ONLINE EXAMINATION SYSTEM

A PROJECT REPORT

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

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MAHARSHTRA

2020-2021

PROFORMA FOR THE APPROVAL PROJECT PROPOSAL

(Note: All entries of the proforma of approval should be filled up with appropriate and complete information. Incomplete proforma of approval in any respect will be summarily rejected.)

PNR No.: …… **Roll No.: _____**

1. Name of the Student

_____

2. Title of the Project

_____

3. Name of the Guide

_____

4. Teaching experience of the Guide _____

5. Is this your first submission? YES ☐ ☐ NO

Signature of the Student

Date: ……

Signature of the Guide

Date: …….

Signature of the Coordinator

Date: ……

MODEL COLLEGE OF SCIENCE & COMMERCE

(Affected to University of Mumbai)

DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is certify that the project entitled, "**ONLINE EXAMINATION SYSTEM** ",is bonfire work **of SIINGH SURAJ SANJAY** bearing Seat No.: **……** submitted in partial fulfillment of the requirements for the award of the degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Coordinator **Guide**

External Examiner

Date: **College**

ABSTRACT

"Online Exam project "is providing the facility to the students and Faculty to take any Exam online instead of taking exam on paper.

This Project is based on Online Exam System in which we have created web application for online Exam for any field .We also included the facilities of web came capture facility so students are no copy during the Examination .Our website would utilize the Information Technology to cross all the barriers of human workload and make it comfortable for all tourists who wish to give their choice-of-destinies well in anticipation whilst sitting in the comfort of their homes and obviously, from any nook and corner of the world .It contains various forms and reports with different function, Above all, our website would be very simple and user-friendly, so that even an Internet layman or a simple user can easily get comfortable with it. Along with the functional aspects of "Online Exam" additional attention would also be paid to its non-functional aspects such as performance, availability and security.

ACKNOWLEDGMENT

I owe a great many thanks to great many people who helped supported me during the course the “BSC.IT” project. I am thankful for their aspiring guidance, invaluably constructive criticisms and friendly advice during the project work.

I am sincerely grateful to them for sharing their truthful and illuminating views on a number on issue related to “project”. My deepest thanks to **Ms……. & Mr……** the guide of this project for guiding and correcting me us in order to make this project multifunctional and error free. She has taken pain to go. Through the project and make necessary correction as and when needed. I express my thanks to our honourable principal **Mr.K.S.Bramhawale** for this support throughout the year.

I would also extent my heartfelt thanks to my family and well-wishers.

SINGH SURAJ SANJAY

DECLARATION

I hereby declare that the project entitled, **"ONLINE EXAMINATION SYSTEM"** done at college, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfilment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

SINGH SURAJ SANJAY

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Chapter 1

Introduction

This document will propose all features and procedures to develop the system.

This document specially containing details about objectives, scope limitation, process model, primary requirements, team development, possible project risks, project schedule, and finally monitoring and reporting mechanisms.

On-line Exam System is very useful for Educational Institute to prepare an exam, safe the time that will take to check the paper and prepare mark sheets. It will help the Institute to testing of students and develop their skills. But the disadvantages for this system, it takes a lot of times when you prepare the exam at the first time for usage. And we are needs number of computers with the same number of students.

The effective use of "On-line Exam System", any Educational Institute or training can be use it to develop their strategy for putting the exams, and for getting better results in less time.

1.1 Background

Online examinations, sometimes referred as e-examinations, are the examinations conducted through the internet or in an intranet (if within the Organization) for a remote candidate(s). Most of the examinations issue result the candidate finish the examination, when there is an answer processing module also included within the system .These examinations are conducted as open-book type examinations. Candidate is given a limited time to answer the questions and after the time expiry the answer paper is disabled automatically and answers issues to the examiner. The examiner will evaluate answers, either through automated process or manually and the results will be sent to the candidate through email or made available in the web site. Today many organizations are conducting online examinations worldwide successfully and issue results online. There are advantages and disadvantages in online examinations. The main advantage is that it can be conducted for remote candidates and evaluation of answers can be fully automated for MCQ questions and other essay type questions can be evaluated manually or through automated system depending on the nature of the question s and the requirements. Also online examinations can be conducted at any time and does not incur higher cost as traditional exam scenario as there is no paper work involved(printing exam papers, prepare paper admissions etc.) , there is no invigilators, also no need of arrangement of exam. When comparing with traditional exam scenario the cost for an online examination will be almost zero after the online exam system is establishment and if maintenance cost is not considered. The disadvantage of the e-examination is the inability of in. There are methodologies used in these examinations, when registering candidates and presentation of questions, so that to test candidates skills. However with a limited time, candidate is not capable of totally depend on the reference materials or a supporting person.

