existing Software

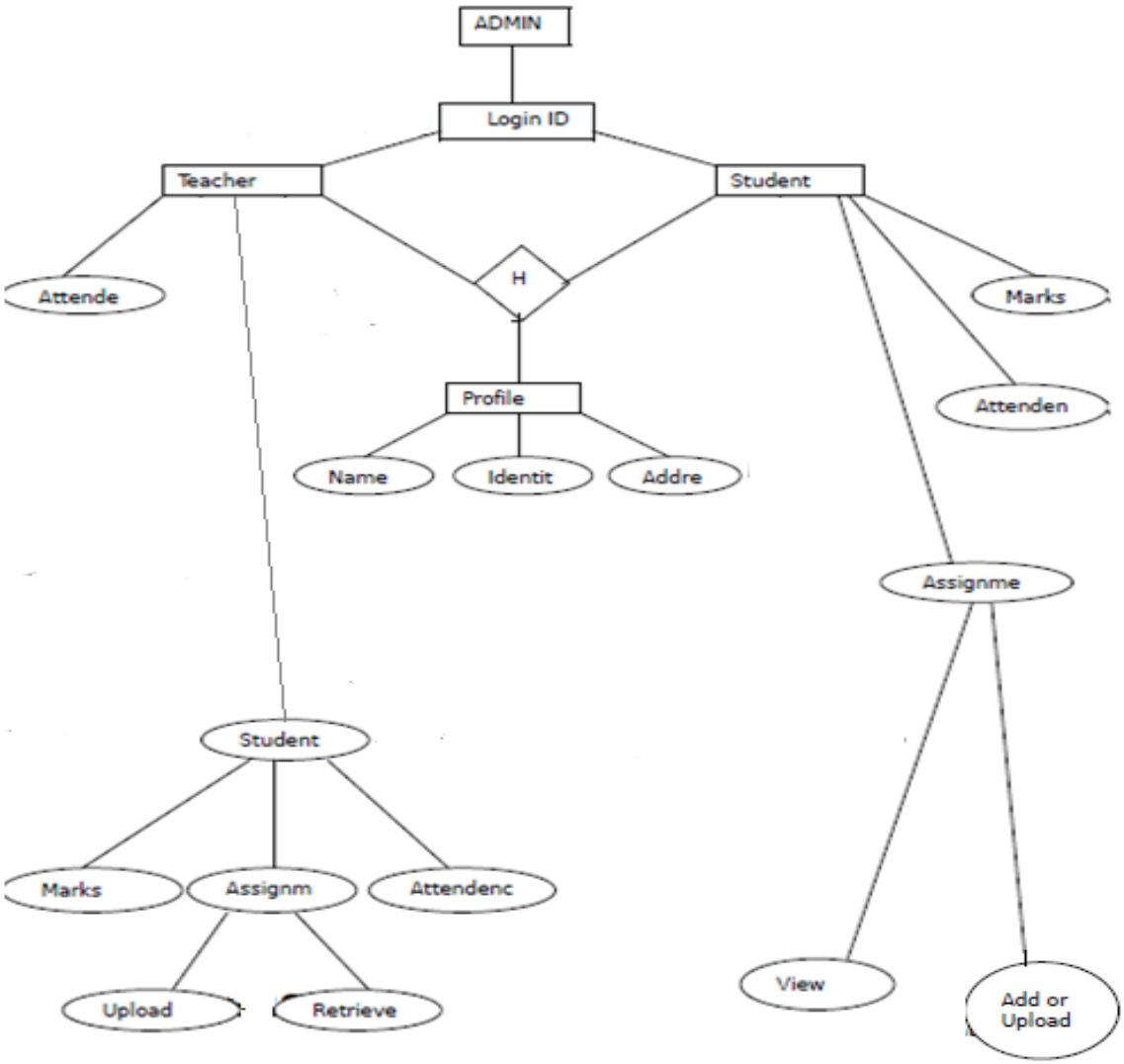
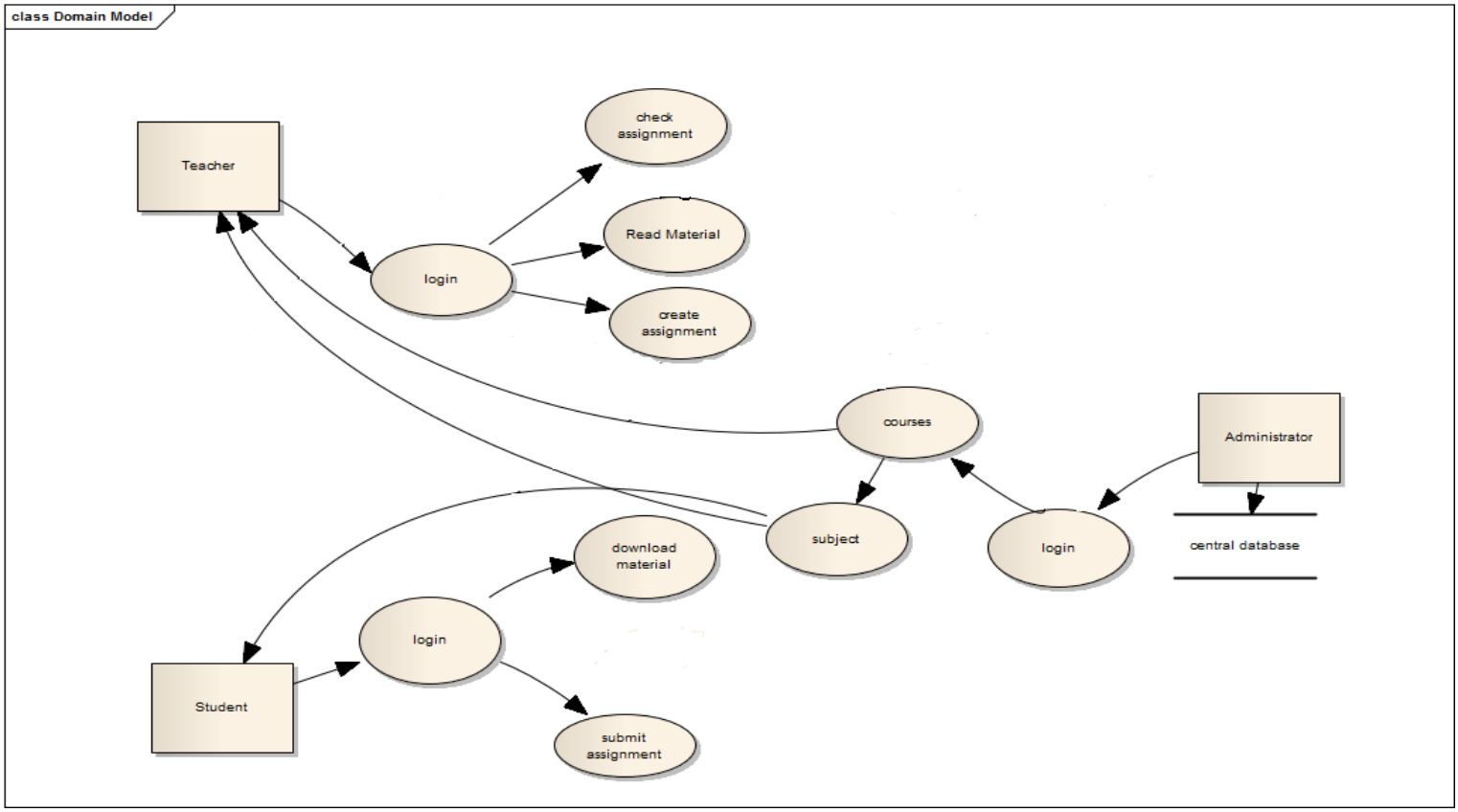


Fig.Existing ER Diagram

III. DFD for present system



IV. What's new in the system to be developed

The new system to be developed is perfect educational portal system. With complete Organizations, Teachers and Student modules. Where organization can not only launch programs and courses according for their online institutions but also can easily generate exams, assignments, Syllabus, Calendar, Recommended Books, Study Material, Old Papers, Short quizzes, Complete Test, Check online assignments, Class forum, Teacher assigned courses, Slide Shows, Built in Chat and etc. Multiple organizations can launch multiple programs with powerful administration, can assign courses to different teachers. A complete distance learning website with complete.features.

Features of new system:-

I. Organization Registration

II. Student Registration

III. Add Teachers, Assign Course

IV. Approve Courses

V. Manage Teachers

VI. Manage Students

VII. Manage Classes

VIII. Manage Course

IX. Courses Payment System

X. Teachers Module

XI. Students Module

XII. Organization Administration

XIII. Create Syllabus

XIV. Create Quizzes

XV. Upload Study Material

XVI. Upload Assignments

XVII. Old papers database

XVIII. Slide Shows

XIX. Add edit and delete profiles

XX. News

Application Information

Application Name: e-learning (online Learning website)

Application Type: ERP

Application Platform: .net

Application Language: C#

Application Database: SQL server 2008

System Requirements: .net framework 4, minimum windows xp sp1

4. Problem Analysis

I. Feasibility Analysis

There is three aspects of feasibility study that is the portion of preliminary investigation:-

a) Technical Feasibility

It is a study that checks if the system under consideration can be operated with available resources. Here it checks whether the system can be operated efficiently with current equipment and existing software technology and available manpower.

Our System can satisfy this aspect of feasibility, the environment of software is ASP.NET under C#. The web applications created with ASP.NET are easier to create, debug, and deploy because those tasks all be performed within a single development environment – Visual Studio .NET.

Hardware platform of the system is as follows:

Atleast windows XP Operating System

RAM 256 MB,

Pentium IV minimum,

1 GB disk space minimum

b) Economical Feasibility

Economic feasibility is the most frequently used Technique for evaluating effectiveness of the proposed system. It is also commonly known as cost or benefit analysis. Learners can save money spent for buying such costly books by learning through this system. Moreover it can help learning organisations to achieve their motive of going paperless in future. In the existing system all the money required to buy books, paper or money spent in travelling such long distances for learning is saved. A learner can gather knowledge anywhere at any time based on his own priorities.

c) Operational Feasibility

Operational feasibility is related to human organizational and political aspects such as determination of new skills and appropriate for training procedures. Operational feasibility asks if the system will work when it is developed and installed. Our system is very user friendly and easy to operate that any person can easily operate / use it. If the required is information necessary for handling the system is given to the user. User would easily be friendly with the system overall our system is operationally feasible.

5.Software Requirement Analysis

I. Introduction

Taking up virtual classes through an electronic medium is termed as E-Learning. Here the classes are not taken face-to-face in a classroom but through an electronic medium as a substitute. These virtual classrooms are gaining importance everyday and very soon they are going to be an integral part of our world. Today E-Learning is no more a technical word that only a few people know. It is turning to be a part of everyone's life whether a student, employee or a housewife all tend to use E-Learning in one way or another. Larger organizations are turning towards E-Learning solution for proving training digitally.

As the number of Internet access points are growing rapidly, E-Learning is also gaining a new peak. This electronic medium serves best for dissemination of information. E-Learning is proving itself as a boon for students especially for the disabled who are not able to go and attend the lectures. All these emphasis the need for developing Open Source software that can be used to provide rich learning features for E-Learning.

Advantages of This System

Cost effectiveness

The E-learning process does not need more investment. This process is beneficial both for personal and group learning. In corporate sectors, companies need to invest lots of money to train their staffs with new technologies. Likely in big institutions the cost of investment also increased in hiring professionals of international repute. In this situation by following the e-learning process these institutions can save their money significantly.

People who want to take a technical degree have to invest a large amount of money. However, by joining an online course he/she can get a degree with a very small investment.

Time saving

The E-learning process saves the time of learner .Through e-learning process a number of students can be learnt at the same time, what is not possible in face to face learning process. There are lots of short term courses offered from the E-learning companies. The learner has also the flexibility to design the required course according own requirement. However, there are a number of experts are working with these companies to develop user-friendly content.

Rich media support

The e-earning websites offers advance media support to their e learners. These media applications are easy to operate and also come with full instructions. Flexibility of using these applications in different context is another key feature of e-learning modules. One of the media applications is Web Object feature of Presenter which can help the user to incorporate different types of rich media web content.

Test engine

These e-learning websites not only offer different courses but also offer test engines to test the learner's knowledge. These test engines are full with all types of questions, which can help the learner to assess his/her own ability.

Accessibility

The e-learning process is highly accessible in nature. One can take the benefit of these courses from any where. Once you get entry in an e-learning site then you can access your courses content from any place and at any time. The pace may be your office, your home or the near by cyber cafe.

Besides all these common features there are a number of other features attached with this e-learning process. All most all e-learning sites and providers come with novice friendly formats. The user can complete his/her course through online study or through the CDS and cassettes available from the websites.

Features of E-Learning

- Learning is self-paced and gives students a chance to speed up or slow down as necessary.
- Learning is self-directed, allowing students to choose content and tools appropriate to their differing interests, needs, and skill levels.
- Accommodates multiple learning styles using a variety of delivery methods geared to different learners; more effective for certain learners.
- Designed around the learner.
- Geographical barriers are eliminated, opening up broader education options.
- 24/7 accessibility makes scheduling easy and allows a greater number of people to attend classes.
- On-demand access means learning can happen precisely when needed.
- Travel time and associated costs (parking, fuel, vehicle maintenance) are reduced or eliminated.
- Overall student costs are frequently less (tuition, residence, food, child care).
- Potentially lower costs for companies needing training, and for the providers.
- Fosters greater student interaction and collaboration.
- Fosters greater student/instructor contact.
- Enhances computer and Internet skills.

