Web Portal

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Plagiarism Free Certificate

This is to certify that, I _____ S/D of Muhammad Siddique, group leader of FYP under registration no _____at Software Engineering Department, The Superior College, Lahore. I declare that my FYP report is checked by my supervisor.

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Signature: _____

Project Report

[Title of Project]

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
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			<Changes Based on Feedback from Supervisor>	
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APPROVAL

PROJECT SUPERVISOR

Comments: _____

_____

Name:_____

Date:_____ Signature:_____

PROJECT MANAGER

Comments: _____

_____

Date:_____ Signature:_____

HEAD OF THE DEPARTMENT

Comments: _____

_____

Date:_____ Signature:_____

Dedication

This research is dedicated to my parents, And to my Advisor Sir. Fawad Naseem. Also to the people behind my project.As well for giving us a positive response and motivation. I had a really great time with my all staff. To my Staff thank you for the support I love you all.

Acknowledgements

First of all, I would like to thank Sir Fawad Naseem, for the valuable time He spends for me during the year, advising and correcting my thesis. It was a nice experience to do a study with my Staff. Secondly, I want to thank Sir Jawad, for his valuable advice during the year of my study at the lab, also I want to thank all nice members of IT Department who helped me in several issues. Also great thanks go to my Colleague, for his support and patience, to my parents, for their support and encouragement. Finally, I would like to thank all my friends who advice and encourage me during this study, so I thank all CSIT Students in Superior. I also would like to acknowledge Superior University for funding my Bachelor degree.

Executive Summary

We developed a portal for all user with coherent activities which provide a login in which they can take Suggestions, take Assignments, take Quizzes and One of the main beneficial point in this portal is to provide an online Suggestion of any query about any course or any outcome and the teacher will suggest the best answer or Solution of outline. Here in this portal they will get updated from Facebook via notification on Gmail 24/7. User get registered on this Website and get notified while a Website is for to learn any online courses.. There is a unique point of this portal is to maintain the user interest updating the latest lectures video. In which user will able to learn the free course after that when he/she get completed his lectures then he/she will have to attempt the short quiz according to their courses.

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Chapter 1

Introduction

Chapter 1: Introduction

Interactive learning application is an online web based application to check the concepts of students of different courses and topics. This application will randomly show a statement related to any selected course. This interactive learning application provides the online courses to learn or deploy and many kinds of coherent activities like Quizzes, upload assignments etc.

1.1 Background

Our Website provide capabilities for registering all user to learn free courses and any other learning material. Our websites should not be confused with a learning management system or virtual learning environment, where course materials, assignments and assessment tests can be published electronically.

1.2 Motivations and Challenges

- There are many websites which are providing online courses to learn but they all are paid course.
- Students or users didn't know how to pay online and there is a risk in valid and invalid websites to pay.
- Most of the courses are paid courses and users are not enough to pay because these courses are too much expensive.
- When student are searching related to the course on these websites from which they are doing the course in this website there is no enough data related to the course.
- There are many websites which provides the data about our query but there is confusing situation to make better solution.

1.3 Goals and Objectives

Functional:

User:

- Login Management
- Home Page for New Courses.
- User can upload their Query.
- Post Query.
- Get notification after user registered.
- Search promotions with user expectation.
- Get better Solution.
- Learn Free Course.
- View courses.
- Select courses.
- Online lectures.
- Quizzes.

Admin:

- Course management (Admin should be able to manage different courses.

  Like create, update and delete courses)
- Admin should assign courses to students.
- Student should be able to see assigned courses
- Question bank management (Admin should be able to enter different questions or statements into courses with possible answer. Admin should enter the answer by pressing given in interface from “a” to “z” instead of typing)
- Test management (Admin can create test for different courses. Students will take test of courses assigned to them. Admin and student can see result and grades of courses.)

Nonfunctional:

- Availability
- Performance
- Security
- Flexibility
- Maintainability
- Manageability

1.4 Literature Review/Existing Solutions

Amendments in my system:

This Interactive learning application provide capabilities for registering all users in courses, online quizzes. This portal will provide free courses to learn and who will completed these courses with best grades. In this website all user will notified 24/7 with latest uploaded courses and other logical activities.

1.5 Gap Analysis

Competitors:

- Stackoverflow.com
- Stackexchange.com
- W3school.com
- Digiskills
- Universities
- Collages
- Institutes

- Paid websites

1.6 Proposed Solution

Here in this website all user can learn free course. In this website all user will notified 24/7 with latest uploaded courses and other logical activities. User will get any kind of Activities like quizzes, opposed solution, skills to deploy and all user who get registered on this website will ranked by some feedback and there learned courses.

1.7 Project Plan

Table 1: Project Plan

Phase One	Planning	11-10-2019
Phase Two	Designing phase	6-01-2020
Phase Three	Final Documentation	25-02-2020

Table 2: Activity

ACTIVITY	IMPLEMENTATION TIME			RESPONSIBILITY
1. Design and implement training program for project management	Month 1	Month 2	Month 3	
	17-10-2019			Program Manager (PM)
1.1. Conduct needs assessment		14-01-2020		Consultant
1.2. Design training modules			17-02-2020	Consultant
1.3. Conduct training			27-02-2020	Consultant

Budget

Table 3: Budget

	Description of Work	Start and End Dates
Phase One	Planning	11-10-2019
Phase Two	Designing	17-01-2020

Phase Three	Working	27-02-2020
All	**Total**	**PRs 15,000 to 20,000**

- **Our Quality plane will be measured by the following parameters:**

  - Ease of use of the Interactive learning Application
  - User satisfaction regarding the service
  - Website Response Time
  - User Service Time
  - Security of personal Data

1.7.1 Work Breakdown Structure

Level 1- Overall project Definition

- Highest level entry corresponds to the overall project deliverables e.g. Software Deliverable Project.

Level 2- Identify and define all deliverables

- Create User Interface.

Level 3- Decompose deliverables into High-level activities.

- What needs to be done to complete the deliverables

Level 4- Break down activities into more granular with Sub-Activities.

- Break Down to measurable level of detail.

Scope-Out:

- All Courses are free to learn.
- Compatible for All users.
- User: Students, Teachers, Admin.

1.7.2 Roles & Responsibility Matrix

The purpose of roles & responsibility matrix is to identify who will do what.

Table 4: Work Breakdown Structure

WBS #	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
1	1.1 Initial level	1.1.1	Interview, survey & research	7	Team
		1.1.2	Analysis research & find figures	4	Team
		1.1.3	Deliverable: Submit initial report	2	Team
		1.1.4	Project Signed/Approved	2	Team
	1.2 Planning	1.2.1	Define Scope Statement	5	Team
		1.2.2	Determine Project Team & responsibilities	2	Team
		1.2.3	Develop Project Plan	5	Team
		1.2.4	Submit Project Plan	4	Team
		1.2.5	Project Plan Approval		Team
	1.3 Execution	1.3.1	Gather Requirements	10	Team
		1.3.2	Verify & Validate Requirements	3	Team
		1.3.3	System Design	20	Team
		1.3.5	Testing Phase Test cases Test plans	14	Team
			Implementation		Team
	1.4 Close	1.4.1	Update Records		
		1.4.2	Effectiveness of change		

1.7.3 Gantt chart

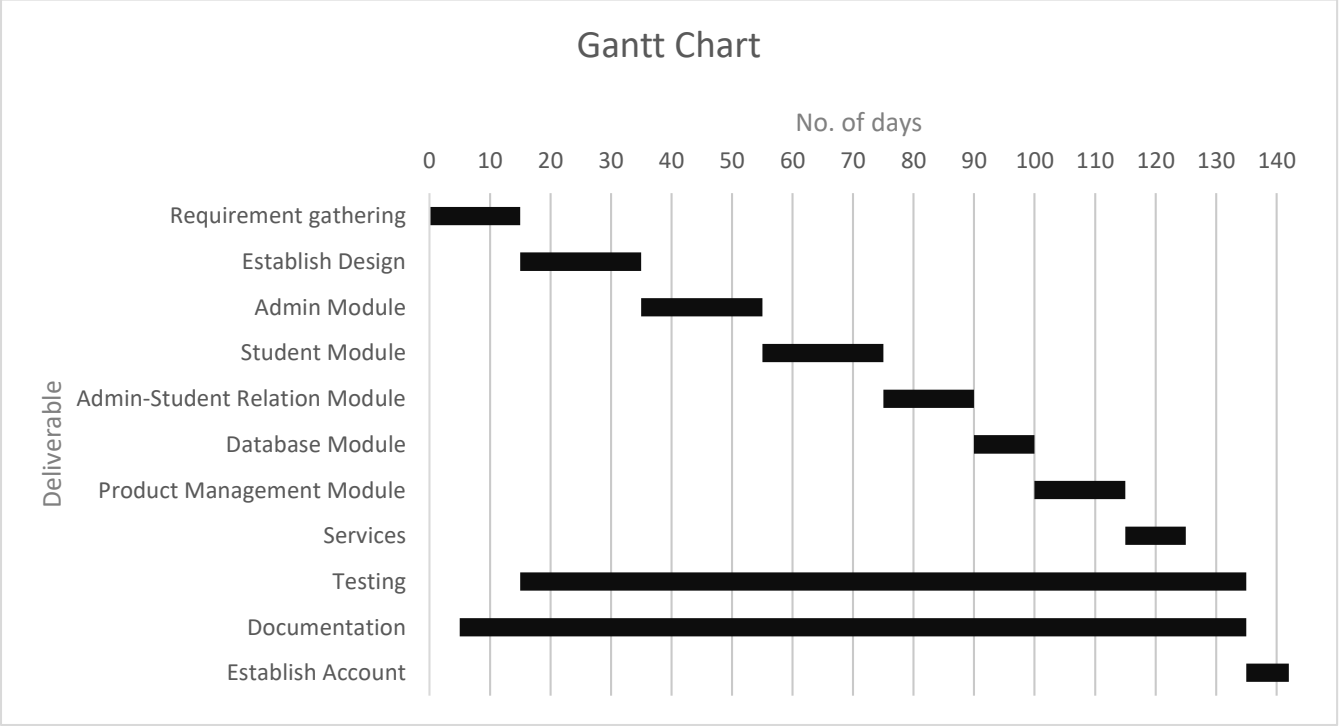


Figure 1: Gantt Chart

1.8 Report Outline

2 Update an Activity by Sessions, Cookies which are objectives, tasks and status.

3 Achievements, plans and resources.

4 Specific progress on YouTube or Video services which are based on web services.

Chapter 2

Software Requirement Specifications

Chapter 2: Software Requirement Specifications

2.1 Introduction

2.1.1 Purpose

- The main purpose of e-learning is to provide virtual class room to student. Once the student login to this portal, he can search whatever course he want to do and finish the same by going through various documents uploaded available. After the course is finished.
- The purpose of this document is to present a detailed description of the Web Publishing System. It will explain the purpose and features of the system, the interfaces of the system, what the system will do, the constraints under which it must operate and how the system will react to external stimuli.

2.1.2 Document Conventions

Main Section Titles

- Font: Calibri Body
- Face: Bold
- Size: 20

Sub Section Titles

- Font: Calibri body
- Face: Bold
- Size: 16

Other Text Explanations

- Font: Calibri Body
- Face: Normal
- Size: 12

2.1.3 Intended Audience and Reading Suggestions

The document has been written in a way that is very helpful for design time of our group. This document is also intended to target the developer's team. The Rest of the document will give you all the details of the project that has been laid down after very careful analysis .Readers may not understand the document if they skip some page.

• **Administrator:** The administrator can update various courses, status, materials, feedback to their students. He can search the details of the particular student.

• **Students:** After login the student select the branch. He can learn courses, material after completing his course with valid feedback.

2.1.4 Product Scope

This Project investigates the entry 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/she is taken to a page which shows all the detail he/she wants.
- Administrator can take a backup of the database for every instance that is happening, periodically.
- All users are authenticated to avail the services.