1.2 Objectives

The main objectives of system for Online voting system are:

- Corporate between the data stored in the server of the Institution and our On-line Exam system. To deal with On-line System in an easy way and an efficient mannered. (connection process)
- Create strong and secrete data base that allow for any connection in a secret way, to prevent any outside or inside attacks.
- Specify a privilege for each person to allow each person use this system to create his own exam. And have a complete control on his exam.
- Allow each person to create more than one exam with different way to create variant questions.

1.3 Purpose Scope and Applicability

1.3.1 Purpose

Purpose:

Through this package we provide a fully customized web application. This system is an automated system so that the functional working of it is effective and time saving. In this modern era time is the most precious thing, so in context of time the new system will be effective to do a group of task in easy and secure manner.

To appear for an exam in manual system in university is very time consuming process. Now the purpose of this system is to overcome the shortfall faced in the previous systems already working in the area.

The website will have to be secure, and properly working on WAN. It should be speedy with good interface. The university may conduct examination in various countries and in different languages. It should support multiple platforms at least those used by people commonly.

1.3.2 Scope

Methodology of the system is clear that result in the complete and proper working of the system from the requirements achieved. It contains the working model for the development of system. A sequential step of model is followed to develop the system so that it will maintain various software engineering features/parameters.

No need to take leave, visit a different town, city or even states in some cases. People can appear right from their laptop or home desktop.

1.3.3 Applicability

- Fast and easy service.
- The online examination system provides a less time consuming.
- It reduces the paper work and makes the work less tedious for ELESTION COMMISION.
- It is a better way for examination.
- By this examination percentage will increase drastically.

1.4 Achievements

Achievements is the most important modules or part of our project achievements is related to any project, job, on the achievements describes the relation between the social networking site and user.

The achievements between the social networking site and user will be small and negative there are various achievements of work how to complete the project what time required to complete the project code and designing phase of our project what is the software requirement to complete the project.

Chapter 2

Survey of Technologies

ASP.Net

- What is ASP.NET? ASP.NET stands for Active Server Pages .NET and is developed by Microsoft. ASP.NET is used to create web pages and web technologies and is an integral part of Microsoft's .NET framework vision.

- As a member of the .NET framework, ASP.NET is a very valuable tool for programmers and developers as it allows them to build dynamic, rich web sites and web applications using compiled languages like VB and C#.

- ASP.NET is not limited to script languages, it allows you to make use of .NET languages like C#, J#, VB, etc.

- Asp.net is based on the .NET framework for building web applications. Since Asp.net is a part of the Microsoft. NET Framework it has the ability to take advantage of rich class libraries provided by Microsoft.

- The question is that why one should use Asp.net and not use classic asp or any other web programming technology. Here are some of the features of Asp.net that makes it the best web application technology.

C#

.NET is built on the Windows Server System to take major advantage of the OS and which comes with a host of different servers which allows for building, deploying, managing and maintaining Web-based solutions. The Windows Server System is designed with performance as priority and it provides scalability, reliability, and manageability for the global, Web-enabled enterprise. The Windows Server System integrated software products are built for interoperability using open Web standards such as XML and SOAP.

.NET is a "Software Platform". It is a language-neutral environment for developing rich .NET experiences and building applications that can easily and securely operate within it. When developed applications are deployed, those applications will target .NET and will execute wherever .NET is implemented instead of targeting a particular Hardware/OS combination. The components that make up the .NET platform are collectively called the .NET Framework.

The .NET Framework is designed for cross-language compatibility.
Cross-language compatibility means, an application written in Visual Basic .NET may reference a DLL file written in C# (C-Sharp). A Visual Basic .NET class might be derived from a C# class or vice versa.