II. General Description

The proposed E-learning System is an distance learning portal with complete features. This System will provide a view, submit, online payment, uploading and downloading various documents, interacting with other users, watch slideshows, read articles directly, give quiz and other miscellaneous resources. This view will be based on the categories like study material view and other daily activities. Further the teachers can add/update/remove the resources or an automatic removal of accessing features when the time limit completes.

The System will also have an administrator who has full-fledged rights of managing all the teachers, students and all other resources The users can view, submit, online payment, uploading various documents and information about their account etc. there are basic two

types of users one are the students and other are teachers. Each user facilitates with a unique id having a profile along with a password for private use.

Project Scope:

This Project investigates the entry threshold for providing a new service to the students through online.

- Student must have a valid User Id and password to login to the system
- After the valid user login he is shown the list of details available on.
- On selecting the desired option he is taken to a page which shows all the detail he wants.
- Administrator can take a back up of the database for every instance that is happening, periodically.
- All users are authenticated to avail the services.

Overall Description:

Student must have a valid User Id and password to login to the system. After the valid user login he is shown the list of details available on. On selecting the desired option he is taken to a page which shows the details he needed. Student can get the required material as softcopy for free of cost. Student can also request the university people to share their own documents which can help other students. Information is available at anytime, anywhere as desired by the student.

Product Perspective:

The student will have client interface in which he can interact with the e-learning portal. It is a web based interface which will be the web page of the e-learning application. Starting a page is displayed asking to login as student, in this page we can sign up and create new account as student. Then the page is redirected to home page where the user can enter the details as required if it is valid.

The administrator will have an administrative interface which is a GUI so that he can view the entire portal system. He will also have a login page where he can enter the login particulars so that he can perform all his actions like uploading of courses, books, materials, presentation. Search student details etc.

III. Specific Requirements

- **Functional Requirements**

Input Requirements

- **User access**

Each teacher and student is assigned a unique identifier upon registration to portal. Both of them must know this. This identifying key maps to all his/her registration record information in the main registration system.

- **Uploading and downloading of resources**

Each teacher should facilitated with uploading of data resources such assignments, quizzes, articles, slideshows and other kind of reading material. Similarly such of option must be present there for students to upload and download their assignments.

- **Online payment**

The students should have the facility to pay their course fees online and there should be facility to validate such payments. In simple word a proper validation is required.

- **Non Functional Requirements**

Hardware Interfaces

Server Side:

- ✓ Operating System: Windows 9x/xp ,Windows ME
- ✓ Processor: Pentium 3.0 GHz or higher
- ✓ RAM: 1 Gb or more
- ✓ Hard Drive: 20 GB or more

Client side:

- ✓ Operating System: Windows 9x or above, MAC or UNIX.
- ✓ Processor: Pentium III or 2.0 GHz or higher.
- ✓ RAM: 256 Mb or more

Software Interfaces

- ✓ Database: SQL Server.
- ✓ Application: ASP (Active Server Pages)
- ✓ Web Server: IIS (Internet Information Services (IIS) is a powerful Web server that provides a highly reliable, manageable, and scalable Web application infrastructure)

Communications Interfaces

The Customer must connect to the Internet to access the Website:

- ✓ Dialup Modem of 52 kbps
- ✓ Broadband Internet
- ✓ Dialup or Broadband Connection with a Internet Provider.

Performance Requirements

System can withstand even though many no. of employers request the desired service. Access is given to only valid users of the application who requires the services such as leave request leave balance, leave status.

Safety Requirements

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup. By incorporating a robust and proven DB2 UDB into the system, reliable performance and integrity of data is ensured. There must be a power backup for server system. Since the product is of 24x7 availability there should be power backup for server which provides the information .Every day the data should be backup even when the operation of an user is not successful i.e., while performing the operation power failure occurs then data should be backup.

Security Requirements

We are going to develop a secured database for the system .There are different categories of users namely teaching Administrator, teachers and students etc. Depending upon the category of user the access rights are decided. It means if the user is an administrator then he can be able to modify the data, delete, append etc. and students only have the rights to retrieve the information about database. Sensitive data is protected from unwanted access by user's appropriate technology and implementing strict user-access criteria. Facility of unique user number and Password in such a way that unauthorized user cannot log in. Operational rights for each user/terminal can be defined. Thus, a user can have access to specific terminals and specific options only.

Software Quality Attributes

The Quality of the database is maintained in such a way so that it can be very user friendly to all the users of the database.

Hardware Constraints

The system requires a database in order to store persistent data. The database should have backup capabilities.

Software Constraints

The development of the system will be constrained by the availability of required software such as web servers, database and development tools.

Design Constraints

The system must be designed to allow web usability. That is, the system must be designed in such a way that will be easy to use and compatible with most of the browsers.

- Login and password is used for identification of student's account and there is no facility for non users to login.
- This system works only on a single server.
- GUI is only in English
- Limited to HTTP/HTTPS protocols

User Documentation

The User Documentation will be given to the user along with this project as it is helpful for the further use.

Assumptions and Dependencies

The details of students such as username, password, and their corresponding authority details should be manually entered by the administrator before using this system.

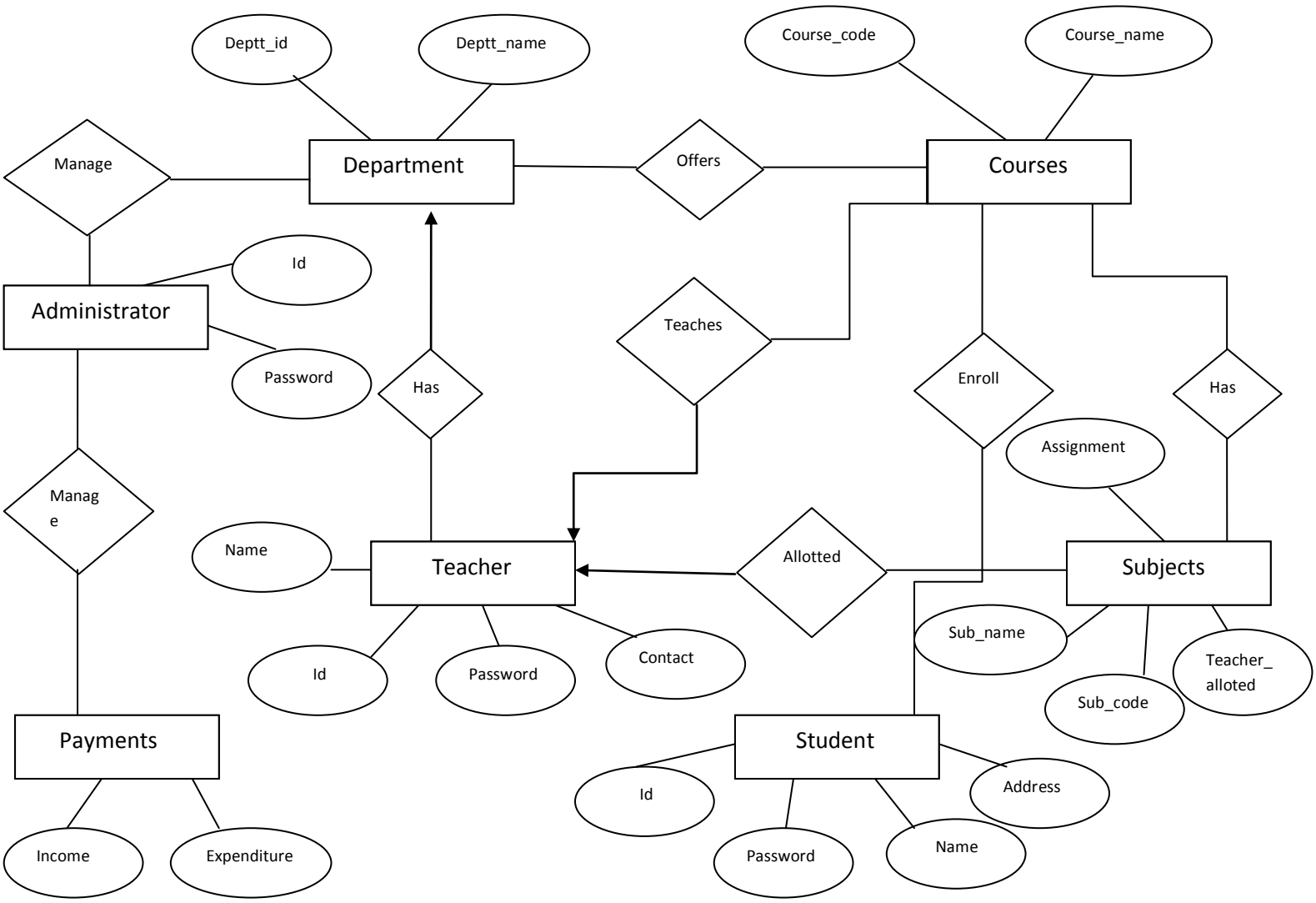
- Every user should be comfortable of working with computer and net browsing.
- He should be aware of the e-learning portal.
- He must have basic knowledge of English too.

6. Design

I. System Design

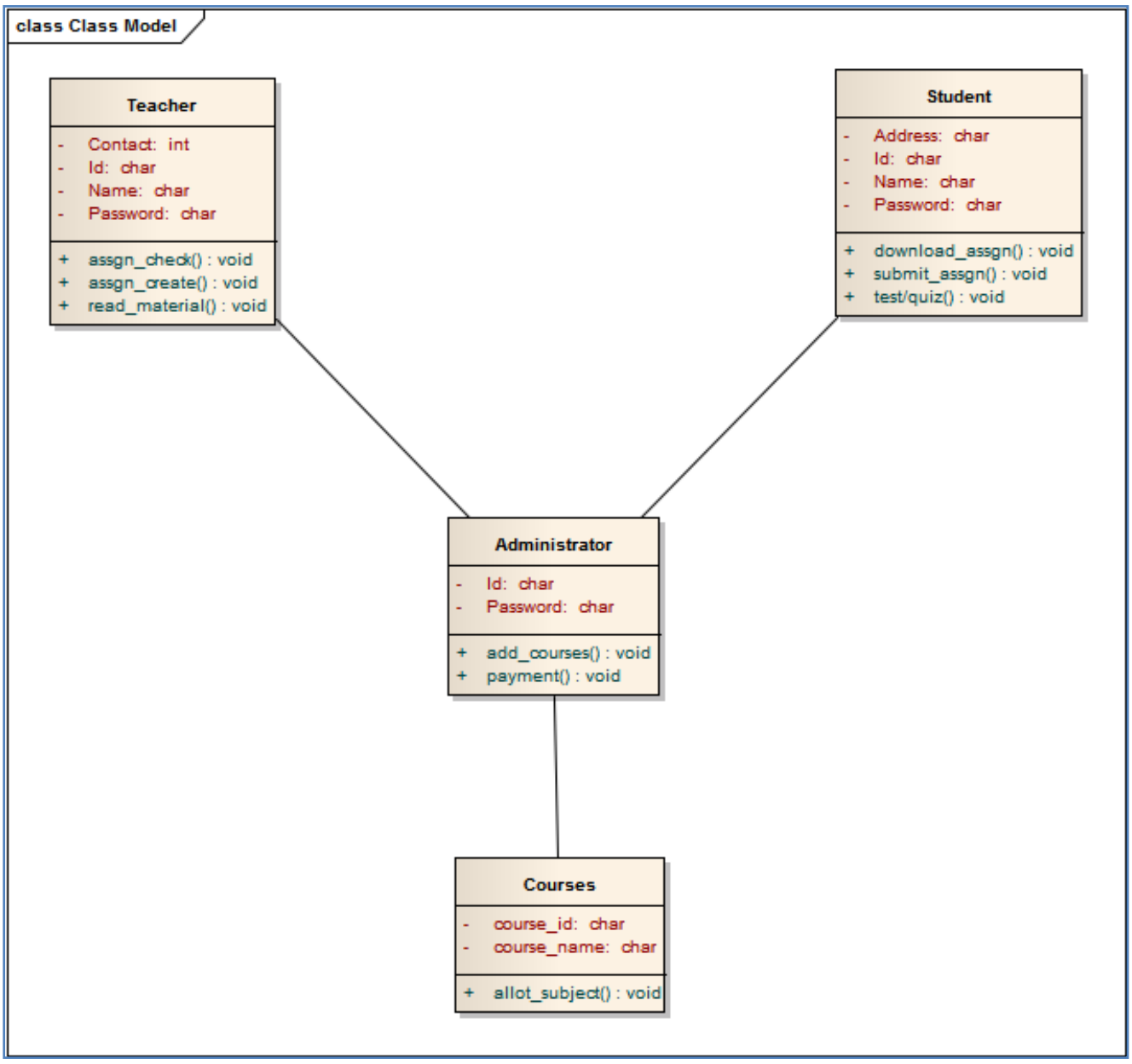
System design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. One could see it as the application of systems theory to product development