2.1.5 References

3 IEEE. IEEE STD 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

2.2 Overall Description

2.2.1 Product Perspective

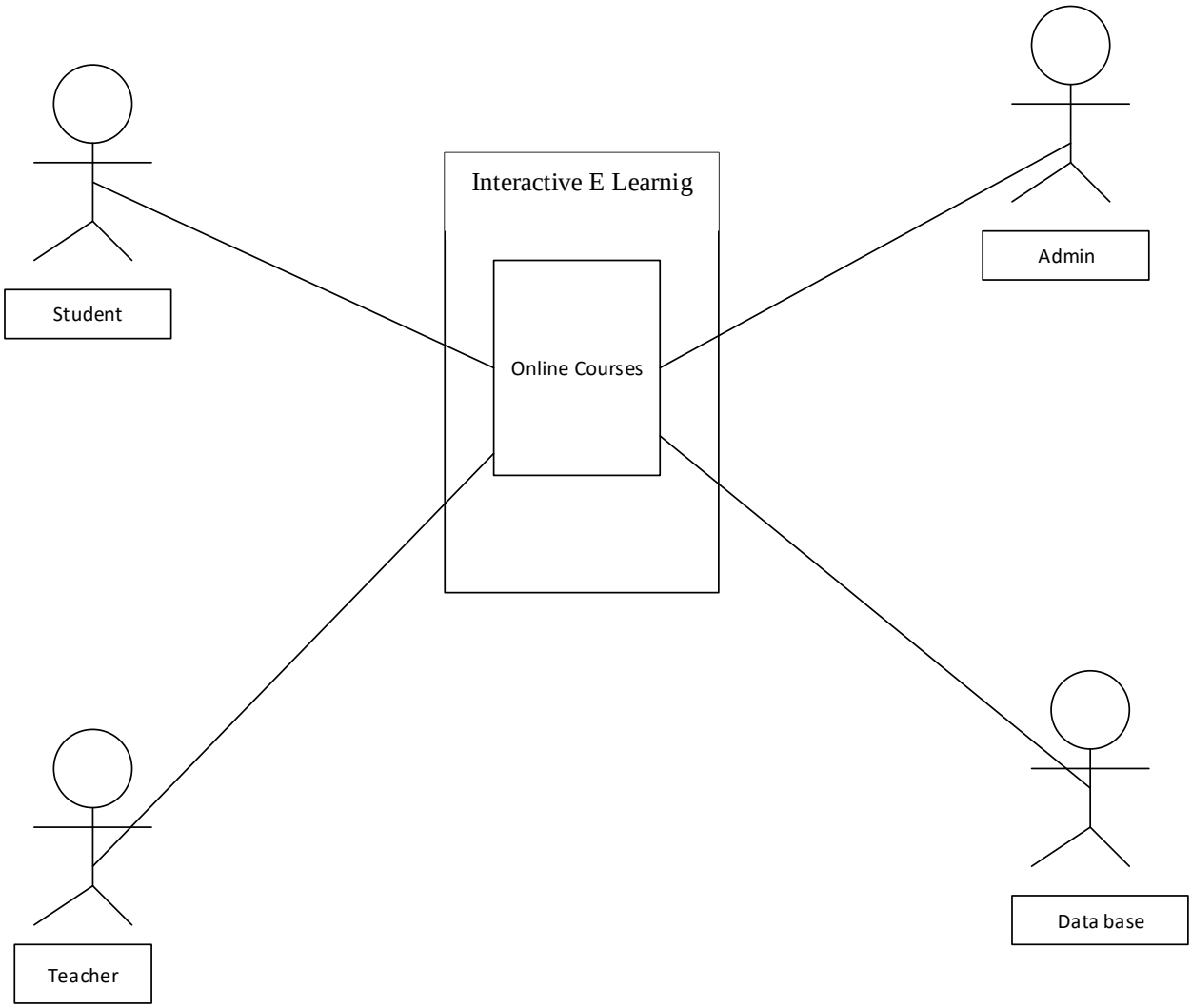


Figure 2: Product Perspective

3 The open resource portal has four active actors and one cooperating system.

4 The Author, Reader, or Reviewer accesses the online course through the video lectures. Any Author or Reviewer communication with the system is through email. The Editor accesses the entire system directly. There is a link to the existing members.

.1.1. Product Functions

User:

- Login Management

- View courses
- Select courses
- Online lectures
- Quizzes

Teacher/ Lecturers:

- Ranking
- Suggest the best solution
- Free courses

.1.2. User Classes and Characteristics

- **Students:** The majority of students shall use this application for advance learning and deploy the knowledge. The technical experience of these users should not matter as the system will be straightforward and easy to use. All student will take suggestions and learn free courses. They must attempt the quiz.
- **Professionals/Scholars:** All the Teacher will use this application which can suggest the best reply of any query to the students. All teacher will be ranked by giving some feedback from the students. They can upload lectures and deploy their best knowledge to others

2.2.4 Operating Environment

The application shall be hosted by professionals and accessible from any web browser on a majority of devices.

- The operating environment of the e-learning portal for universities is based on

  LANGUAGE: php

  Database: MySQL

  Operating system: Windows XP and above

2.2.5 Design and Implementation Constraints

3 The Internet connection is also a constraint for the application. Since the application fetches data from the database over the Internet, it is crucial that there is an Internet connection for the application to function.

4 The web portal will be constrained by the capacity of the database. Since the database is shared between application it may be forced to queue incoming requests and therefor increase the time it takes to fetch data.

2.2.6 User Documentation

<List the user documentation components (such as user manuals, on-line help, and tutorials) that will be delivered along with the software. Identify any known user documentation delivery formats or standards.>

2.2.7 Assumptions and Dependencies

3 A separate, printed user manual for each user role should be delivered with this software which will document how the software should be maintained.

4 Additionally a tutorial shall be provided for the users describing the major use cases for each role.

5 User can send the E-mail to the teacher for further help.

2.2.8 Assumptions and Dependencies

One assumption about the product is that it will always be used on pc or laptops that have enough performance. If the pc does not have enough hardware resources available for the application, for example the users might have allocated them with other applications, there may be scenarios where the application does not work as intended or even at all.

- 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.

2.3 External Interface Requirements

2.3.1 User Interfaces

The user interface shall follow the basic windows style and functionality conventions. The interface has three labs at the top left hand side of the screen which will allow user to easily switch between the different parts of the portal. First lab name with Course, second lab name with profile and third lab name with Quizzes and in the middle of the page a search bar is placed to post a query. When the user press the first lab course then sub category open with free courses

2.3.2 Hardware Interfaces

The application can run on any hardware which supports windows Xp, Seven, Eight or Windows 10. The system must have a Pc or laptop to load this application. The user computer transfers and receive data from server using basic networking protocols. All system information is stored into the server side database which stored the data into the server disks.

2.3.3 Software Interfaces

System requires a properly configured windows xp, seven, eight or windows 10 to load the website. These computer must have Adobe flash player updated and high speed internet connection required to run this portal.

2.3.4 Communications Interfaces

The communication between the different parts of the system is important since they depend on each other. However, in what way the communication is achieved is not important for the system

and is therefore handled by the underlying operating systems for both the mobile application and the web portal.

2.4 System Features

The “Interactive E learning’’ for universities is an independent system. The system is a Web based application which is used to students to do their courses in online.

- Takes data from the student.
- Interact with the database for the data storing.

2.4.1 System Feature 1

- **Buttons**

2.4.1.1 Description and Priority

The buttons menu, home, and back will be used.

2.4.1.2 Stimulus/Response Sequences

When the user presses the “Menu” button on their pc, a list of options will come up on the screen. These options will include an Options button and a Help button. The Help button will lead the user to the portal guide/tutorial. By pressing the Home button on the pc, the user will be returned to the home screen of the user’s pc. The portal state will be saved when the user exits the portal. By pressing the Back button on the pc, the user will be returned to the previous activity of the portal. For example, if the user is in the portal Screen and clicks back, the user will be returned to the Menu screen.

2.4.1.3 Functional Requirements

REQ-SF1-1: When the user presses the menu button the settings and help screen shall be displayed

REQ-SF1-2: When the user presses the back button the previous portal activity shall be displayed

REQ-SF1-3: When the user presses the home button pc shall return to the user’s home screen

2.4.2 System Feature 2

- **Menu Screen**

2.4.2.1 Description and Priority

The menu screen will display a list of in-progress courses, a button to start a new course and a help button. When the new course button is selected, the user is prompted to enter the phone number/E-mail or the user name/password of the person they would like to start learning with. If it is the first time the user is opening the portal, the user is prompted for the user Login they would like to use to learn this Interactive E Learning. A user name is invalid if it is already being used by another user or contains illegal characters. If their name is not valid, they will be again prompted for a valid name. The menu screen displays a list of courses currently in learning. In each entry of the list, the status of the courses is shown. The Teacher's status will show the following:

- Achievements
- Courses Lectures
- Feedback status

2.4.2.2 Stimulus/Response Sequences

No stimulus required for in-progress courses to appear on screen. When the user chooses the "New course" button, a new window will be presented that will allow the user to start the lectures by user Authentication. When the user chooses the "Help" button, a new window will be presented with a walk through/tutorial of Open Resource portal.

REQ-SF2-1: When the user selects the new course button the Menu Screen shall transition to the new screen.

REQ-SF2-2: When the user selects the Help button, the Menu Screen shall transition to the Help Screen.

REQ-SF2-3: When the user selects the Help button from the buttons settings list, the Menu Screen shall transition to the Help Screen.

REQ-SF2-4: Interactive E Learning shall obtain the E-mail address from the user with confirmation code.

REQ-SF2-5: The Menu Screen shall display all courses currently in learning.

REQ-SF2-7: The list of courses displayed and user allow to select the course which he/she wanted to learn.

REQ-SF2-8: The Menu Screen current courses list shall be scrollable.

REQ-SF2-9: The Menu Screen shall display an on-screen help button.

2.4.3 System Feature 3 (and so on)

3 Course Select Screen

2.4.3.1 Description and Priority

The course screen is the section of Interactive E Learning which allows the user to choose the own requested course. There will be a set number of lectures a user will have per course chosen before the course begins. The user will be able to start the course.

2.4.3.2 Stimulus/Response Sequences

A finite number of total lectures is predetermined and displayed on this screen. Each course has an “increment” and “decrement” button which allows the user to increment or decrement the number of each lecture that the user may use.

2.4.3.3 Functional Requirements

REQ-SF3-1: The courses Select Screen shall display the finite amount of lecture the user has.

REQ-SF3-2: The courses Select Screen shall allow the user to distribute the finite amount of lectures amongst the possible parts of each course.

REQ-SF3-3: The courses Select Screen shall display a done button allowing the user to transition from the lectures Select Screen to the start lecture Screen.

2.4 Other Nonfunctional Requirements

2.4.1 Performance Requirements

2.4.2 Performance Requirements

- Speed
- Scalability
- Stability

Speed Requirements: Here this is main requirement for accessing the intentions of user through 3 tier architecture structure which backup computer. Therefore, by this requirement speed must be focused on the end time of user response.

Scalability Requirements: Here scalability requirement is very important for a scalable system. For example, I have 1 million user registered with 2 DB servers while for scalable system if my user cross 2 million then the 5 database servers required for this to improve the system quality or performance.

Stability Requirement: User will get updated through notification while the user asked to choose courses. System will do the communication between professionals and users. System will do the better response time.

2.4.3 Safety Requirements

User will asked the question about any topic then the Teacher will suggest the best answer while user is eligible for checking the status with star ranking. There is harmful effect if the Teacher can't suggest the best answer but user can check the Teacher bio with rank star and user easily satisfied.