The .NET Framework consists of two main components:

Common Language Runtime (CLR)

Class Libraries

The advantage of C# includes

Powerful Windows-based Applications

Building Web-based Applications

Simplified Deployment

- Powerful, Flexible, Simplified Data Access
- Improved Coding
- Direct Access to the Platform
- Full Object-Oriented Constructs
- XML Web Services
- COM Interoperability

SQL Server 2008

WCPS Application uses SQL Server 2005 as storing the data. Microsoft SQL Server 2005 as our database and it has so many features which is ideal for our dot net based application. Features Includes

- Support for Multiple Platforms
- Integration with Windows Back office servers
- Integration with Microsoft .NET Enterprise Servers
- Scalability
- Replication
- Centralized Management

Chapter 3

Requirements and Analysis

3.1 Problem Definition

Problems of online examination and Text-Mark Assignment (TMA), this system allows candidates to register and take an examination in the system. The Lecturer of this system is allowed to login for contributing questions and viewing profile of candidates. Administrators will be able to access the system to sign up to a new Online Examination manage questions, accounts and view profile of the candidates. I will borrow a host for implementation our system. Our group will keep the existing online examination database by using Microsoft access to access database. At the online examination, guest must register an account to become a candidate by fill all required information such as name, birthday. Once the registration process is completed for a guest, the registration system sends information to the billing system so the guest can be logged in the system. After that, the system will allow candidate to login and select a department for examining. Every time, the candidates will be able to view their profile. The Instructor or Lecturer must be able to access the online system to contribute questions. They also can view the profile of candidates. The administrator manages operation of the system such as managing accounts and questions, viewing profile of candidates.

3.2 Requirements Specification:

Requirement Specification is the part of the project which gives the details about the hardware and software requirements of our project. It also details the features of the programming language used.

3.3 Planning and Scheduling

PLANNING:

Project planning defines the project activities and end products that will be performed and describes how the activities will be accomplished. The purpose of project planning is to define each major task, estimate the time and resources required, and provide a framework for management review and control. The project planning activities and goals include defining:

- The specific work to be performed and goals that define and bind the project.
- Estimates to be documented for planning, tracking, and controlling the project.
- Commitments that are planned, documented, and agreed to by affected groups.
- Project alternatives, assumptions, and constraints.

SCHEDULING:

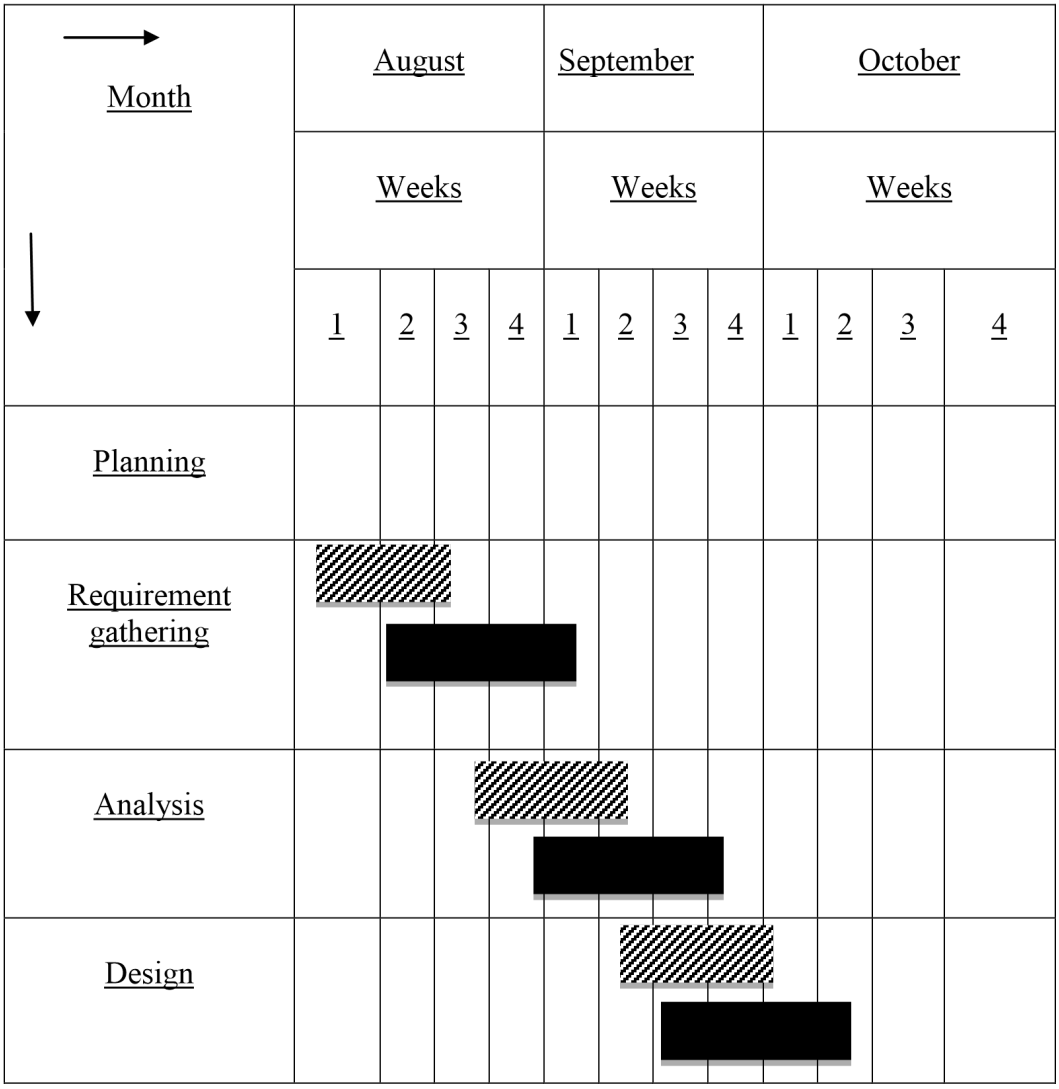
The project schedule provides a graphical representation of predicted tasks, milestones, dependencies, resource requirements, task duration, and deadline. Project master schedule interrelates all tasks on a common time scale. The project schedule should be detailed enough to show each WB Stack to be performed, the name of the person responsible for completing the task, the start and end date of each task, and the expected duration of the task.