Entity Relation Diagram



Class Diagram

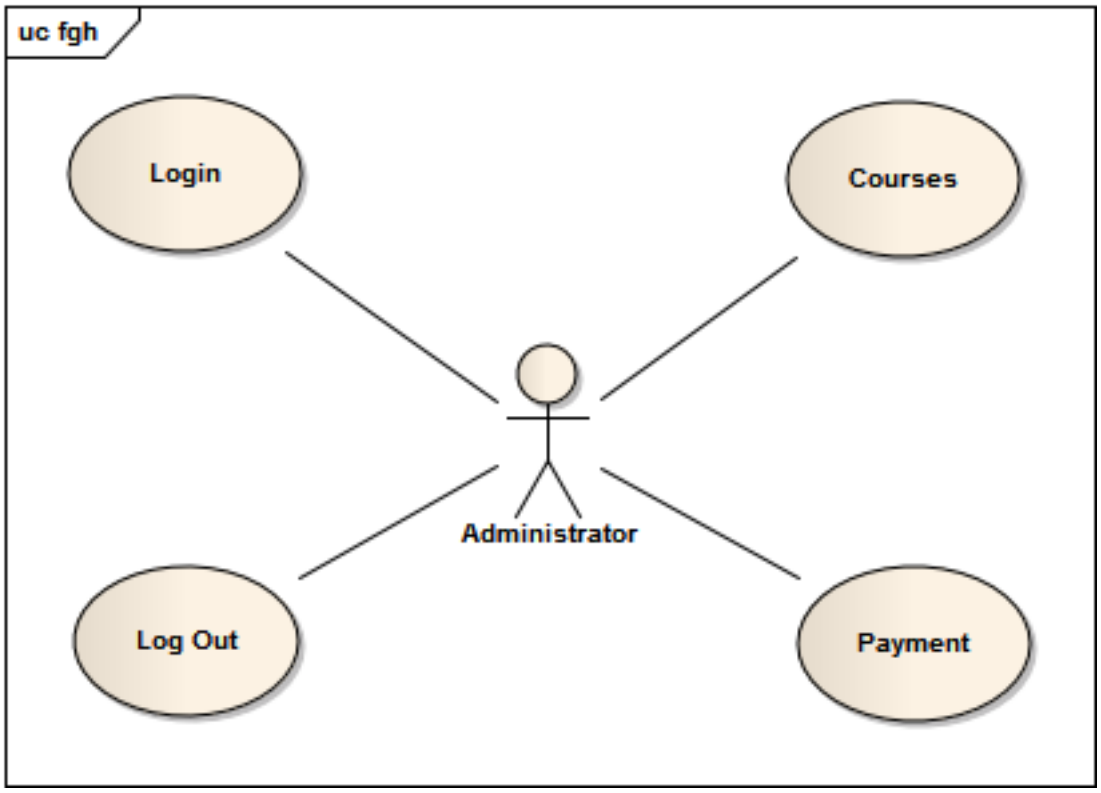
The class diagram shows how the different entities (people, things, and data) relate to each other; in other words, it shows the static structures of the system. A class diagram can be used to display logical classes, which are typically the kinds of things the business people in an organization talk about. . Class diagrams can also be used to show implementation classes, which are the things that programmers typically deal with. An implementation class diagram will probably show some of the same classes as the logical classes diagram. The implementation class diagram won't be drawn with the same attributes, however, because it will most likely have references to things like Vectors and Hash



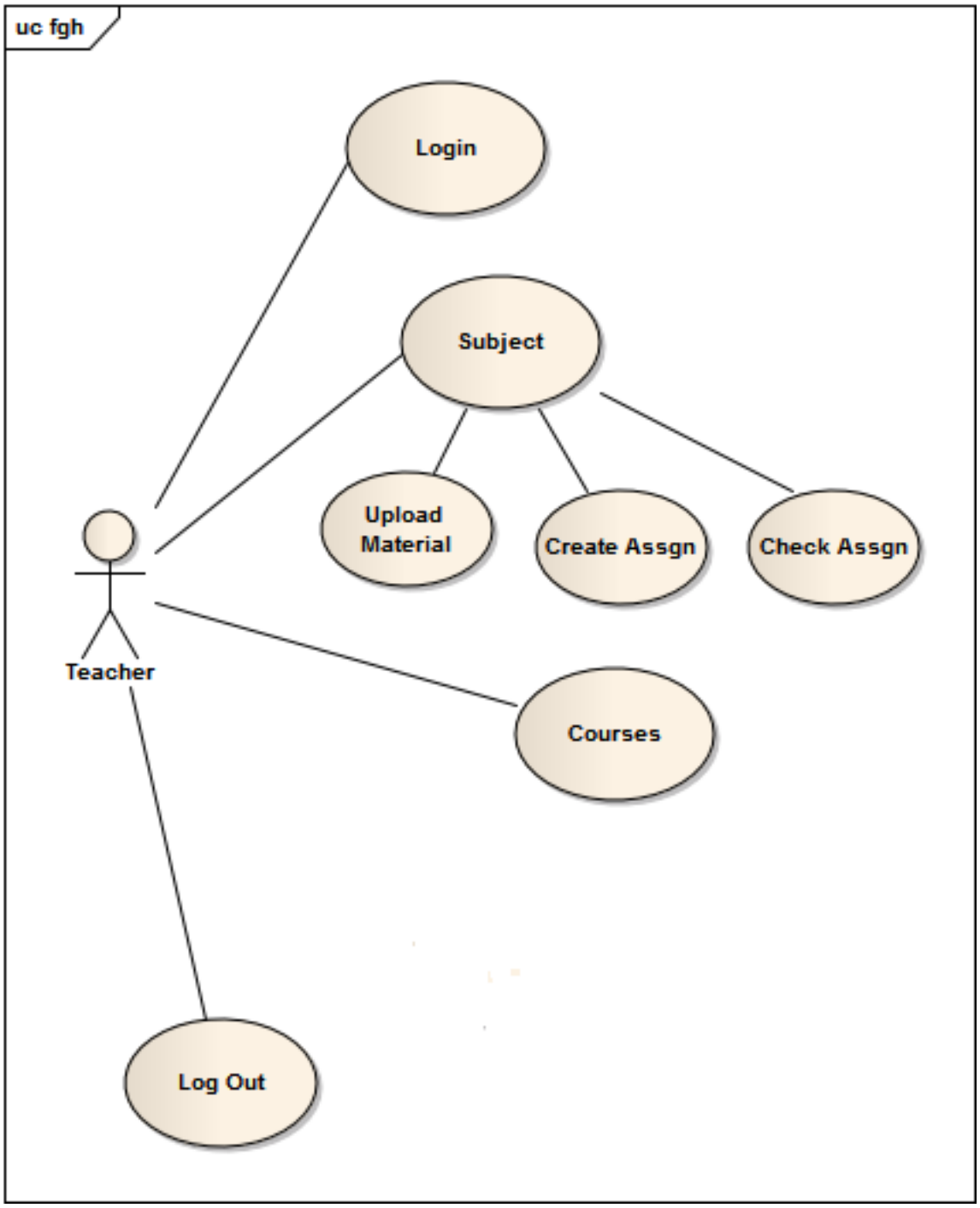
Use case Diagram:

Use-case diagrams generally show groups of use cases — either all use cases for the complete system, or a breakout of a particular group of use cases with related functionality (e.g., all security administration-related use cases). To show a use case on a use-case diagram, you draw an oval in the middle of the diagram and put the name of the use case in the center of, or below, the oval. To draw an actor (indicating a system user) on a use-case diagram, you draw a stick person to the left or right of your diagram