2.4.4 Security Requirements

3 System will have the E-Mail authentication for password confirmation and system will accept the strong password while name, birthday and etc. are invalid or weak passwords.

4 System will have strong backup if one system crashes and other one will start working.

2.4.5 Software Quality Attributes

Of course, it would be foolish to claim that this is a complete list of important or even relevant quality attributes. Certainly speed of execution is also important, but this is influenced by the network more than the software. Also, quality attributes such as customer service, quality of products, Scalability, and Security are also important:

- Reliability
- Usability
- Security.

An additional four important criteria are:

- Availability
- Scalability
- Maintainability
- Time-to-market

2.4.6 Business Rules

3 1. An easy-to-remember web address

4 2. Clear navigation

5 3. Contact information

6 4. FAQs

7 5. User reviews and testimonials

8 6. Social links

9 7. Information capture form

10 8. about us

11 9. Call to action

12 10. Useful content

2.5 Other Requirements

Business Requirements: The main objective of this portal is to become more reliable, scalable and user friendly with all users

User Requirements: User simply paste the query and take the best suggestions from Teacher by checking the feedback of Teacher.

Functional Requirements: We use most common words which is used on google search engine and then we will make these more offensive with users at one place therefore, they will easily learn any course via video lectures.

Quality-of-Service Requirements:

- Ease of use of the web portal
- User satisfaction regarding the service
- Website Response Time
- User Service Time
- Security of personal Data

Chapter 3

Use Case Analysis

Chapter 3: System Analysis

This chapter will describe about the use case of the system which will further illustrate the functional requirements of the systems and how functional requirements will interact will the user or actor.

Use case analysis is a technique used to identify the requirements of a system and the information used to both define processes and classes (which are a collection of actors and processes) which will be used both in the use case diagram and the overall use case.

3.1. Use Case Model

Use cases add value because they help explain how the system should behave and in the process, they also help brainstorm what could go wrong. They provide a list of goals and this list can be used to establish the cost and complexity of the system. Project teams can then negotiate which functions become requirements.

Table 5: Use Case Model

What Use Cases Include	What Use Cases Do NOT Include
• Who is using the website • What the user want to do • The user's goal • The steps the user takes to accomplish a particular task	• Implementation-specific language • Details about the user interfaces or screens.

• How the website should respond to an action	

3.2. Fully Dressed Use Cases

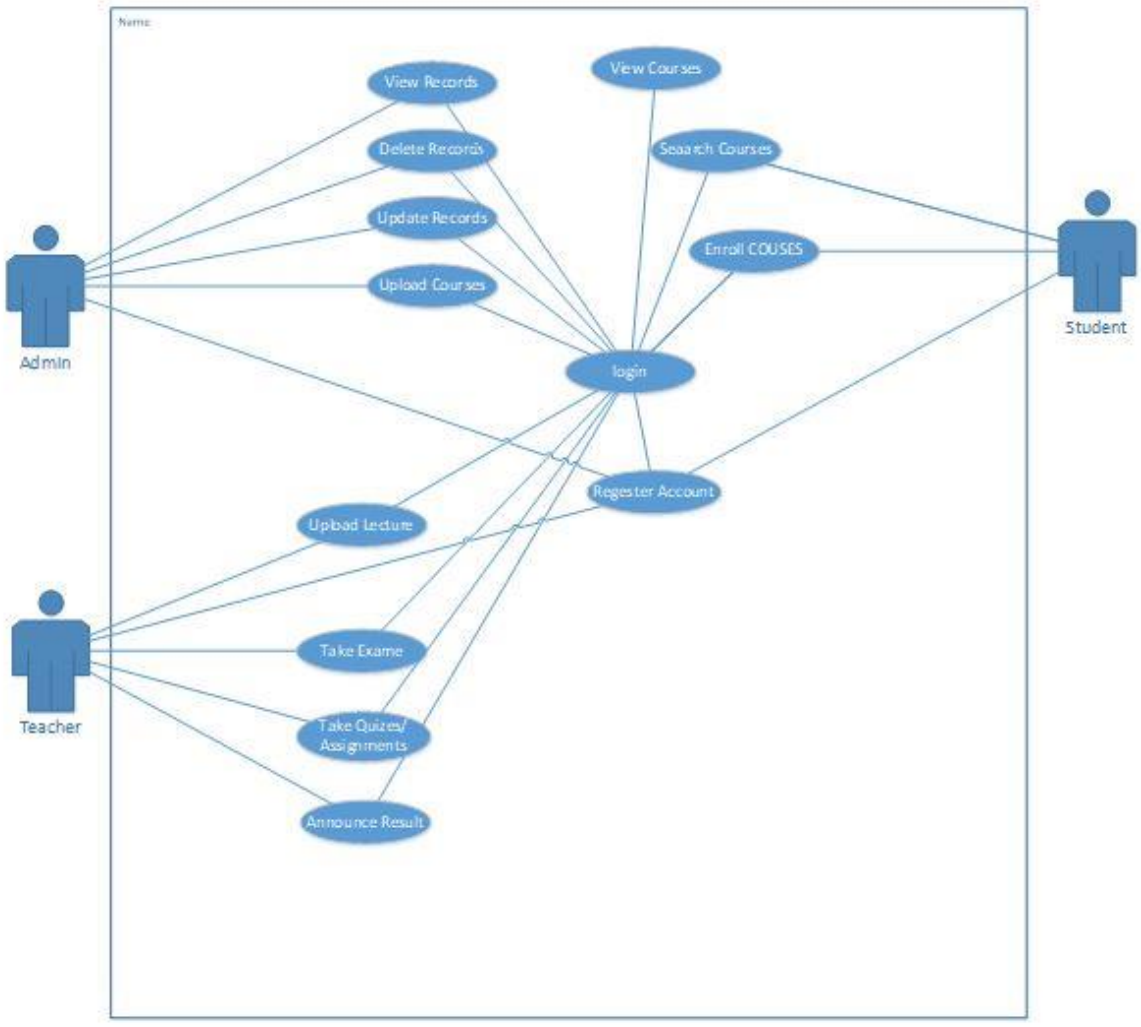


Figure 3: Use case Diagram

Chapter 4

System Design

Chapter 4: System Design

Basically in this section a detailed description of system design illustrate the constraints of web portal dynamically. The basic concept of this chapter is to describe the high level structure of web portal.