- Define the type of schedule
- Define precise and measurable milestones
- Estimate task duration
- Define priorities
- Define the critical path
- Document assumptions

GANTT CHART

A Gantt chart is bar chart that represent the tasks and activities of the project schedule. in a Gantt chart the horizontal bar chart depicts project tasks against a calendar. each bar represent a named project task.

It offers the advantage of clearly showing overlapping tasks that is the tasks can be performed at the same time. Given is the Gantt chart that describes the project schedule and its activities.



3.4 Software and Hardware Requirements

Software Requirements

In order to implement a new system the choice of processor with maximum possible speed is made. There should be sufficient memory to store data and software tools for efficient processing.

- Platform : WINDOWS 7/8/10
- Language used : C#
- Back end : SQL
- FRONT END : ASP.NET

Hardware Requirements

- **System : IBM-Compatible PC**
  - Processor : INTEL
  - Speed : 2.0GHz
  - Memory : 4GB
  - Hard Disk Drive : 500 GB

3.5 Preliminary Product Description:

The First step in this system development life cycle in the preliminary investigation to determine the feasibilty of the system .The purpose of the preliminary investigation is to evaluate project requests. It is a not a design study nor does it include the collection of the details to describe the business system in all respect. Rather ,It is the collecting of the information that helps committee member to evaluate the merits of the project request and make an informed judgement about the feasibilty of the purposed project.

- Analyst working on the preliminary investigation should accomplish the following objectives
- Clarify and understand project request.
- Determine the size of project.
- Asset Cost and benefits of alternative approaches.
- Determine the technical and operational feasibilty of alternative approaches.
- Benefit to Organisation.

3.6 Conceptual Models:

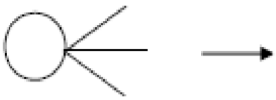
Entity Relationship (ER) Diagram

A graphical model of the data needed by a system, including things about which information is stored & the relationships among them, produced in structured analysis & information engineering. ER Diagram represents entities or tables and their relationships with one another**.**

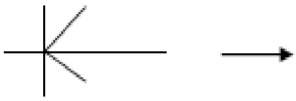
Symbols:

Exactly One(mandatory)

Zero



Zero or many



One or more(mandatory)

Zero or one(optional)s

Connection between components. An arrow generally indicates a flow from one component to another