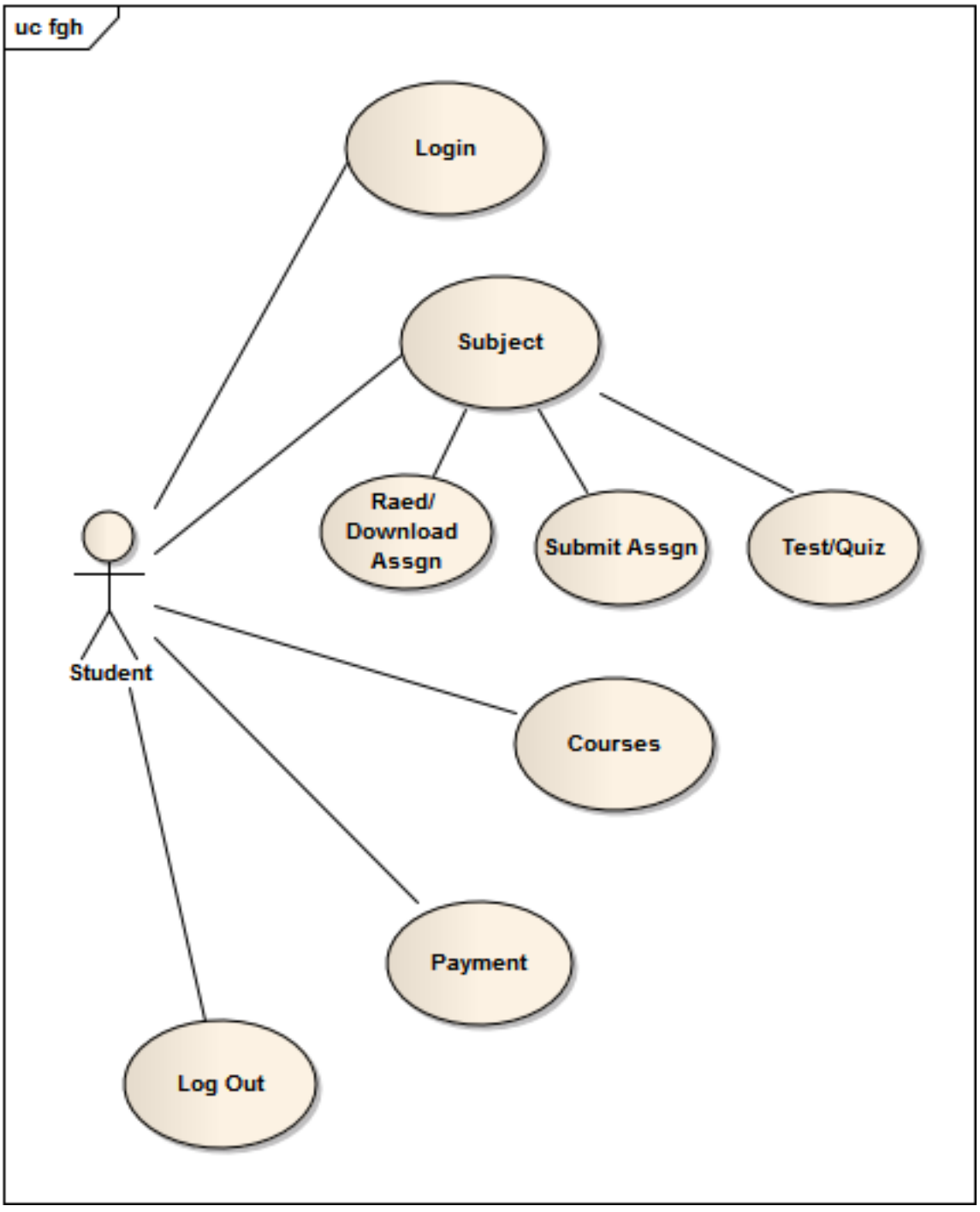
Use Case Diagram for Administrator



Use Case Diagram for Teacher



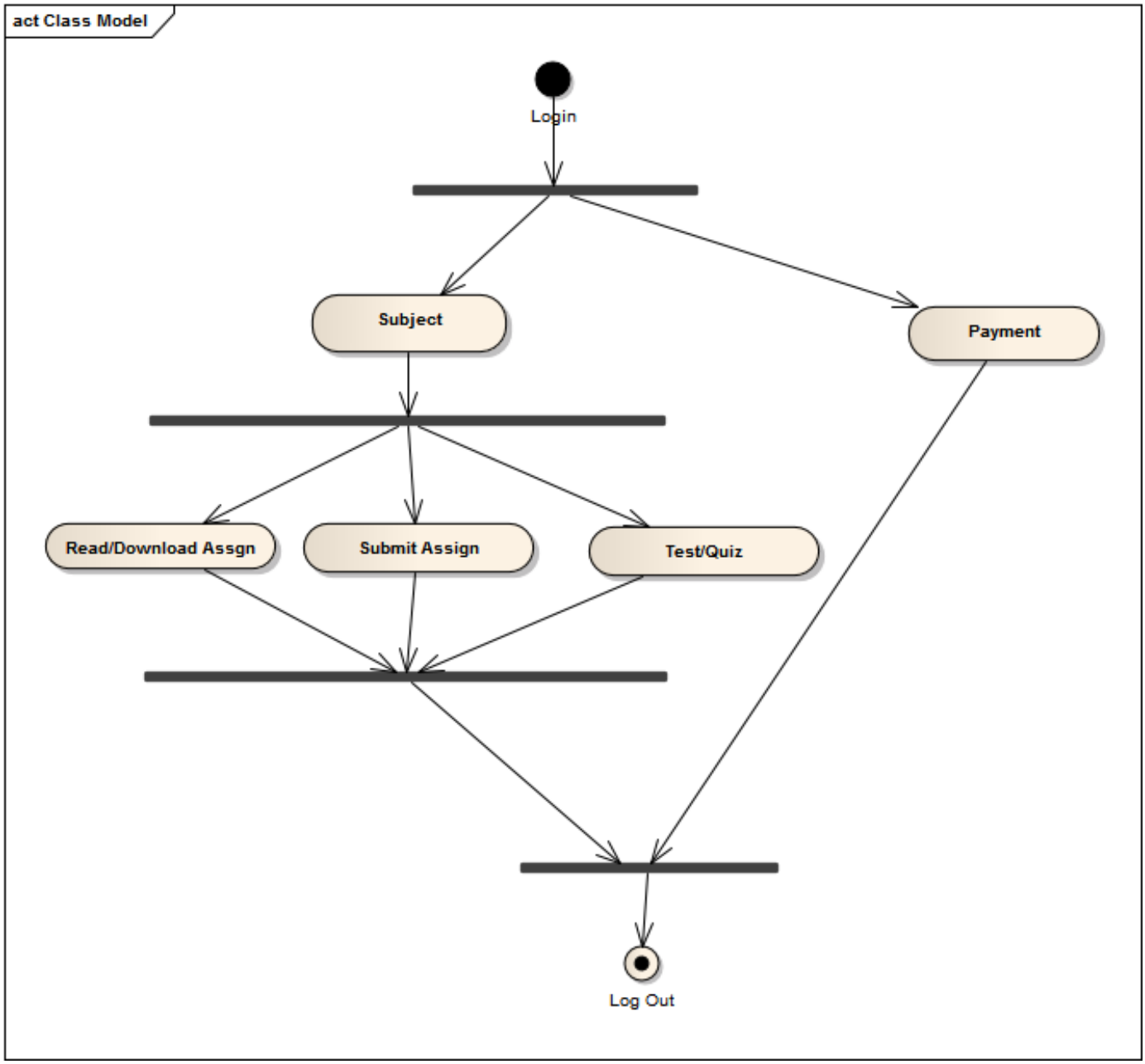
Use Case Diagram for Student



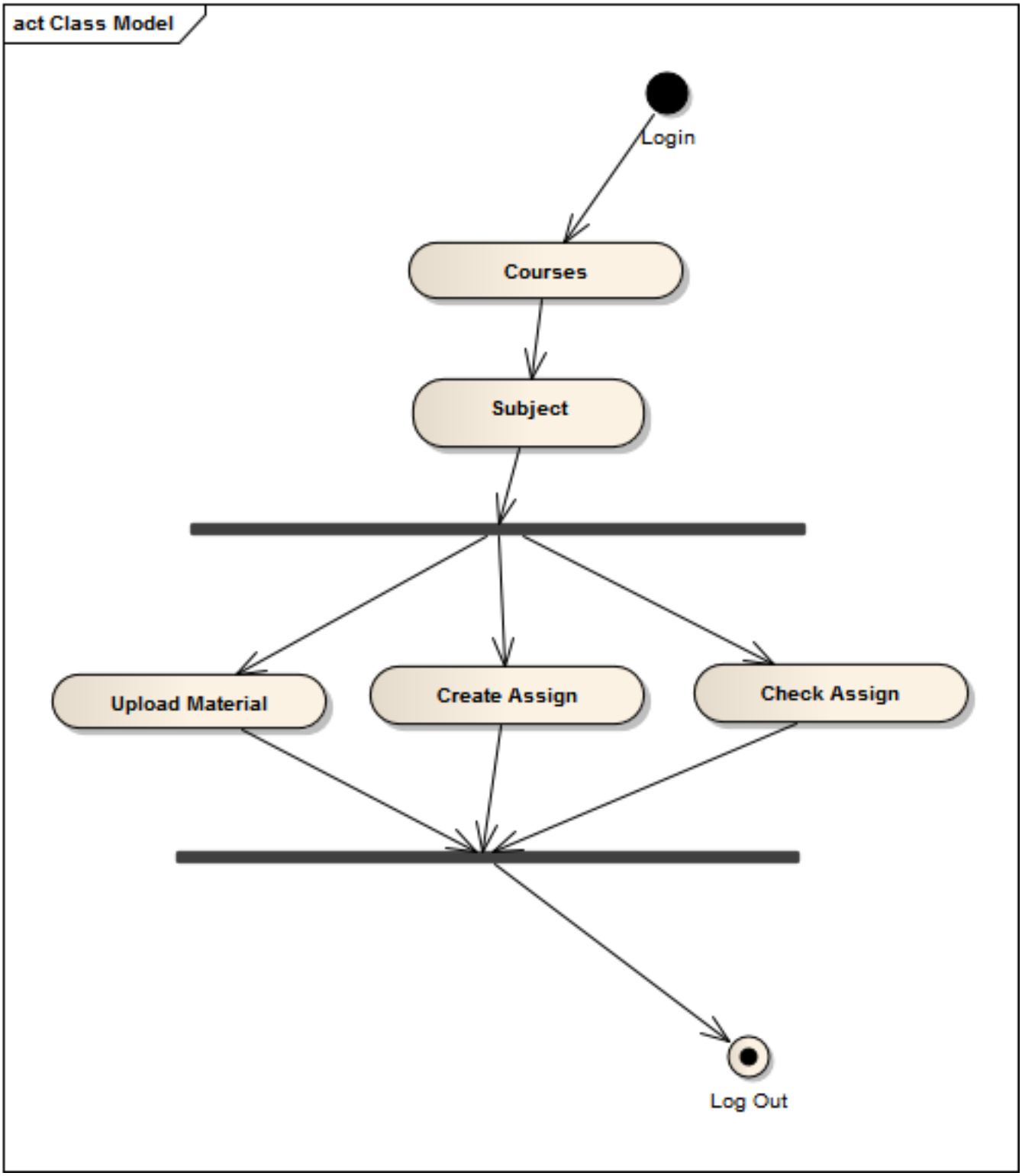
Activity diagram:

Activity diagrams show the procedural flow of control between two or more class objects while processing an activity. Activity diagrams can be used to model higher-level business process at the business unit level, or to model low-level internal class actions. In my experience, activity diagrams are best used to model higher-level processes, such as how the company is currently doing business, or how it would like to do business. This is because activity diagrams are "less technical" in appearance, compared to sequence diagrams, and business-minded people tend to understand them more quickly.

Activity Diagram For Student



Activity Diagram for Teacher



II. Design Notations

As per ER diagram in above section, this section of Design Notation will be containing the details about the attributes of the ER diagram. First of all, there are total of 7 entities in the diagram and 8 relations between these entities. The entities are as follows:-

a) Administrator
b) Teacher
c) Student
d) Payment
e) Courses
f) Department
g) Subjects

There are 3 different users i.e. Administrator, Teacher, Student. Administrator has control over both the Student and Teacher and each of their activities. Each of the user has their own Id and password for Logging In.

Let's take the first user, Administrator is the main End User in the project functioning. Administrator manages two entities i.e. Payment and Department. Under payment module, the details of income and expenditure of the website will be shown. Income includes the fee paid by the students and all other miscellaneous incomes earned by the website. Expenditure will have the details about the payments which are made by the website administration for the maintenance of the website and the salary paid to the teachers for their teachings. Now under Department module, department OFFERS courses to the student and has an unique department id and department name for different departments available. Department has Teachers under it, whose table contains Teacher's name, id, their password and contact details.

The Second User is Teacher, which comes under course module and has Teacher's name, id, and their password and contact details as its attributes. They are allotted to different subjects for teaching.

The Third user is Student itself. The student are enrolled in different courses and has different subjects according to the courses opted. The student module has student id, password, name and address details as its entities. Student is linked to

Subject module which has subject code, subject name, teacher allotted to the given subject and assignments attribute. Subject is part of course module in actual.

III. Flowcharts

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its process aspects. A DFD shows what kinds of data will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of processes, or information about whether processes will operate in sequence or in parallel

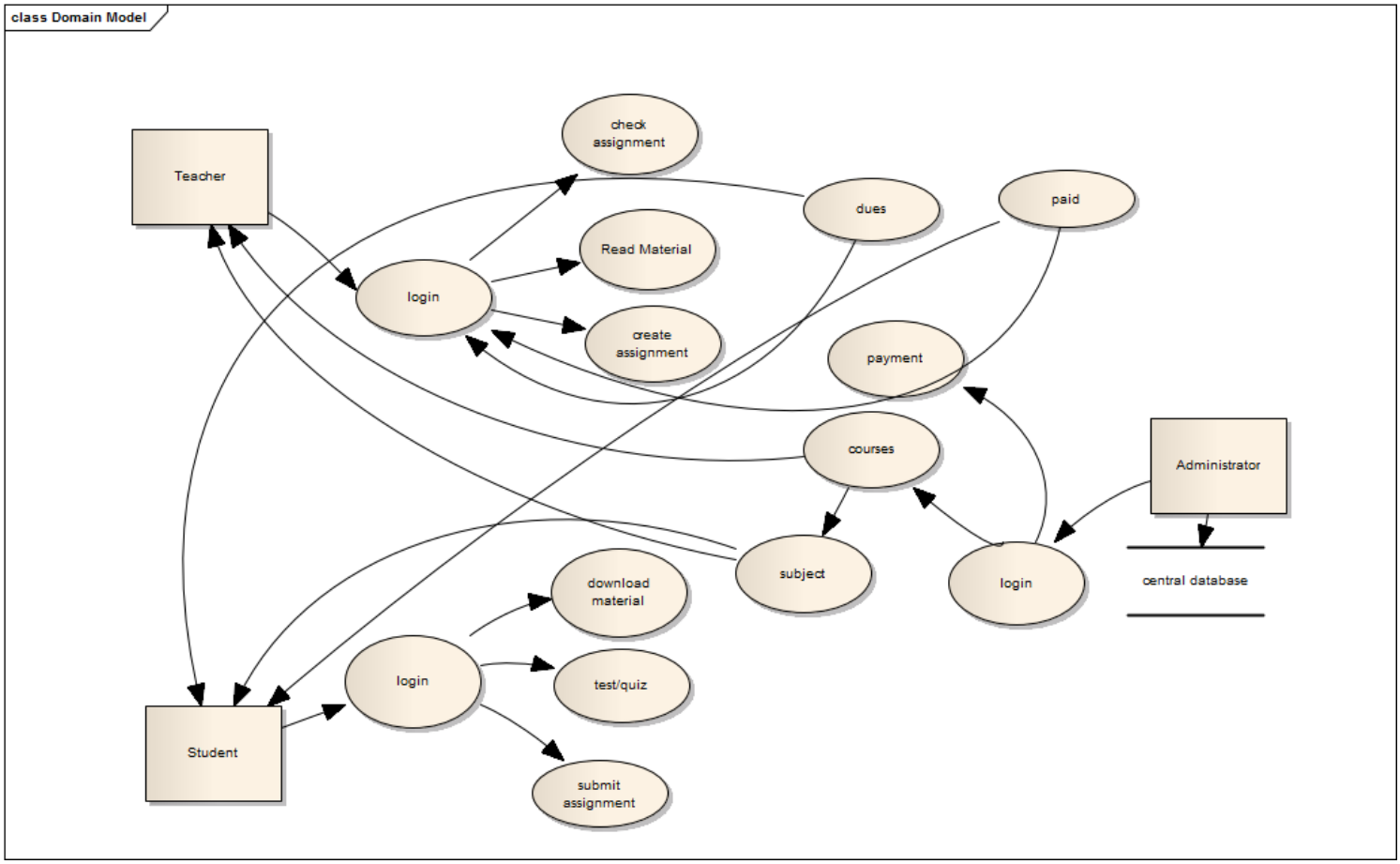


Table Structure

SQL Server 2008 is used as backend database .Number of tables used is given below.