4.1. Architecture Diagram

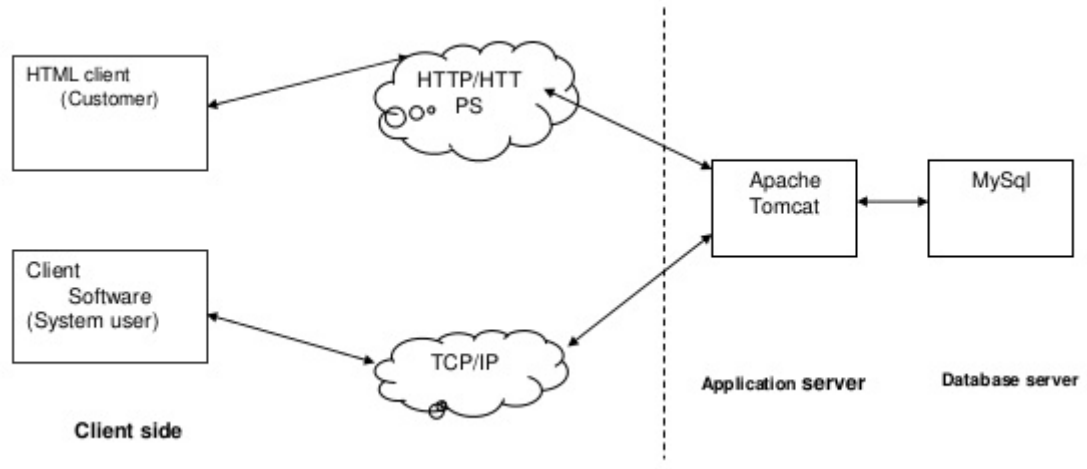


Figure 4: Architecture Diagram

- **Backend Side Architecture:**

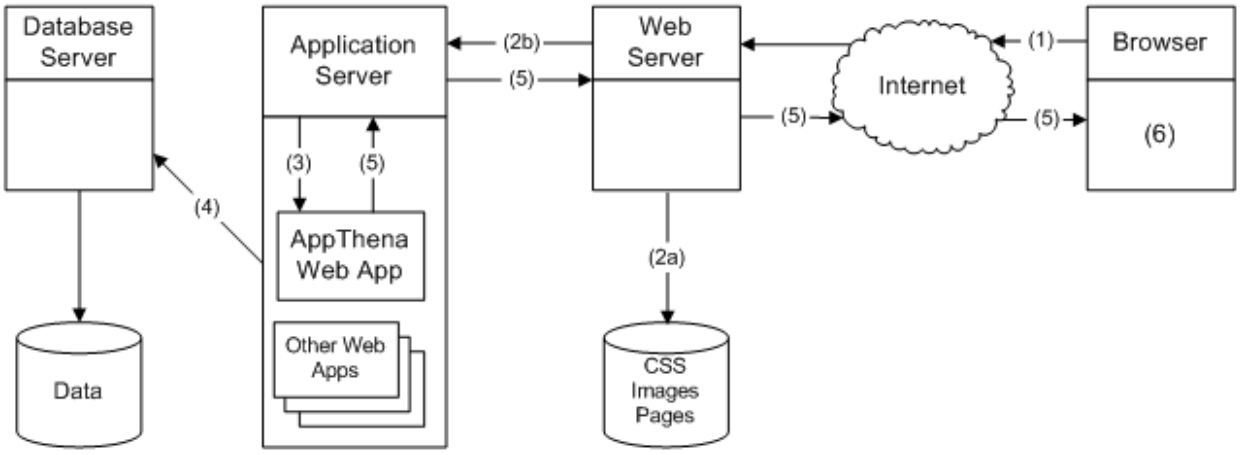


Figure 5: Backend side Architecture

4.2. Domain Model

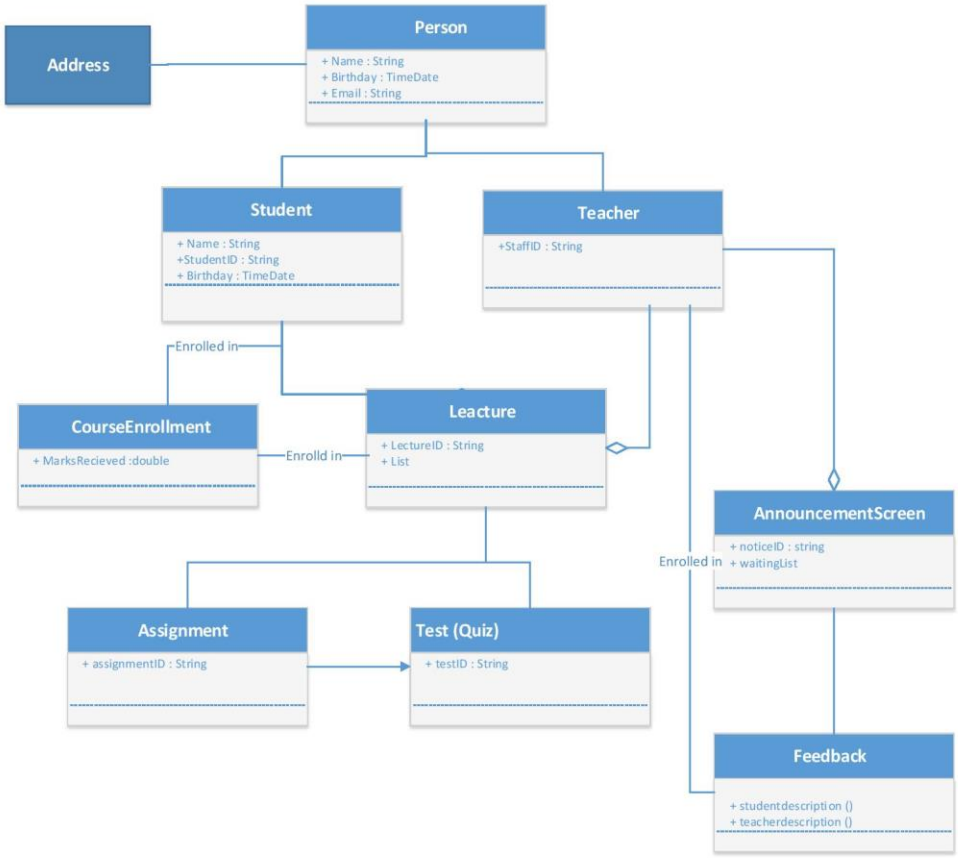


Figure 6: Domain Model

4.2. Entity Relationship Diagram with data dictionary

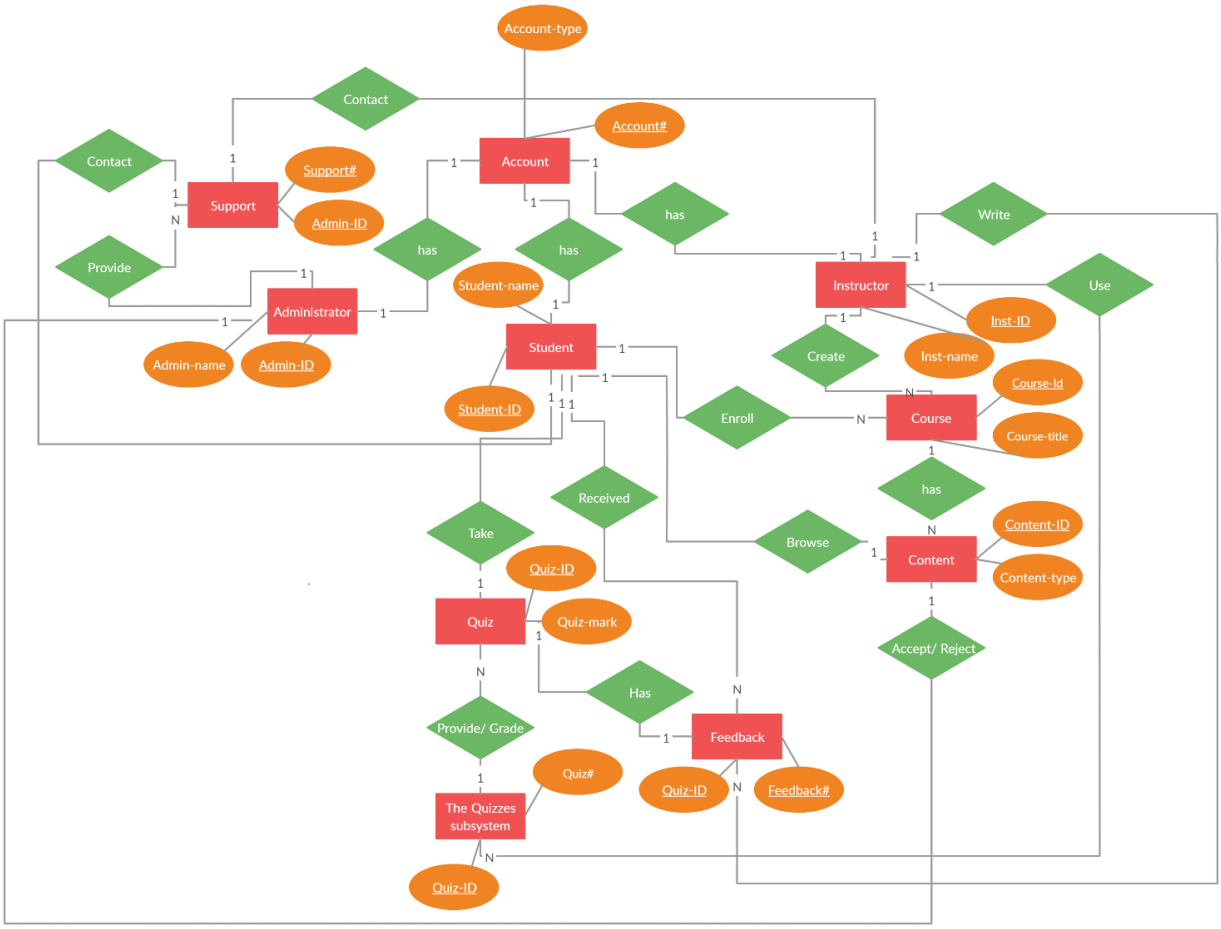


Figure 7: ERD

4.3. Class Diagram

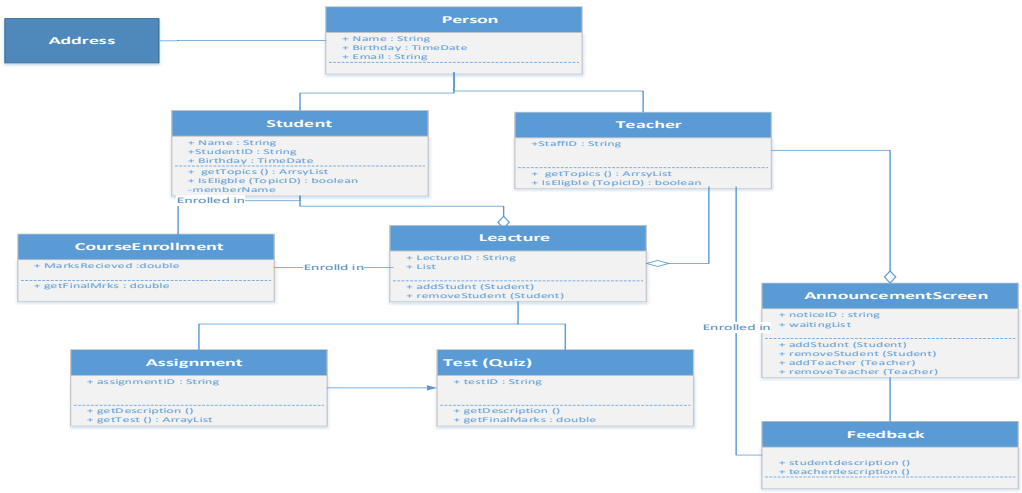


Figure 8: Class Diagram

4.4. Sequence / Collaboration Diagram

3 Fully dressed Sequence diagram:

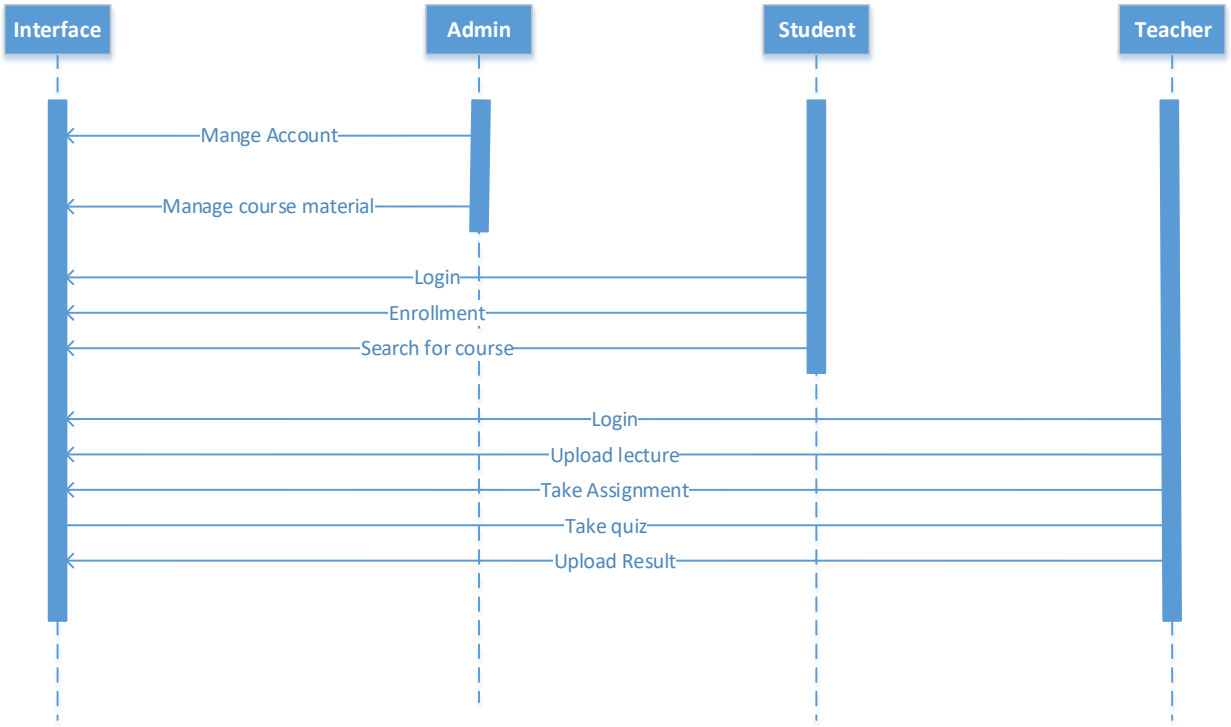


Figure 9: Fully Dressed sequence