Table1. Acc (Account table)

Column Name	Data Type
Id	Int
Username	Varchar(50)
Pass	Varchar(50)
Acc_id	Int
Created_date	Datetime
Modified_date	Datetime
Status	Varchar(50)

Table2.Acc_Type (Account Type)

Column Name	Data Type
Id	Int
Acc_Id	Int
Acc_Name	Varchar(50)

Table3.assign_class (Assign Class to teacher)

Column Name	Data Type
Id	Int
Teacher_id	Int
Org_id	Int
Assign_date	Datetime
Status	Varchar(50)
Prg_id	Int
Class_id	Int
Course_id	Int

Table4.assign_course_teacher (Assign Course to Teacher)

Column Name	Data Type
Id	Int
Teacher_id	Int
Course_id	Int

Table5.assign_student (Assign Student to teacher)

Column Name	Data Type
Student_id	Int
Teacher_id	Int

Table6.Class

Column Name	Data Type
Id	Int
Prg_id	Int
Course_id	Int
Class_name	Varchar(50)
Start_date	Datetime
Created_date	Datetime
Modified_date	Datetime
Status	Varchar(50)
Org_id	Int

Table7.Course

Column Name	Data Type
Id	Int
Prg_id	Int
Cat_id	Int
Course_id	Int
Students	Int
Price	Numeric(18,0)
Image	Varchar(max)
Start_date	Datetime
Duration	Varchar(50)
Duration_type	Varchar(50)
Created_date	Datetime

Modified_date	Datetime
Status	Varchar(50)
Org_id	Int

Table8.coure_cat (Course Category)

Column Name	**Data Type**
Id	Int
Cat_name	Varchar(50)
Org_id	Int
Created_date	Datetime
Modified_date	Datetime
Status	Varchar(50)

Table9.News

Column name	**Data Type**
Id	Int
Org_id	Int
News	Varchar(max)
Created_date	Datetime

Table10.org_info (Organization info)

Column Name	**Data Type**
Id	Int
Name	Int
Fax	Varchar(50)
URL	Varchar(max)

Contact	Varchar(50)
Designation	Varchar(50)
Email	Varchar(50)
Address	Varchar(50)
City	Varchar(50)
Country	Varchar(50)
Created_date	Datetime
Modified_date	Datetime
Status	Varchar(50)

Table11.org_students

Column Name	**Data Type**
Id	Int
Org_id	Int
Student_id	Int

Table12.Program

Column Name	**Data Type**
Id	Int
Prg_name	Varchar(50)
Duration	Varchar(50)
Description	Varchar(max)
Org_id	Int
Created_date	Datetime
Modified_date	Datetime
Status	Varchar(50)

Table13.Student_reg_info

Column Name	Data Type
Id	Int
Firstname	Varchar(50)
Lastname	Varchar(50)
Fathername	Varchar(50)
Dob	Datetime
Phone	Varchar(50)
Email	Varchar(50)
Zip	Varchar(50)
Nation	Varchar(50)-
Address	Varchar(50)
City	Varchar(50)
Country	Varchar(50)
Created_date	Datetime
Modified_date	Datetime
Status	Varchar(50)

Table14.teacher_info

Column Name	Data Type
Id	Int
Firstname	Varchar(50)
Lastname	Varchar(50)
Phone	Varchar(50)
Email	Varchar(50)

Zip	Varchar(50)
Nation	Varchar(50)
Address	Varchar(max)
City	Varchar(50)
Country	Varchar(50)
Exp	Int
Created_date	Datetime
Modified_date	Datetime
Status	Varchar(50)
Org_id	Int

7.Testing

I. Functional Testing

- System Testing

Testing is a set activity that can be planned and conducted systematically. Testing begins at the module level and work towards the integration of entire computers based system. Nothing is complete without testing, as it is vital success of the system.

- Testing Objectives:

There are several rules that can serve as testing objectives, they are

1. Testing is a process of executing a program with the intent of finding an error

2. A good test case is one that has high probability of finding an undiscovered error.

3. A successful test is one that uncovers an undiscovered error.

If testing is conducted successfully according to the objectives as stated above, it would uncover errors in the software. Also testing demonstrates that software functions appear to the working according to the specification, that performance requirements appear to have been met.

There are three ways to test a program

1. For Correctness

2. For Implementation efficiency

3. For Computational Complexity.

Tests for correctness are supposed to verify that a program does exactly what it was designed to do. This is much more difficult than it may at first appear, especially for large programs.

Tests for implementation efficiency attempt to find ways to make a correct program faster or use less storage. It is a code-refining process, which reexamines the implementation phase of algorithm development.

Tests for computational complexity amount to an experimental analysis of the complexity of an algorithm or an experimental comparison of two or more algorithms, which solve the same problem.

- Testing Correctness

The following ideas should be a part of any testing plan:

1. Preventive Measures

2. Spot checks

3. Testing all parts of the program

4. Test Data

5. Looking for trouble

6. Time for testing

7. Re Testing

II. Levels of Testing

The data is entered in all forms separately and whenever an error occurred, it is corrected immediately. Some good knowledgeable people verified all the necessary documents and tested the Software while entering the data at all levels. The entire testing process can be divided into 3 phases

1. Unit Testing

2. Integrated Testing

3. Final/ System testing

III. Testing The Project

- Unit Testing

As this system was partially GUI based WINDOWS application, the following were tested in this phase

1. Tab Order

2. Reverse Tab Order

3. Field length

4. Front end validations

In our system, Unit testing has been successfully handled. The test data was given to each and every module in all respects and got the desired output. Each module has been tested found working properly.

- Integration Testing

Test data should be prepared carefully since the data only determines the efficiency and accuracy of the system. Artificial data are prepared solely for testing. Every program validates the input data.

- Validation Testing

In this, all the Code Modules were tested individually one after the other. The following were tested in all the modules

1. Loop testing

2. Boundary Value analysis

3. Equivalence Partitioning Testing

In our case all the modules were combined and given the test data. The combined module works successfully with out any side effect on other programs. Everything was found fine working.

- Output Testing

This is the final step in testing. In this the entire system was tested as a whole with all forms, code, modules and class modules. This form of testing is popularly known as Black Box testing or system testing.

Black Box testing methods focus on the functional requirement of the software. That is, Black Box testing enables the software engineer to derive sets of input conditions that will fully exercise all functional requirements for a program. Black Box testing attempts to find errors in the following categories; incorrect or missing functions, interface errors, errors in data structures or external database access, performance errors and initialization errors and termination errors.

IV. Test Cases

TEST SUITE ID: USER REGISTRATION FORM				
Test Case Sr. No.	**Description**	**Expected Result**	**Actual Result**	**Remarks**
1.	Click on sign up button without entering any data	Error message prompting that required field must be displayed	Required field cannot left blank: Error message displayed	Pass
2.	Input any number of characters in the “name” text box.	The number of character must limited to 30(as specified)	Number of character which can be entered is limited to 30(as specified)	Pass
3.	Input numeric in the “name field”	Numeric’s must not allowed in :name field	Numeric characters are allowed	Fail
4.	Input special char. In the	Special char. Must not	Special characters are	Fail

	name box	allowed in name field	allowed	
5.	Input any number of characters in the "username" text box.	The number of characters must be limited to 20	The no. of character which may be entered limited to 20(as specified)	Pass
6.	Input any number of characters in the "password" text box.	The number of characters must be limited to 15	The no. of character which may be entered limited to 15(as specified	Pass
7	Input numeric's in password field	Numeric must be allowed in password field	Numeric are allowed in numeric field	Pass
8	Input any invalid email in email id field	Invalid email addresses must not be allowed	Invalid email addresses are not allowed	Pass

TEST SUITE ID: SIGN IN FORM				
Test Case Sr.No.	**Description**	**Expected Result**	**Actual Result**	**Remarks**
1	Click on login button on sign--in and check the result	Error message must be displayed prompting the user to fill essential fields	"Enter your username" and "Enter your password" : Error messages are displayed	Pass
2	Input only username and leave password field empty	Error message must be displayed prompting the user to enter password	"Enter your password" : Error messages is displayed	Pass

3	Input any number of characters in username field.	The number of characters must be limited to 20.	Number of characters which can be entered is limited to 20.	Pass
4	Input incorrect username and click on sign in	Error message must be displayed indicating that wrong username is entered	“Username does not belong to any account!!!Please try again”:Error message is displayed	Pass
5	Input password only and leave username field empty	Error message must be displayed prompting the user to enter username	“Enter your username”::Error message is displayed	Pass
6	Input correct username but incorrect password	Error message must be displayed indicating that password is incorrect.	"Username or Password is incorrect":Error message is displayed	Pass
7	Input only numeric characters in “username” field	Username having numeric’s only should not be allowed	Username containing only numeric’s is allowed.	Fail
8	Input special characters like @#$% in username text box.	Special characters must not be allowed in the username text box.	Special characters are allowed	Fail
9	Click on login button after entering correct username and password	Redirect to user's portfolio page	User is redirected to portfolio page	Pass
10	Enter text in password	Text entered must not be visible to the user.	Text is not visible	Pass
11	Check where the focus is, when login page is first opened	Focus must be on “username” text box	Focus is not on “username” textbox.	Fail
12	Input any number of characters in the “password” text box.	The number of characters must be limited to 15.	Number of characters is limited to 15	Pass
13	Input special characters like @#$ etc. in “password” field	Special characters must be allowed in password	Special characters are allowed	Pass

14	Input numeric's in "password" field	Numeric's must be allowed in password	Numeric's are allowed	Pass
15	Click on "register "button on login page and check if validators of username and password textbox are fired	Validations of username and password text box must not fire and user must be redirected to registration page	User is redirected to registration page	Pass
16	Check whether "login in" button is the default button or not by pressing enter	"Login" button must be the default button	"Login" button is not the default button.	Fail

STUDENT MODULE				
Test Case Sr. No.	**Description**	**Expected Result**	**Actual Result**	**Remarks**
1	Check whether User can upload and download assignments	User must be able to upload and download the assignments	User is able to upload and download the assignments	Pass
2	Check the file type uploaded by user	User must be able to upload format of files as specified	User is able to upload the specified file format	Pass
3	Check whether user can download study material	User must be able to download study material(only download)	User is only able to download the study material	Pass
4	Check whether user can view slideshows	User must be able to slideshows	User is able to upload slideshows	Pass
5	Check whether the user can see announcements	User must be able to see announcements	User is able to see announcements	Pass
6	Check student is able to give quiz	User must able to give quiz	User is able to give quiz	Pass

7	Check for the logout button	User must be able to logout of his account	User is able to logout of his account	Pass
8	Check for change snap field	The field must upload the snap from a specified location	User is able to upload the snap	Pass

ADMIN MODULE				
Test Case Sr. No.	**Description**	**Expected Result**	**Actual Result**	**Remarks**
1	Click on “Home” button of admin page	Home page should be displayed	On clicking on Home button Home page is getting displayed	Pass
2	Add new teachers and courses	New Teachers and courses should be added to database	New Teachers and courses are added to database	Pass
3	Add news and announcements through news scrollbar	New news and announcements must be displayed on student and teacher module	New news and announcements are displayed on student and teacher module	Pass
4	Able to remove previous courses and teachers by “delete” button	Courses and teachers must be removed from database	On clicking the required button required courses and teachers are removed from database	Pass

TEACHER MODULE				
Test Case Sr. No.	**Description**	**Expected Result**	**Actual Result**	**Remarks**
1	Check whether User can upoad study material	User must be able to upload study material	User is able to upload study material	Pass

2	Check the file type uploaded by user	User must be able to upload format of files as specified	User is able to upload the specified file format	Pass
3	Check whether user can post new quiz	User must be able to upload new quiz	User is able to upload new quiz	Pass
4	Check whether user can upload slideshows	User must be able to upload slideshows	User is able to upload slideshows	Pass
5	Check whether the user can see announcements	User must be able to see announcements	User is able to see announcements	Pass
6	Check whether user is able to view assigned courses properly	User must able to view assigned courses properly	User must able to view assigned courses properly	Pass
7	Check for the logout button	User must be able to logout of his account	User is able to logout of his account	Pass

8. Implementation

I. Implementation Of The Project

Implementation is the process of having professional checkpoints and put new equipments into user, trained user, install, the new application and constructs any files or data needed to use it. This phase is less creative then system design System developers may choose to test the operation in only one area of the firm with only one or two persons. Sometimes they may run an old or new system in parallel way to compare the results. In other situation system developers stop using the old system one - way and start using the old system the other way. During the final step user acceptations is tested followed by user training depending upon the nature of the system extensive user training may be required. Conversion usually takes place at about the same time the user is being trained or later.

II. Conversion Plan

The process of changing the old system into a new one is the conversion Plan. There are various methods of conversion. However the pros and cons of each method should be evaluated before deciding upon the final approach. The methods of conversion are:

- Direct Conversion
- Parallel Conversion
- Phased Conversion
- Pilot Conversion

These all are explained as:

Direct Conversion

In this Conversion all the users stop using the old system at the same time, then being using the new system, this option is fast and disruptive so is not feasible in our case as large no of Process will be carried out simultaneously, so to stop the running system and start using new one will be difficult to use.

Phased Conversion

Users in this start using the new system component by component. This option works only with the systems that are compartmentalized.

Pilot Conversion

Personal single site uses the new system, then the entire organization makes the switch. Although this approach takes the more time than the other type of conversions, it gives opportunity to test user response to the system thoroughly.

Parallel Conversion

Users continue to use the old system while an increasing amount of data is pro ceased through the old system .The Outputs from the two systems are compared: if they agree then the switch is made which is further used for the testing of the new system.

III. Post-Implementation and Software Maintenance

- **Post Implementation**

After installation phase is complete and user staff is adjusted to the changes traded by the new system, evaluation and maintenance starts. Like any other system, this is an aging process that requires periodic maintenance of hardware and software. If the new information is inconsistent with the design specification maintenance to keep it tuned with the design specification.

The importance of the maintenance is to continue, to bring the new system to the standards. User priority changes in the organizational programs or the environmental factors also caught for the system analysis. Maintenance is necessary to eliminate errors in the working system. During its working live and to tune the system to any variations in its working environment, often small system is brought to the operation and changes are made to remove them. System planners must always plan them for resources availability to carry out their maintenance function. The importance of maintenance is to continue to bring new system to standard

- **Maintenance**

Computer software programmers and engineers perform various software maintenance functions to keep software running with as few problems as possible. Programmers and engineers also constantly seek to improve the reliability and functionality of software through maintenance activities. Many businesses rely on various software programs to manage their finances, inventory, employees, security systems, and other facets of business activity.