- **Sequence diagram for Admin:**

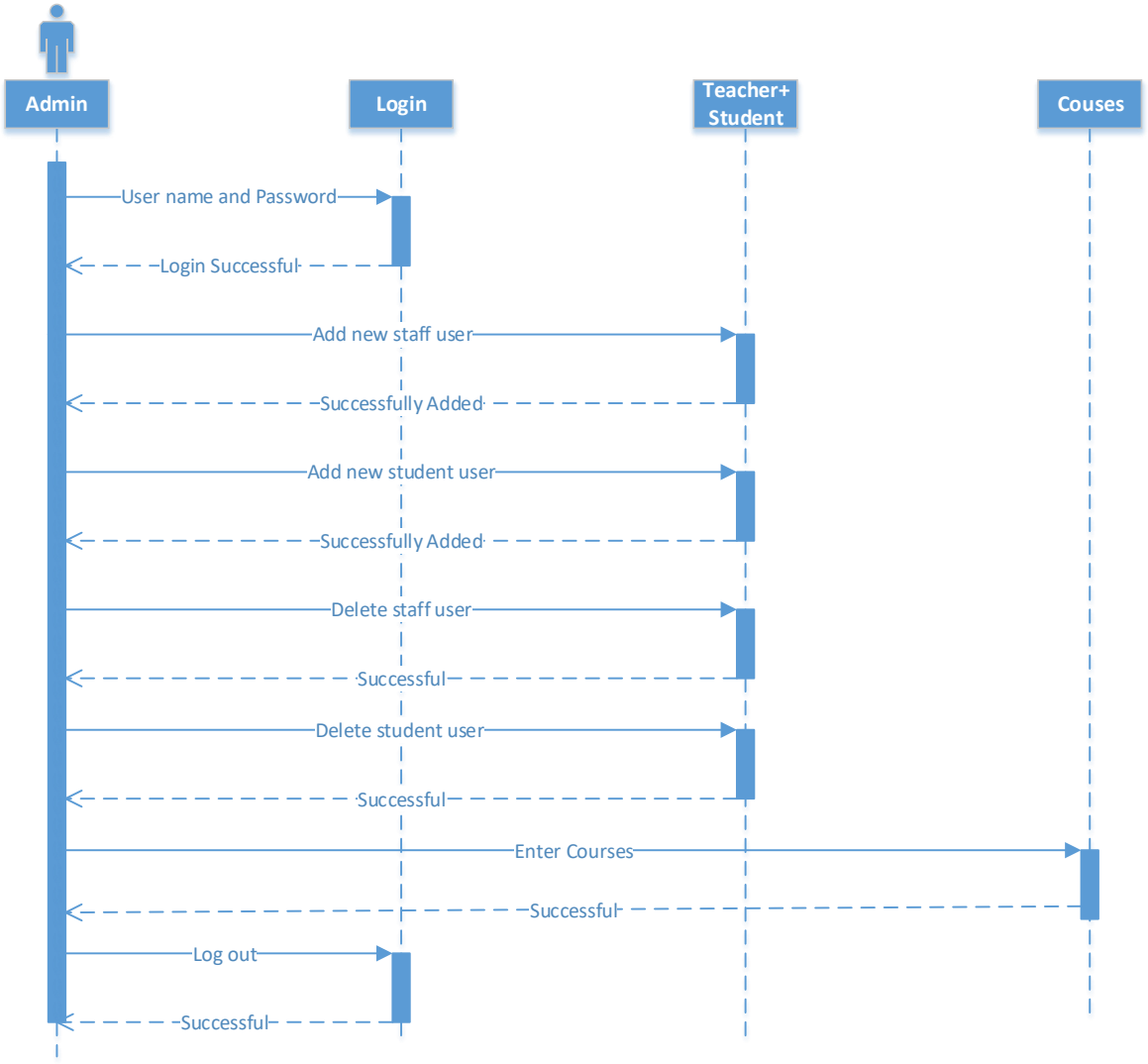


Figure 10: Sequence Diagram Admin

- **Sequence diagram for Student:**

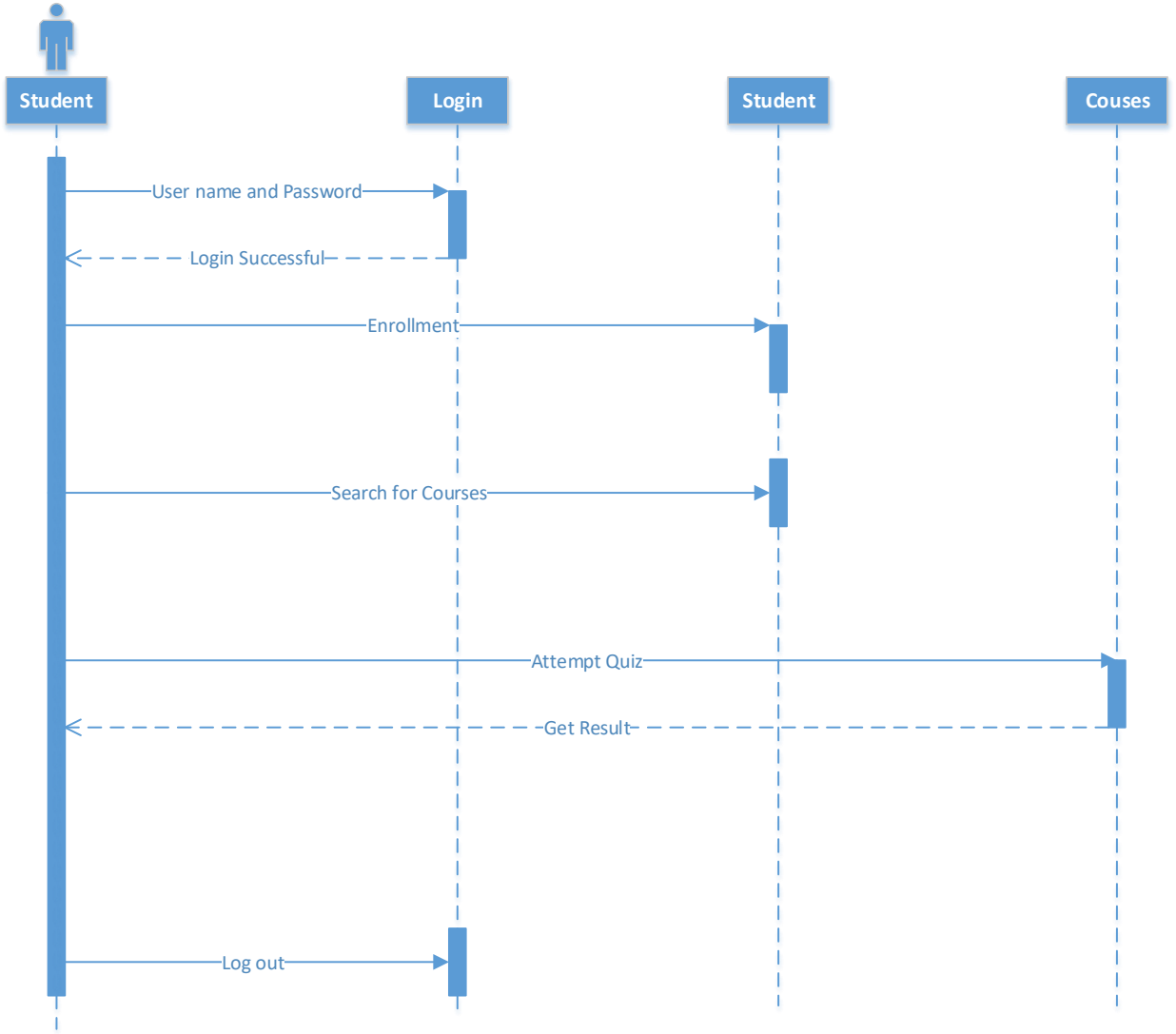


Figure 11: Sequence diagram Student

- **Sequence Diagram for Teacher:**

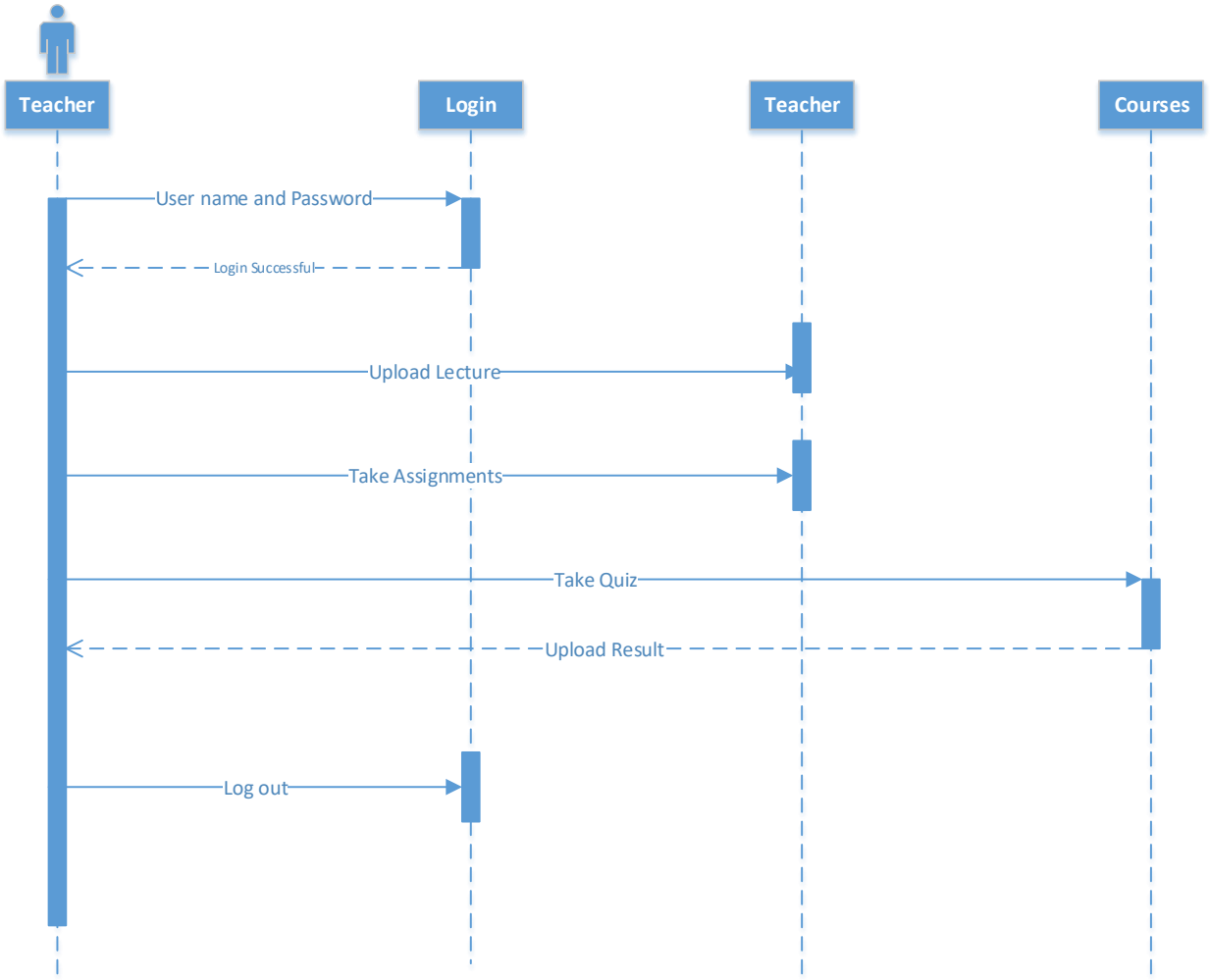


Figure 12: Sequence Diagram Teacher

4.5. Operation contracts

As required on individual Task Orders, the Contractor shall submit a monthly Contract Performance Report in accordance with DI-MGMT-81466A, CDRLD003. Contractors may be required to support EVMS (Earned Value Management System) at the Task Order level and will be identified in individual Task Orders if required.

- Professionals

- Investors
- Business Man

4.6. Activity Diagram

- **Activity Diagram for Teacher:**

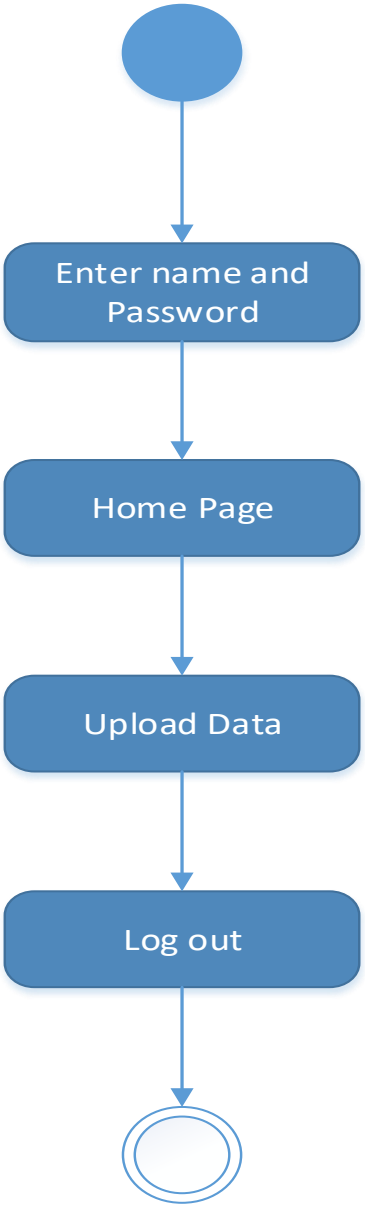


Figure 13: Activity Teacher

- **Activity Diagram for Student:**

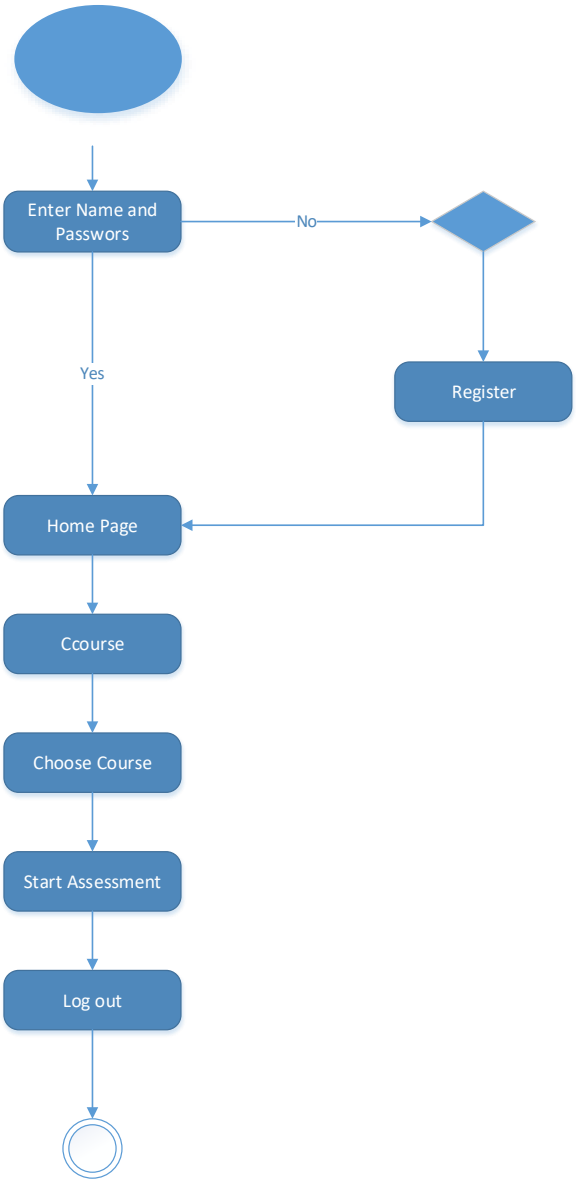


Figure 14: Activity Student

4.7. State Transition Diagram

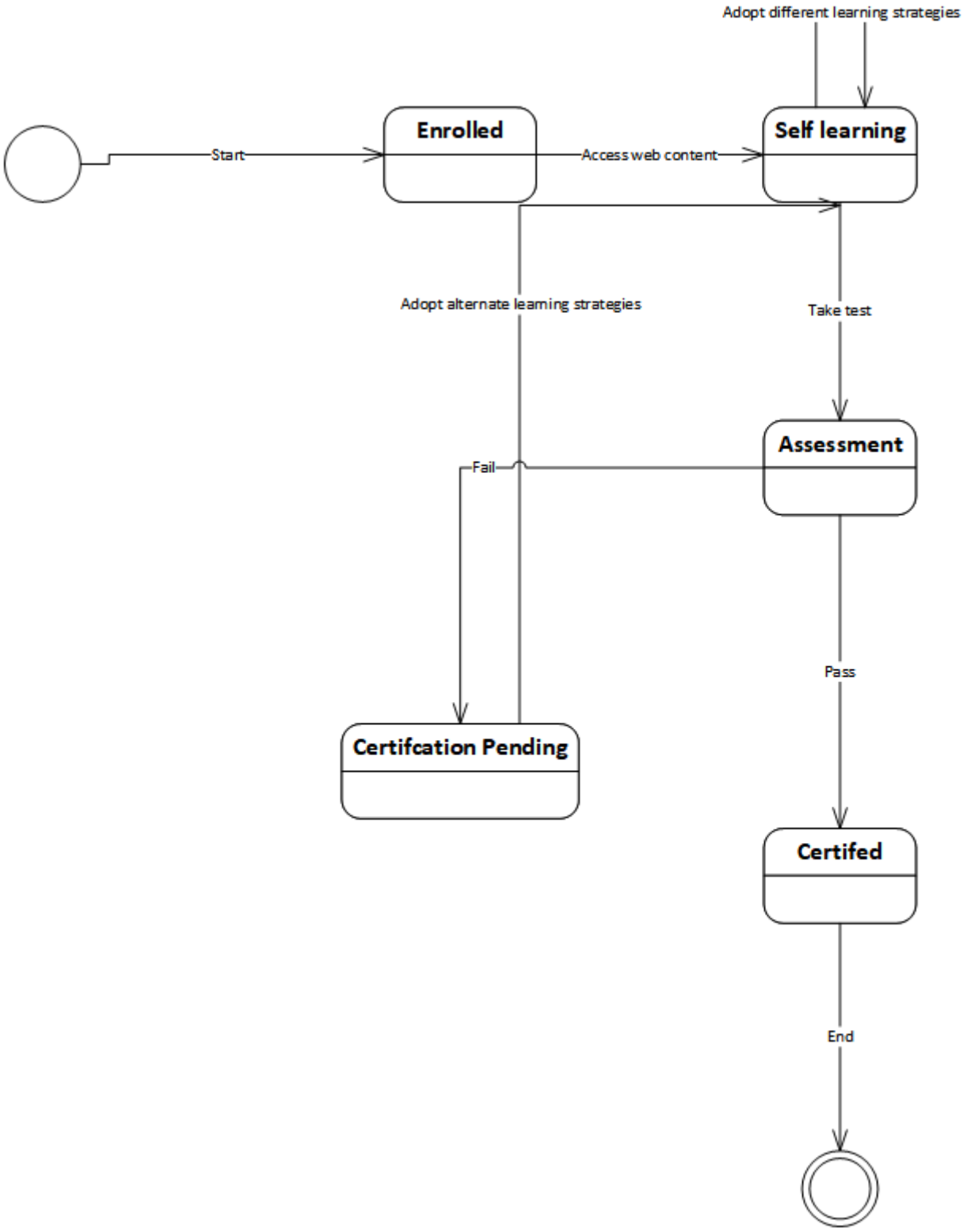


Figure 15: State Transition Diagram

4.8. Component Diagram

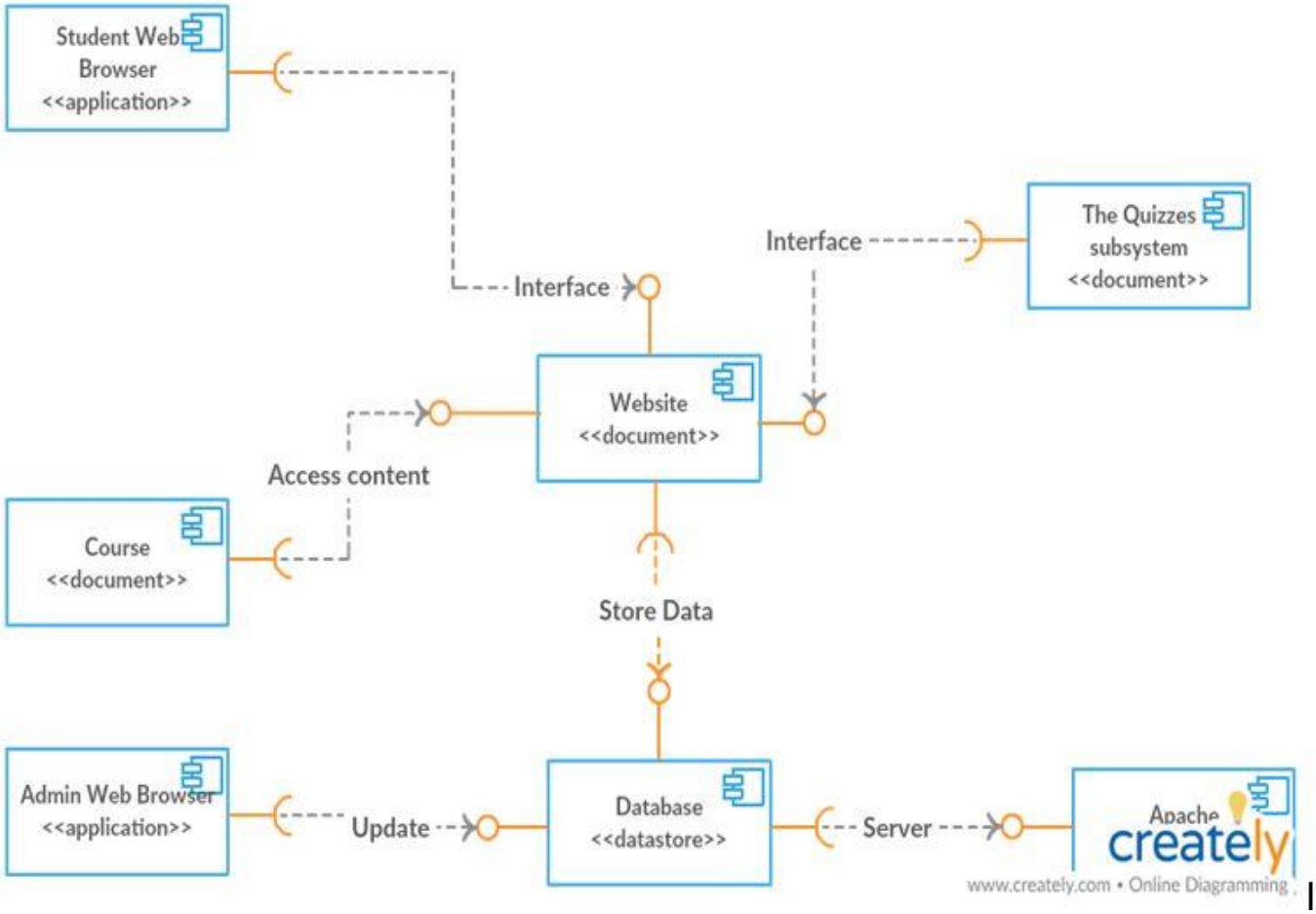


Figure 16: Component Diagram

4.9. Deployment Diagram

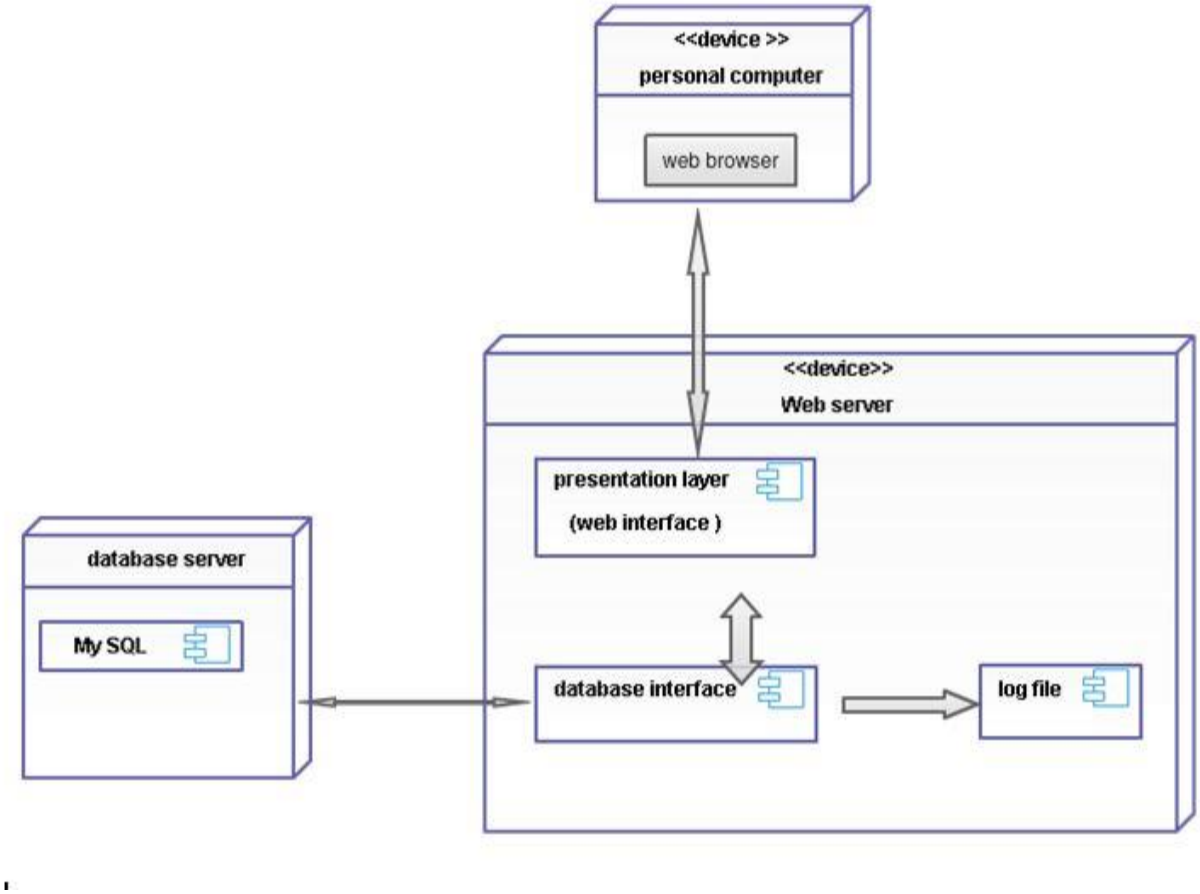


Figure 17: Deployment Diagram

4.10. Data Flow diagram [*only if structured approach is used - Level 0 and 1*]

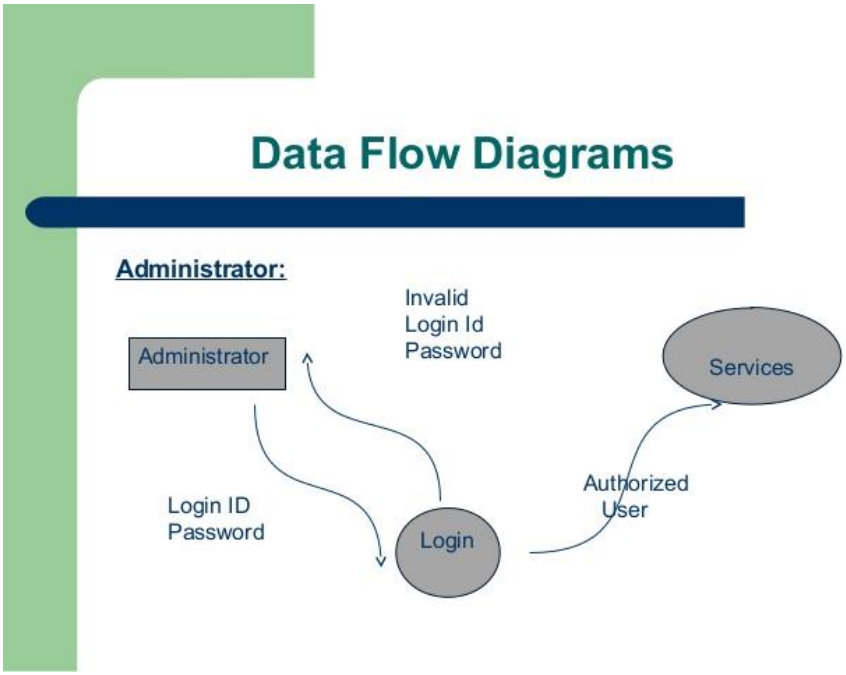


Figure 18: Data Flow Diagram (1)

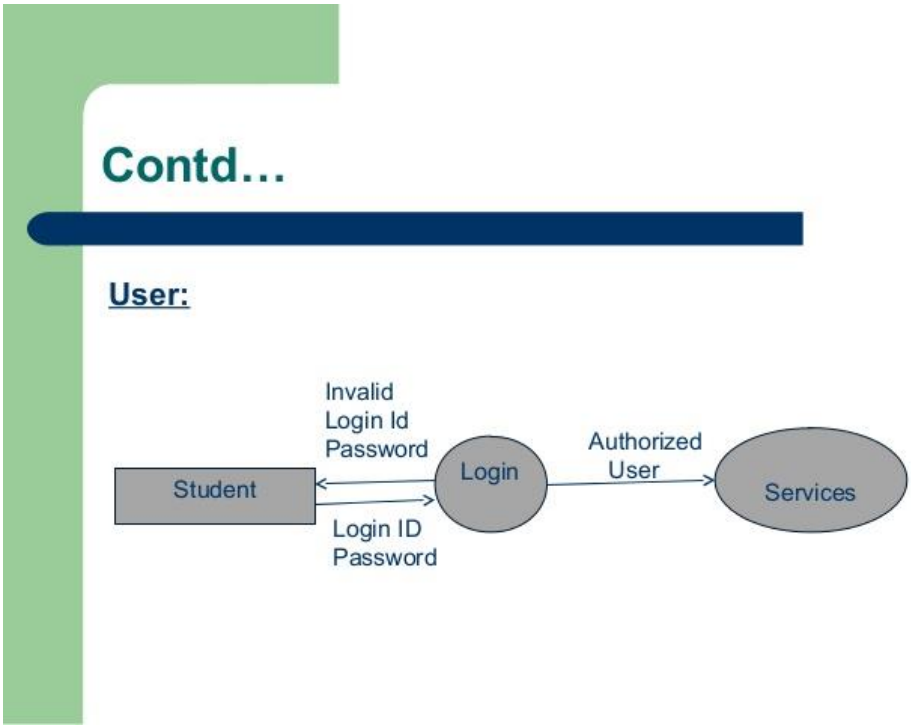


Figure 19: Data Flow Diagram (2)

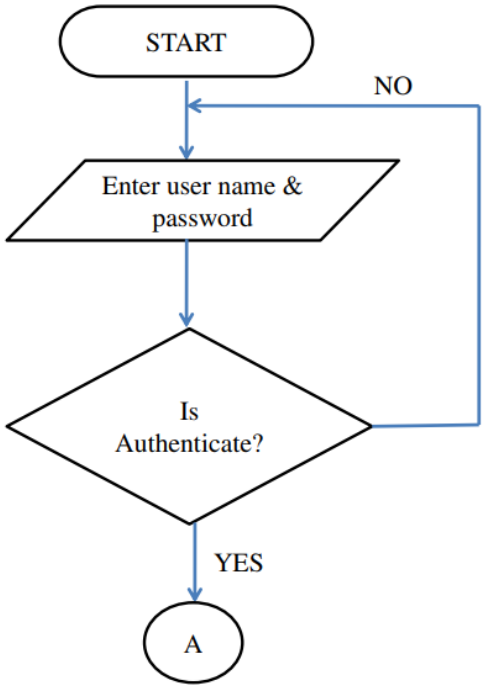
Chapter 5

Implementation

Chapter 5: Implementation

- A service oriented Architecture Is Used to develop this project and Agile Methodology is used for testing.
- The fully object-oriented language used in the implementation of the system improves the ability to deploy several web services. Web services provide a better alternative as services are loosely coupled and can be subscribed anytime any place. Furthermore, leveraging web standards in an e-Learning environment will facilitate the dynamic integration of systems distributed over the web and encourage reuse of learning objects.
- The typical learning management system is built based on a component-based architecture. However, Web services provide a better alternative as services are loosely coupled and can be subscribed anytime any place. Furthermore, leveraging web standards in an eLearning environment will allow the dynamic integration of applications distributed over the web and encourage reuse of learning objects.

5.1. Important Flow Control/Pseudo codes



5.2. Components, Libraries, Web Services and stubs

Web server:

A computer that is responsible for accepting HTTP requests from clients, which are known as Web browsers and serving them HTTP responses along with optional data contents, which usually are Web pages such as HTML documents and linked objects.

Web services:

Are objects and methods that can be invoked from any client over HTTP. Web Services are built on the Simple Object Access Protocol (SOAP). Unlike the Distributed Component Object Model (DCOM) and Common Object Request Broker Architecture (CORBA), SOAP enables messaging over HTTP on port 80.

5.3. Deployment Environment

- An environment is a logical and independent entity that represents where you want to deploy a release generated from a release definition. We'll examine these two characteristics in more detail to help you understand how to divide your release process into environments.
- First, an environment in a release definition is a logical entity. It can represent any physical or real environment that you need. For example, the deployment in an environment may be to a collection of servers, a cloud, or multiple clouds. In fact, you can even use an environment to represent shipping the software to an app store, or the manufacturing process of a boxed product.
- Second, you must be able to deploy to an environment independently of other environments in the definition. For example, your definition might consist of two environments A and B, and Release Management could deploy Release 2 to A and Release 1 to B. If you make any assumptions in B about the existence of a certain release in A, the two environments are not independent