9. Project Legacy

I. Current Status Of The Project

- Our project offers a unique platform where one can find means to study new courses online in a new interactive manner from anywhere, anytime without paying anything.
- It also includes a slideshows section where user can view the various kind of slideshows and animations related to course materials.
- It includes the notifications part where users can find the updated news of various new courses available on the system.
- It also includes a quiz section where users can check the level of their understanding of course by giving quiz and reviewing their results.
- It includes a feedback section for the users from where he can give the feedback regarding the website or his needs.
- It includes an attractive user account page including the user snap as well and with the provision of changing it as well.
- It also provides an option to view and read articles directly without downloading them.
- It also provides option to teachers for uploading any material in file and on the other hand learners can download those files.
- Admin has all the permissions to block the user accounts or to delete a specific comment or topic of discussion.
- Admin has also the permission to delete a course and teacher as well.
- Admin has also a provision to include a new category as well.

II. Future Scope And Future Enhancements

- Integration of video module in which users can view video lectures directly from website.
- Integration of word processors like wordpad etc. which can help users to make online notes and save them if required.
- Integration of discussion and chat module through which user can interact with other online users or teachers and seek help from them.
- Project can be used for the Educational organization purposes

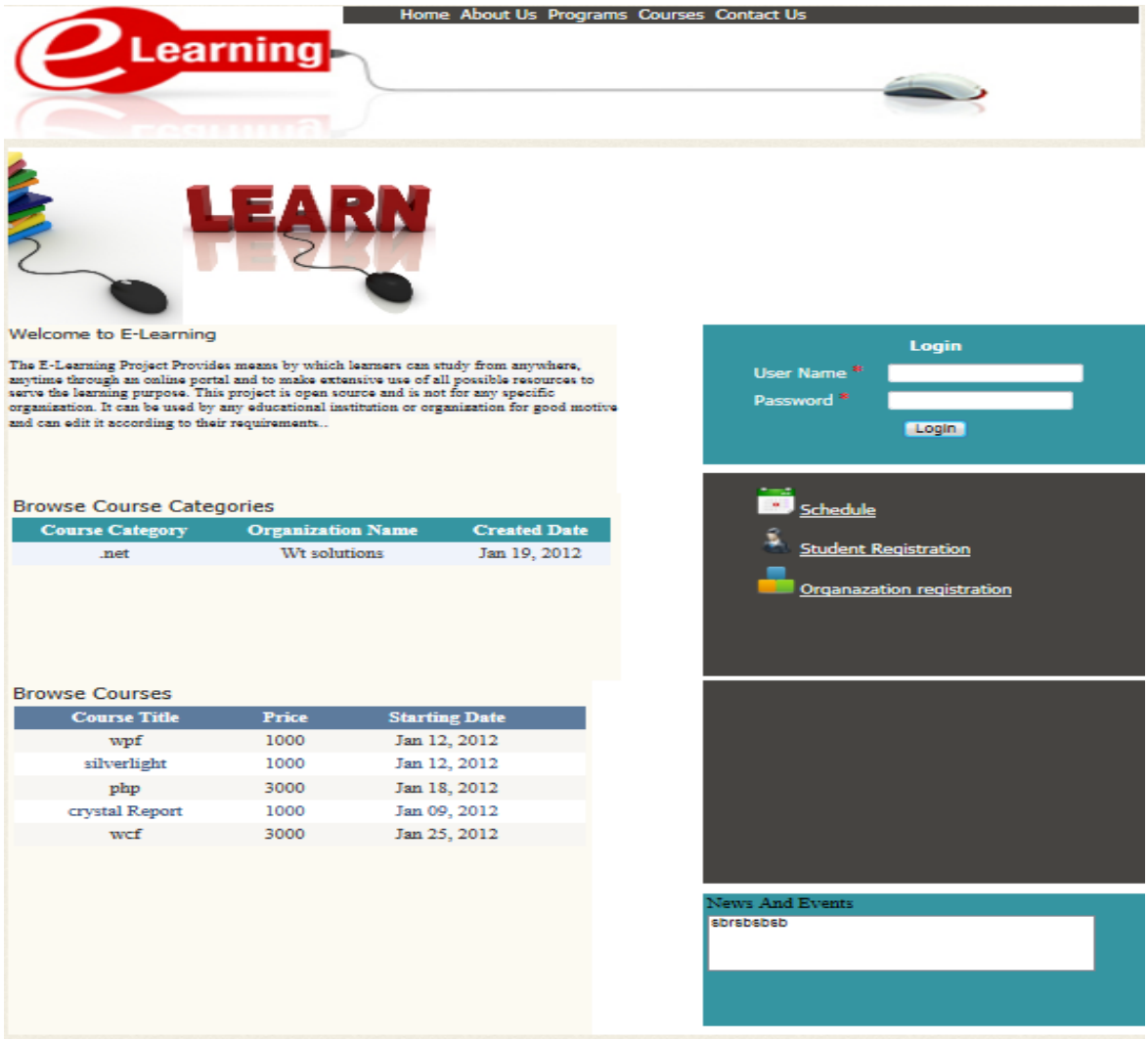
III. Technical and Managerial lessons learnt

- In SQL Server we have Learned about Stored Procedures, Query handling and some new features of SQL Server 2008
- In ASP.net we have learned Session Handling, View State Management, Ajax Controls, CSS, JavaScript, validating Data, reporting i.e. Using Crystal Reports.

10. User Manual: A complete document (Help Guide) of the software developed.

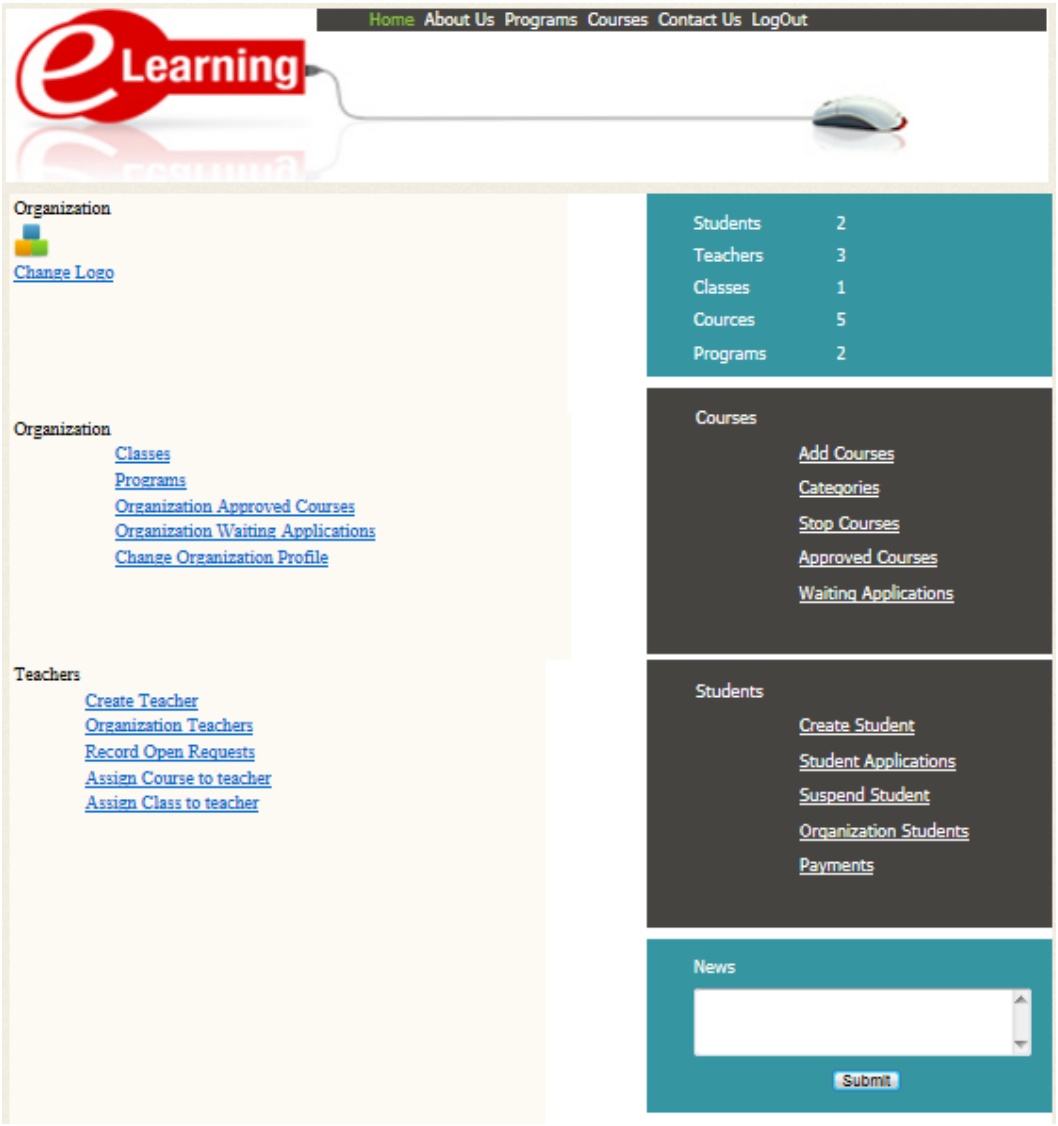
Snapshots And Instructions

- Homepage(person can login into their respective module by filling their registered user id and password and clicking the login button)

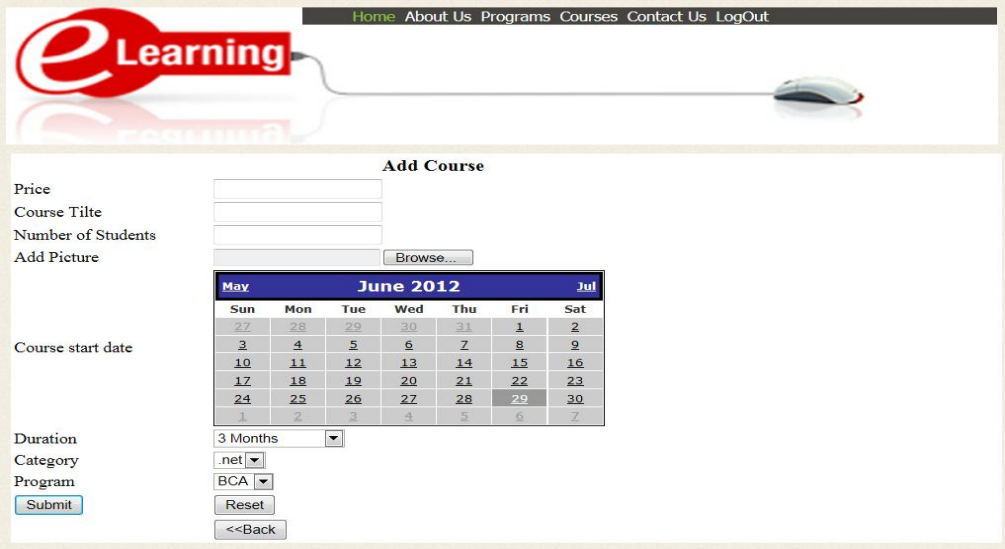


- **Snapshots for Admin Module**

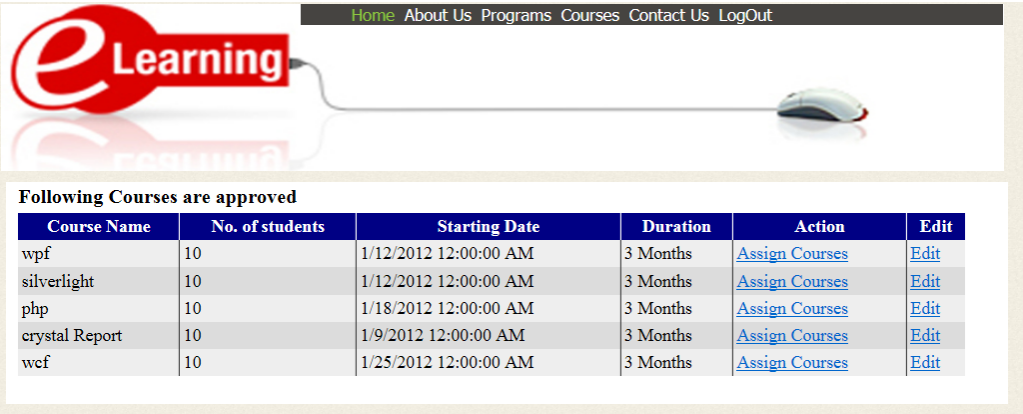
This is the homepage that comes when admin has logged into the system.From here he can manage various courses, classes and teachers