5.4. Tools and Techniques

- **Administrator:**
- A log in Id representing the user with user administration privilege to software
- **Client:**
- Intend user of Software (oracle developer suite)
- **MySQL**
- (Structured Query language), Used to perform operations on Database.
- **Oracle**
- A server used to store data in organized form (Oracle Database 11g Release 2 on windows server)
- **Java**
- Coding language. (Pl/sql coding language)
- **DFD:**
- Show the Data Flow Between Entities.
- **User interface:**
- Something through which user communicate with system. (Oracle developer suite)
- **Visio:**
- Used to make the attractive diagrams and high level structure of open resource portal.
- **Viva video:**
- Used to make the lecture video with valid tag name and copy rights reserved.

Chapter 6
Testing and Evaluation

Chapter 6: Testing and Evaluation

This chapter is all about Testing and Evaluation, Testing is the process of executing a program instant of finding errors. Testing can be either done manual or automated .Manual Testing is performed without taking help of automated testing tools, Automated Testing is testing procedure done with the automated testing tools. Evaluation is a type of assessment that seeks to determine if software or a combination of software programs is the best possible fit for the needs of a given client.

6.1. Use Case Testing

Use Case Testing is a functional black box testing technique that helps testers to identify test scenarios that exercise the whole system on each transaction basis from start to finish. Use Cases capture the interactions between 'actors' and the 'system'. 'Actors' represents user and their interactions that each user takes part into. Test cases based on use cases and are referred as scenarios. In our Project, we make unit cases testing on REGISTRATION, LOGIN, PASSWORD, EMAIL, USER LIMITION, and TEACHER LIMITION.

Sr #	Student Use Case	Working
1	Register	Yes
2	Log in Student	Yes
3	Search Courses	Yes
4	View Courses	Yes
5	Enroll Courses	Yes
6	Drop Courses	Yes
7	Give Exams	Yes
8	Check Result	Yes
9	Update Profile	Yes

Sr #	Admin Use Case	Working
1	Register	Yes
2	Log in Student	Yes
3	Add Courses	Yes
4	View Courses	Yes

5	Delete Courses	Yes
6	Update Courses	Yes
7	Manage students	Yes
8	Manage Teachers	Yes
9	Update Profile	Yes

Sr #	Teacher Use Case	Working
1	Register	Yes
2	Log in Student	Yes
3	Teacher Courses	Yes
4	View Courses	Yes
5	Search Courses	Yes
6	Take Quizzes	Yes
7	Take Exams	Yes
8	Announce Result	Yes

6.2. Equivalence partitioning

Equivalence partitioning or equivalence class partitioning (ECP) is a software testing technique that divides the input data of a software unit into partitions of equivalent data from which test cases can be derived. In principle, test cases are designed to cover each partition at least once. Due to equivalence class partitioning system decide how many users can be allowed to use this site at once, we made different classes of maximum users or minimum users or valid users or invalid users. Number of user from 1-1k are allowed to use the site at once, If users are more than 1k those users are invalid users.

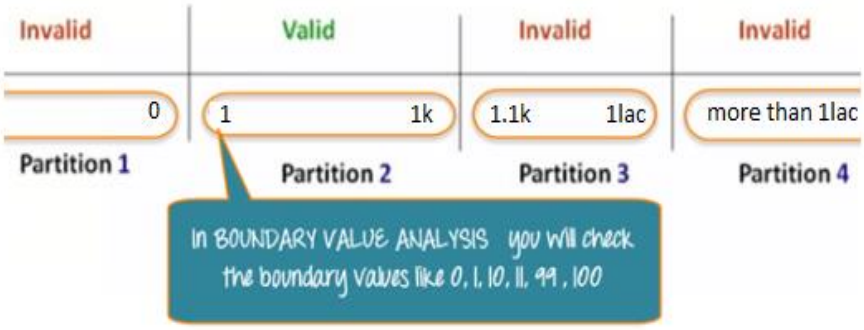
6.3. Boundary value analysis

Boundary testing is the process of testing between extreme ends or boundaries between partitions of the input values.