New courses can be added through this module



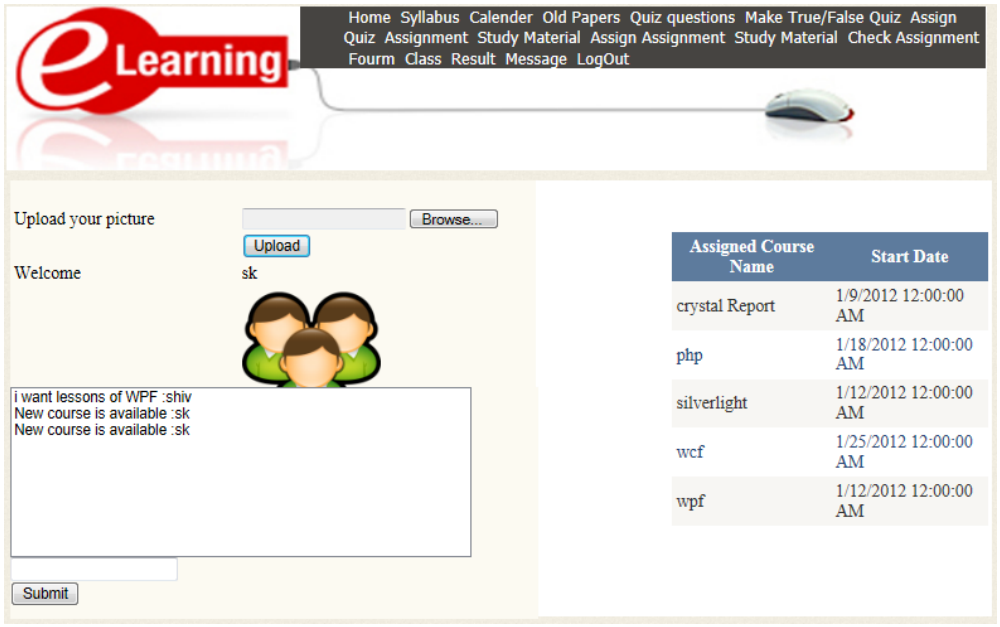
Assign various courses to teacher



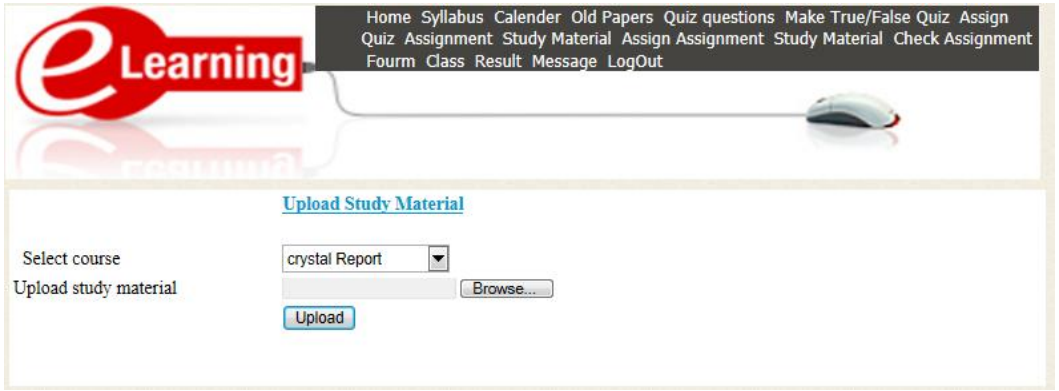
Course Name	No. of students	Starting Date	Duration	Action	Edit
wpf	10	1/12/2012 12:00:00 AM	3 Months	Assign Courses	Edit
silverlight	10	1/12/2012 12:00:00 AM	3 Months	Assign Courses	Edit
php	10	1/18/2012 12:00:00 AM	3 Months	Assign Courses	Edit
crystal Report	10	1/9/2012 12:00:00 AM	3 Months	Assign Courses	Edit
wcf	10	1/25/2012 12:00:00 AM	3 Months	Assign Courses	Edit

- **Snapshots for Teacher Module**

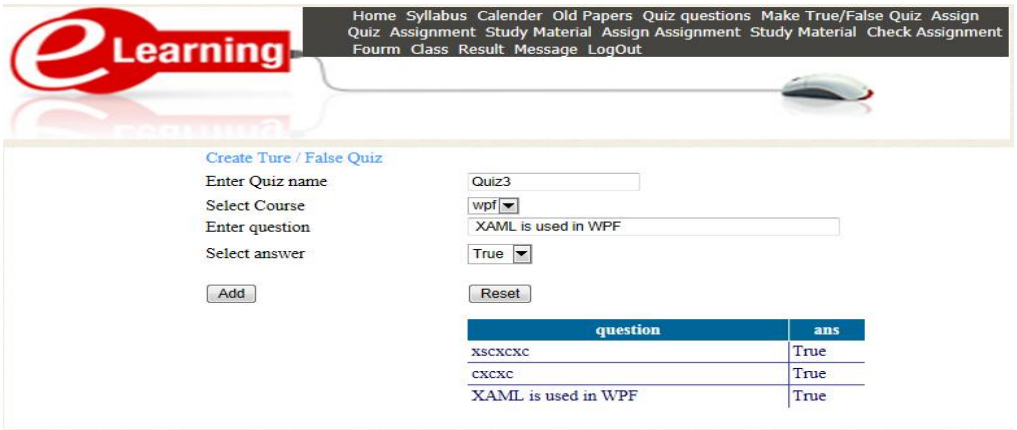
Teacher homepage



Study material can be uploaded by teacher using this module

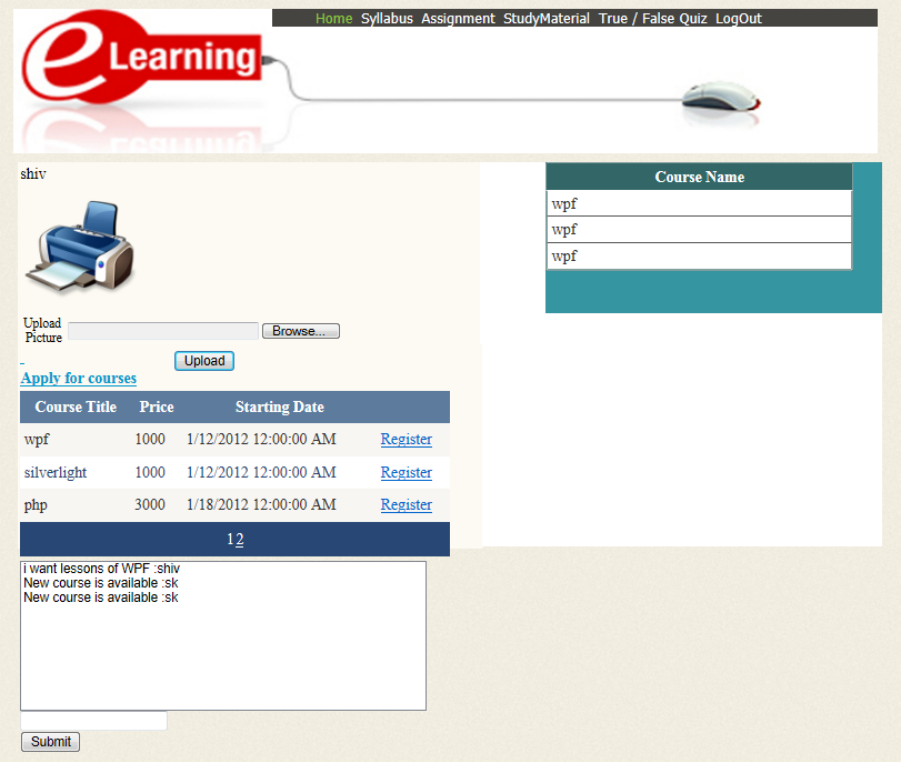


New quiz can be created through this module

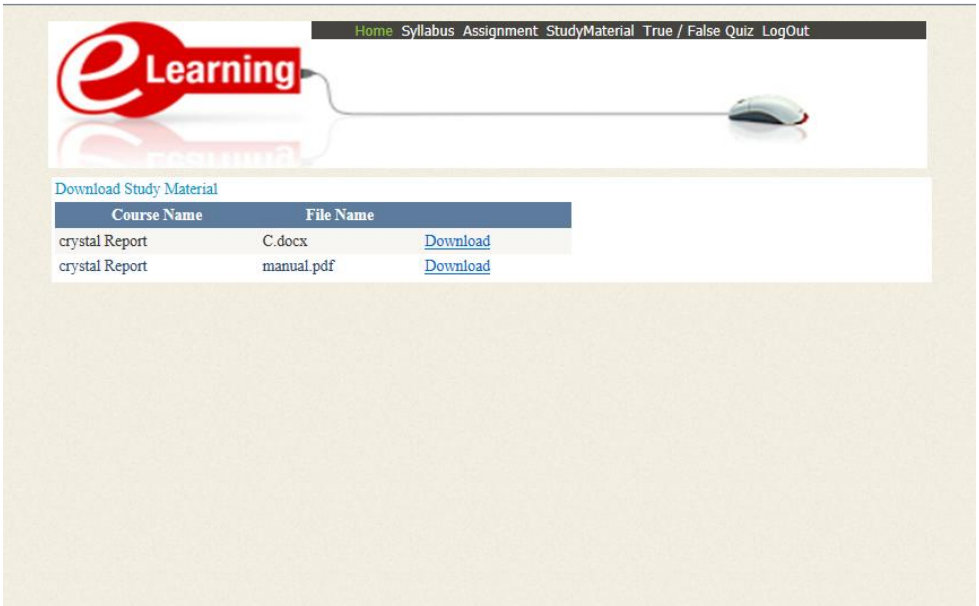


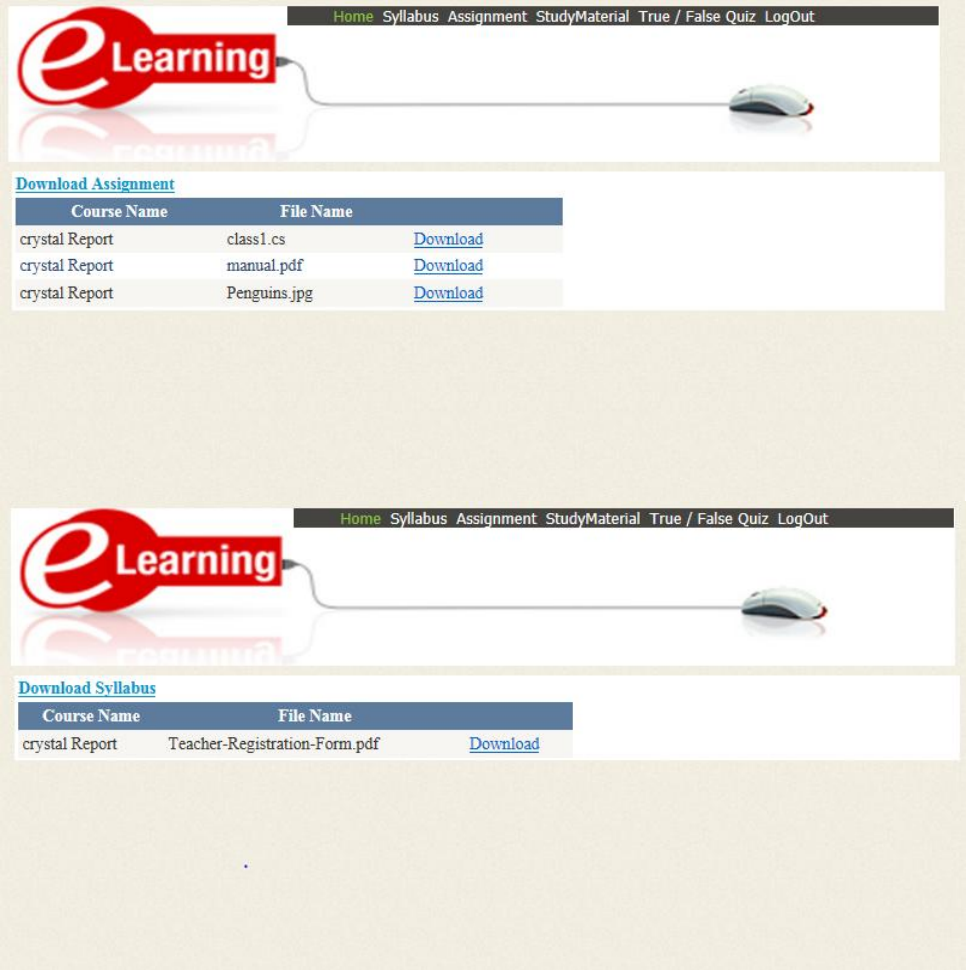
- **Snapshots for student module**

Student Homepage

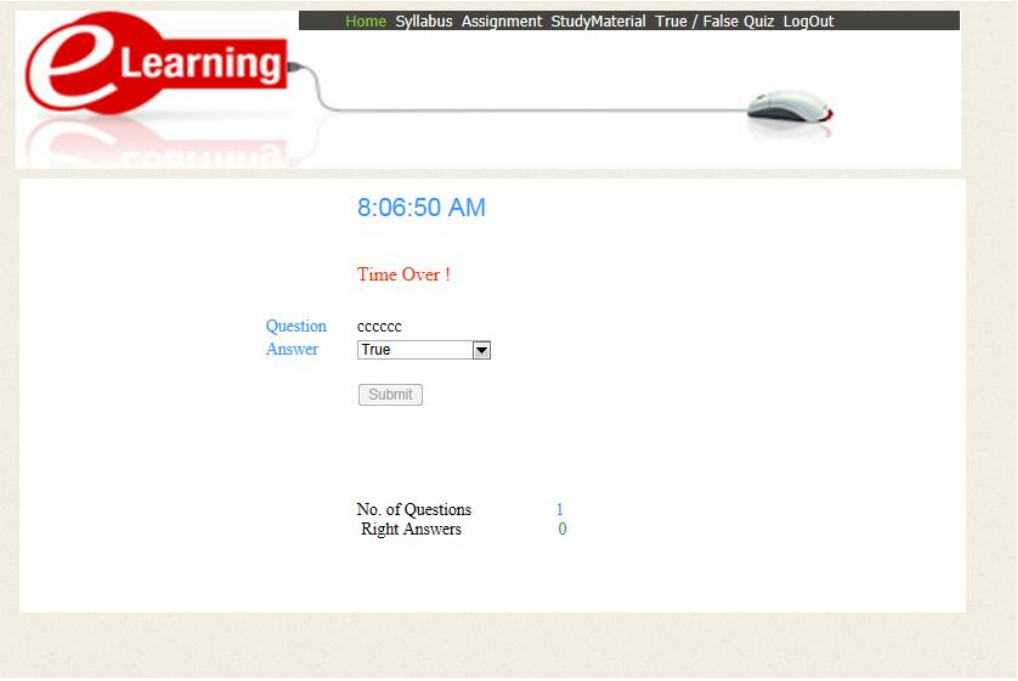


Student can download assignments, syllabus and study material through these modules