- So these extreme ends like Start- End, Lower- Upper, Maximum-Minimum, Just Inside-Just Outside values are called boundary values and the testing is called "boundary testing".

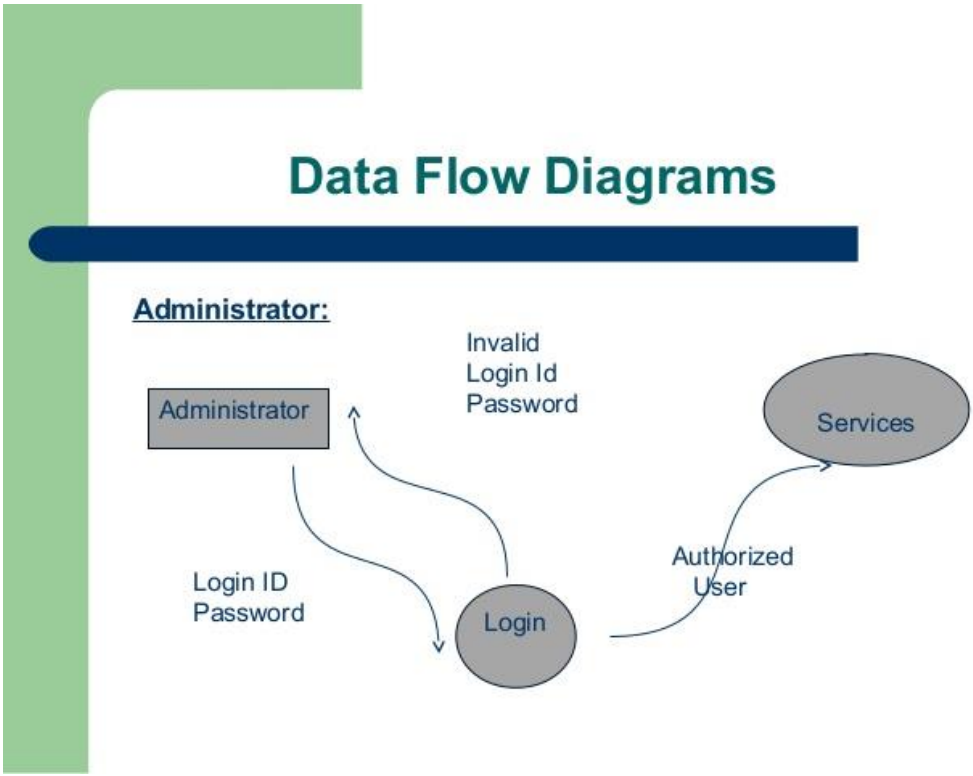
- The basic idea in boundary value testing is to select input variable values at their:

Minimum, Just above the minimum, A nominal value, Just below the maximum, Maximum



6.4. Data flow testing

Dataflow Testing focuses on the points at which variables receive values and the points at which these values are used. The steps we used in data flow testing on REGISTRATION, LOGIN, PASSWORD, EMAIL, USER LIMITION, and TEACHER LIMITION.



6.5. Unit testing

Unit testing focuses verification effort on the smallest unit of software design—the software component or module. The unit test is white-box oriented, and the step can be conducted in parallel for multiple components.

Sr #	Teacher Use Case	Working
1	Home Link	Yes
2	Courses Link	Yes
3	Login link	Yes
4	Register Link	Yes
5	Search bar	Yes
6	Log in button	Yes
7	Register button	Yes
8	Categories button	Yes

9	Contact Link	Yes
10	About Link	Yes
11	Slider Link	Yes
12	Main Page Slider	Yes
13	Social Links	Yes
14	News Link	Yes
15	Choose Courses links	Yes
16	Price plan	Yes
17	News bar	Yes
18	Footer	Yes
19	Admin Logout link	Yes
20	Add category button	Yes
21	Add sub category button	Yes
22	Add courses	Yes
23	Add video Courses	Yes
24	Add City	Yes
25	Place orders button	Yes
26	View Category button	Yes
27	View sub category button	Yes
28	View courses	Yes
29	View video courses	Yes
30	View Order	Yes
31	View City	Yes
32	View Users	Yes
33	Admin navigation bar	Yes

6.6. Integration testing

Integration testing is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before validation testing. Unit that otherwise seem to be working fine individually, starts causing problems when integrated together. The integration process is performed in a series of five steps:

1. The main control module is used as Admin, Student, and teacher. Admin, Student, teacher and stubs are substituted for all components directly subordinate to the main control module.

2. Depending on the integration approach selected (i.e., depth or breadth first), subordinate stubs are replaced one at a time with actual components.

3. Tests are conducted as each component is integrated.

4. On completion of each set of tests, another stub is replaced with the real component.

5. Regression testing may be conducted to ensure that new errors have not been introduced.

The process continues from step 2 until the entire program structure is built.

6.7. Performance testing

Sr #	Function Name	Performance
1	Application Loading	High
2	Database Connectivity	High
3	Store Data in Database	High
4	Retrieving data from database	High

6.8. Stress Testing

Stress testing is used to test the stability & reliability of the system. This test mainly determines the system on its robustness and error handling under extremely heavy load conditions. Most prominent use of stress testing is to determine the limit, at which the system or software or hardware breaks. Stress testing executes a system in a manner that demands resources in abnormal quantity, frequency, or volume. Special tests may be designed that generate ten interrupts per second, when one or two is the average rate Input data rates may be increased by an order of magnitude to determine how input functions will respond, Test cases that require maximum memory or other resources are executed, Test cases that may cause thrashing in a virtual operating system are designed, Test cases that may cause excessive hunting for disk-resident data are created. Essentially, the tester attempts to break the program. Variation of stress testing is a technique called sensitivity testing

Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

The web portal aimed to make study works easier which is highly beneficial to educational institutions and students. The Virtual Class Room is a dynamic platform which allows educational institutions and students to get Study Data, anytime from anywhere in the world. It is very Beneficial for student to get any type of study data of all universities of Pakistan. With the help of this Portal thousands of students, universities or a group of institutions located in multiple cities can access online and download the data. It will offer video lectures and works like virtual class. It has three major panel admin panel, teacher panel and student panel. In admin panel admin can control teacher and students.

7.2. Achievements and Improvements

First of all we are successful to achieve the goal that we want to achieve and our goal is the development of the successful project. During the development of this project we achieve skill to develop the web application and improve the skills. We improve the development skill, Project management skill, and programming skills.

7.3. Critical Review

It is very difficult to create the logic of the project, how to develop the project. Logic helps us to create the project on the valid requirements.

7.4. Lessons Learnt

We learn the planning, designing, execution, and controlling the project. We learn how to manage the complex project and Successful development of the project. Planning is the initial

state of the project how to plan the project if we create a good plan of the project then should develop the quality project. We learn PHP, Java, Bootstrap, Html and Css along with MySQL.

7.5. Future Enhancements/Recommendations

Development cannot be end at any stage. Development cycle is the infinite cycle and with the passage of time we will make it more efficient more easy and more beneficial. We will introduce new features and introduce it in Mobile Application for easy use. We will use virtual reality in our project in future. And we will make it real world.

4.

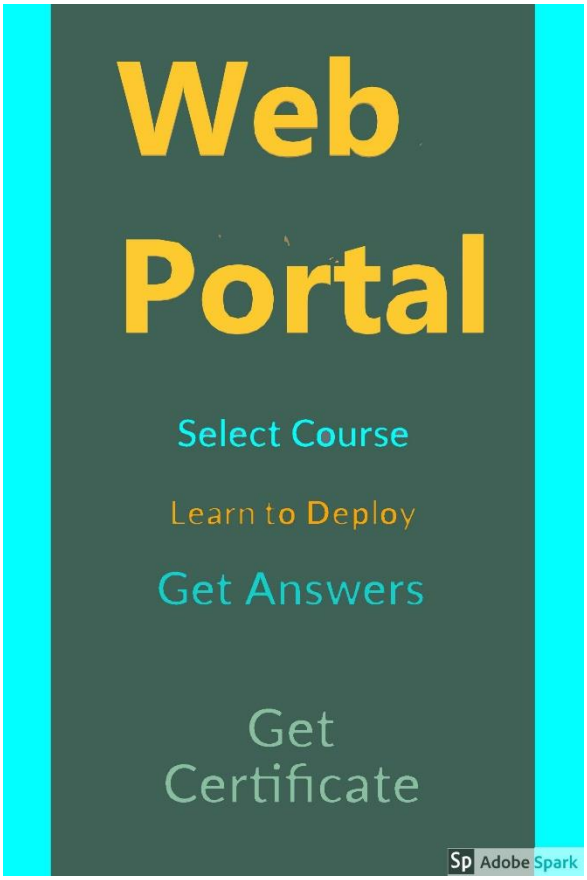
Appendices

Appendix A: Information / Promotional Material

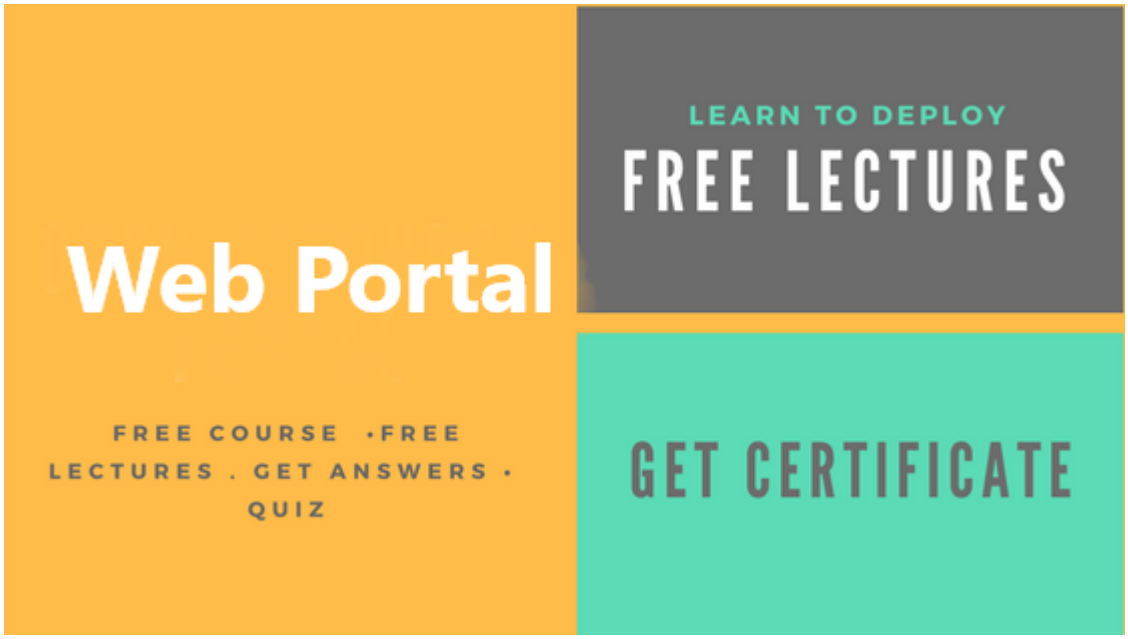
All types of businesses use promotional materials to market their products and services. Promotional materials can include collateral material, advertisements and even small, everyday products that contain the name and phone number of a business. Promotional products can serve many purposes before or after.

A.1. Broacher

A.2. Standee


Web
Portal
Select Course
Learn to Deploy
Get Answers
Get
Certificate
Adobe Spark

A.3. Banner



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Reference and Bibliography

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