Student can take quiz through this module



11. Source Code

- **Login page**

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;
using e_learning.controller;
using System.Data.SqlClient;
using System.Data;
namespace e_learning
{
publicpartialclassWebForm1 : System.Web.UI.Page
   {
protectedvoid Page_Load(object sender, EventArgs e)
      {
getTeacher();
getCourses();
getProgram();
getStudents();
getClass();
      }
publicvoid getTeacher()
      {
connection.connect();
connection.cmd = newSqlCommand("select count(*) from teacher_info where
org_id="+Int32.Parse(Session["org"].ToString()));
connection.cmd.Connection = connection.con;
         Label2.Text = connection.cmd.ExecuteScalar().ToString();
      }
publicvoid getCourses()
      {
connection.cmd = newSqlCommand("select count(*) from course where org_id=" +
Int32.Parse(Session["org"].ToString()));
connection.cmd.Connection = connection.con;
         Label4.Text = connection.cmd.ExecuteScalar().ToString();
      }

publicvoid getProgram()
      {
connection.cmd = newSqlCommand("select count(*) from program where org_id=" +
Int32.Parse(Session["org"].ToString()));
connection.cmd.Connection = connection.con;
         Label5.Text = connection.cmd.ExecuteScalar().ToString();
      }
publicvoid getStudents()
      {
```

```
connection.cmd = newSqlCommand("select count(orgstd.id) from orgStudents as orgstd
,student_reg_info as std  where orgstd.student_id=std.id and org_id=" +
Int32.Parse(Session["org"].ToString()));
connection.cmd.Connection = connection.con;
            Label1.Text = connection.cmd.ExecuteScalar().ToString();
        }
publicvoid getClass()
        {
connection.cmd = newSqlCommand("select count(*) from class where org_id=" +
Int32.Parse(Session["org"].ToString()));
connection.cmd.Connection = connection.con;
            Label3.Text = connection.cmd.ExecuteScalar().ToString();
        }
protectedvoid LinkButton17_Click(object sender, EventArgs e)
        {
Server.Transfer("TeacherReg.aspx");
        }

protectedvoid LinkButton3_Click(object sender, EventArgs e)
        {
try
            {

Server.Transfer("AddProgram.aspx");



            }
catch(Exception ex)
            {
            }
        }

protectedvoid LinkButton8_Click(object sender, EventArgs e)
        {
Server.Transfer("AddCategory.aspx");
        }

protectedvoid LinkButton7_Click(object sender, EventArgs e)
        {

Server.Transfer("AddCourses.aspx");
        }

protectedvoid Button1_Click(object sender, EventArgs e)
        {
try
            {
connection.cmd = newSqlCommand("insert into news(org_id,news,created_date) values('" +
Session["org"] + "','" + TextBox1.Text + "'," + "'"+System.DateTime.Now.ToString() + "')");
```

```
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();
            }
catch (Exception ex)
            {

            }

        }

protectedvoid LinkButton12_Click(object sender, EventArgs e)
        {

        }

protectedvoid LinkButton10_Click(object sender, EventArgs e)
        {
Server.Transfer("ApproveCourses.aspx");
        }

protectedvoid LinkButton20_Click(object sender, EventArgs e)
        {
Server.Transfer("AssignCourses.aspx");
        }

protectedvoid LinkButton2_Click(object sender, EventArgs e)
        {
Server.Transfer("CreateClass.aspx");
        }

protectedvoid LinkButton21_Click(object sender, EventArgs e)
        {
Server.Transfer("AssignClassTeacher.aspx");
        }
    }
}
```

- **Student Homepage**

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Data;
using System.Data.SqlClient;
using e_learning.controller;
```

```
namespace e_learning
{
publicpartialclassWebForm16 : System.Web.UI.Page
   {


protectedvoid Page_Load(object sender, EventArgs e)
      {

try
         {
            Label6.Text = Session["std"].ToString();
getimge();
getassignCourses();
getcourse();
getlatestFourums();
         }
catch (Exception ex)
         {

         }

      }
publicvoid getassignCourses()
      {
try
         {
connection.cmd = newSqlCommand("select c.course_title as [Course Name] from course as
c,student_course as std where c.Id=std.course_id and std.std=" + connection.userid);
connection.cmd.Connection = connection.con;

SqlDataAdapter da = newSqlDataAdapter();
            da.SelectCommand = connection.cmd;
DataSet ds = newDataSet();
da.Fill(ds);
            GridView2.DataSource = ds;
GridView2.DataBind();
         }
catch (Exception ex)
         {

         }

      }
publicvoid getimge()
      {
try
         {
connection.cmd = newSqlCommand("select image from studentimage where std=" +
connection.userid);
```

```
connection.cmd.Connection = connection.con;
string imagepath = connection.cmd.ExecuteScalar().ToString();
            Image1.ImageUrl = "/Studentimages/" + imagepath;
        }
catch (Exception ex)
        {
        }

    }
publicint check()
    {
try
        {
connection.cmd = newSqlCommand("select count(*) from studentimage where std=" +
connection.userid);
connection.cmd.Connection = connection.con;
int i = Int32.Parse(connection.cmd.ExecuteScalar().ToString());
return i;
        }
catch (Exception ex)
        {
return 0;
        }
    }
publicvoid getcourse()
    {
try
        {
connection.connect();
connection.cmd = newSqlCommand("select c.course_title,c.price,c.start_date,c.id from
course as c ");
connection.cmd.Connection = connection.con;
SqlDataAdapter da = newSqlDataAdapter();
            da.SelectCommand = connection.cmd;
DataSet ds = newDataSet();
da.Fill(ds);
            GridView1.DataSource = ds.Tables[0];

GridView1.DataBind();
        }
catch (Exception ex)
        {

        }


    }

protectedvoid Button1_Click1(object sender, EventArgs e)
    {
```

```
try
        {
string filename = FileUpload1.FileName;
string path = Server.MapPath("/Studentimages/" + filename);
if (FileUpload1.HasFile)
            {

int a = check();
if (a == 0)
                {
FileUpload1.SaveAs(path);
connection.cmd = newSqlCommand("insert into studentimage values(" + connection.userid +
"," + filename + ")");
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();
                }
else
                {


connection.cmd = newSqlCommand("update studentimage set image=" + filename + "
where std=" + connection.userid );
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();

getimge();
                }

            }
        }
catch (Exception ex)
        {

        }

    }

protectedvoid GridView1_RowCommand(object sender, GridViewCommandEventArgs e)
    {
try
        {

connection.cmd = newSqlCommand("insert into student_course values(" + connection.userid
+ "," + Int32.Parse(e.CommandArgument.ToString()) + ")");
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();
        }
catch (Exception ex)
        {
```

```
        }
    }
publicvoid getlatestFourums()
    {

connection.cmd = newSqlCommand("select top 10 * from fourum ");
connection.cmd.Connection = connection.con;
SqlDataAdapter da = newSqlDataAdapter();
        da.SelectCommand = connection.cmd;
DataSet ds = newDataSet();
da.Fill(ds);
        ListBox1.DataSource = ds.Tables[0].DefaultView;
        ListBox1.DataTextField = "post";
ListBox1.DataBind();
    }
protectedvoid Button2_Click(object sender, EventArgs e)
    {
connection.cmd = newSqlCommand("insert into fourum values('" + TextBox1.Text + "  :" +
Session["std"].ToString() + "')");
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();
        TextBox1.Text = "";
    }
   }
}
```

- **Teacher Homepage**

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.IO;
using System.Data;
using System.Data.SqlClient;
using e_learning.controller;
namespace e_learning
{
publicpartialclassWebForm12 : System.Web.UI.Page
  {
protectedvoid Page_Load(object sender, EventArgs e)
    {
try
        {
            Label1.Text = Session["teacher"].ToString();
getimge();
getassignCourses();
```

```
getlatestFourums();
        }
catch (Exception ex)
        {

        }


    }
publicvoid getassignCourses()
    {
connection.cmd = newSqlCommand("select distinct c.course_title as [Assigned Course
Name],c.start_date as [Start Date] from assign_course_teacher ast,course c  where
ast.teacher_id=" + connection.userid);
connection.cmd.Connection = connection.con;

SqlDataAdapter da = newSqlDataAdapter();
        da.SelectCommand = connection.cmd;
DataSet ds = newDataSet();
da.Fill(ds);
        GridView1.DataSource = ds;
GridView1.DataBind();

    }
publicvoid getimge()
    {
connection.cmd = newSqlCommand("select image from teacherimage where tid=" +
connection.userid);
connection.cmd.Connection = connection.con;
string imagepath = connection.cmd.ExecuteScalar().ToString();
        Image1.ImageUrl = "/teacherimages/"+imagepath;

    }
publicint check()
    {
connection.cmd = newSqlCommand("select count(*) from teacherimage where tid=" +
connection.userid);
connection.cmd.Connection = connection.con;
int i = Int32.Parse(connection.cmd.ExecuteScalar().ToString());
return i;
    }

protectedvoid btmupload_Click1(object sender, EventArgs e)
    {
try
        {
string filename = FileUpload2.FileName;
string path = Server.MapPath("/teacherimages/" + filename);
if (FileUpload2.HasFile)
            {
```

```
int a = check();
if (a == 0)
                {
FileUpload2.SaveAs(path);
connection.cmd = newSqlCommand("insert into teacherimage values(" + connection.userid +
"," + filename + "')");
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();
                }
else
                {


connection.cmd = newSqlCommand("update teacherimage set image='" + filename + "'
where tid=" + connection.userid + ")");
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();


                }

            }
        }
catch (Exception ex)
        {

        }
    }
publicvoid getlatestFourums()
    {

connection.cmd = newSqlCommand("select top 10 * from fourum ");
connection.cmd.Connection = connection.con;
SqlDataAdapter da = newSqlDataAdapter();
        da.SelectCommand = connection.cmd;
DataSet ds = newDataSet();
da.Fill(ds);
        ListBox1.DataSource = ds.Tables[0].DefaultView;
        ListBox1.DataTextField = "post";
ListBox1.DataBind();
    }
protectedvoid Button2_Click(object sender, EventArgs e)
    {

connection.cmd = newSqlCommand("insert into fourum values('" + TextBox1.Text + "  :" +
Session["teacher"].ToString() + "')");
connection.cmd.Connection = connection.con;
connection.cmd.ExecuteNonQuery();
        TextBox1.Text = "";
```

```
    }
  }
}
```

- **Download study material**

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Web;
using System.Web.UI;
using System.Web.UI.WebControls;
using System.Data;
using System.Data.SqlClient;
using e_learning.controller;
using System.IO;
using System.Diagnostics;
namespace e_learning
{
publicpartialclassWebForm19 : System.Web.UI.Page
  {
protectedvoid Page_Load(object sender, EventArgs e)
    {
getstudy();
    }

publicvoid getstudy()
    {
connection.connect();
connection.cmd = newSqlCommand("select distinct cou.course_title,std.study_material from
course as cou, student_course as c,studyMaterial std where std.course_id=cou.Id  ");
connection.cmd.Connection = connection.con;
SqlDataAdapter da = newSqlDataAdapter();
        da.SelectCommand = connection.cmd;
DataSet ds = newDataSet();
da.Fill(ds);
        GridView1.DataSource = ds.Tables[0];

GridView1.DataBind();

    }

protectedvoid GridView1_RowCommand(object sender, GridViewCommandEventArgs e)
    {
try
        {
string filename = e.CommandArgument.ToString();
string path = Server.MapPath("/studymaterial");
Process.Start(path+"/"+filename);
```

```
            }
catch (Exception ex)
            {
            }

        }
    }
}
```

12. Bibliography

- www.en.wikipedia.org/wiki/e-learning
- www.cemca.org/e-learning_guidebook.pdf
- www.elearning-india.com
- www.e-learningconsulting.com
- www.elearnindia.blogspot.com