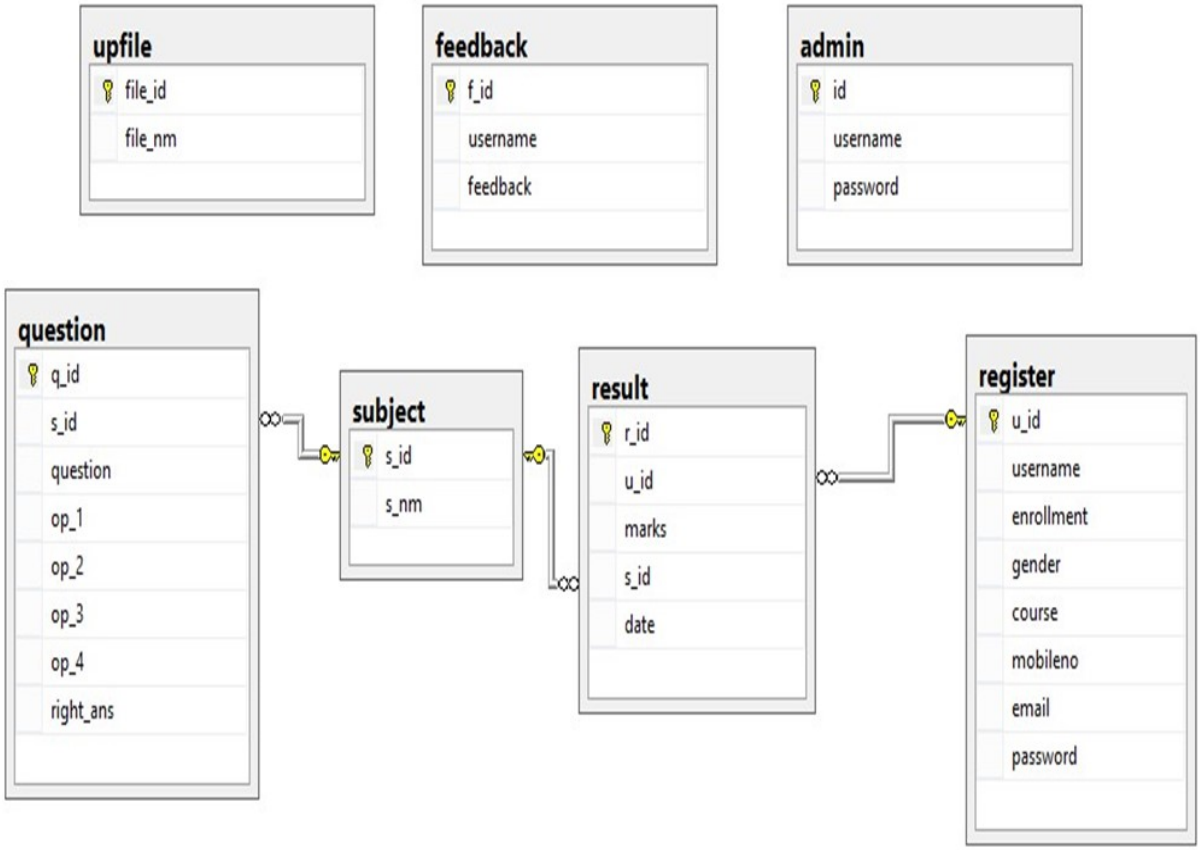
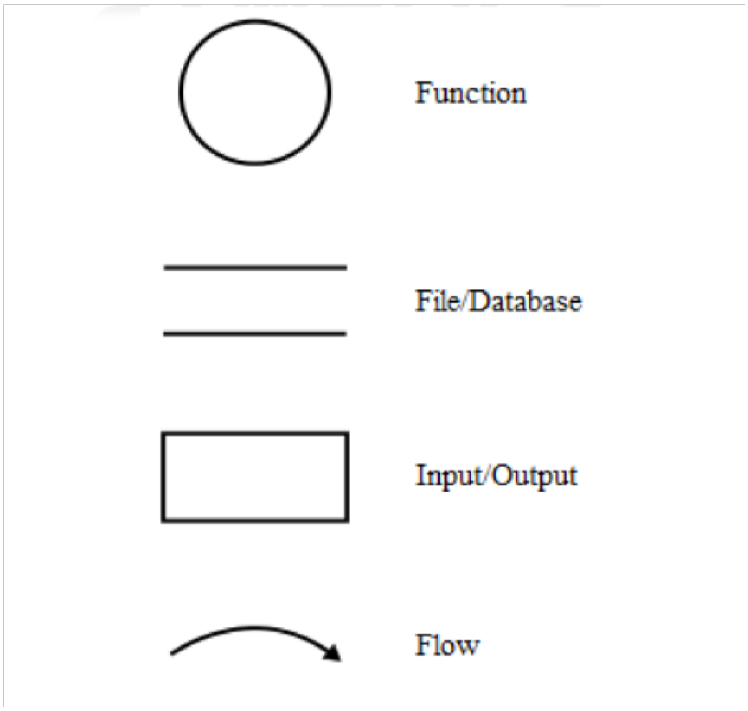


Fig. ER Diagram

DATA FLOW DIAGRAMS

- A **data flow diagram** (**DFD**) is a graphical representation of the "flow" of data through an information system.
- DFDs can also be used for the visualization of data processing (structured design).

  It views a system as a function that transforms the input into desired output



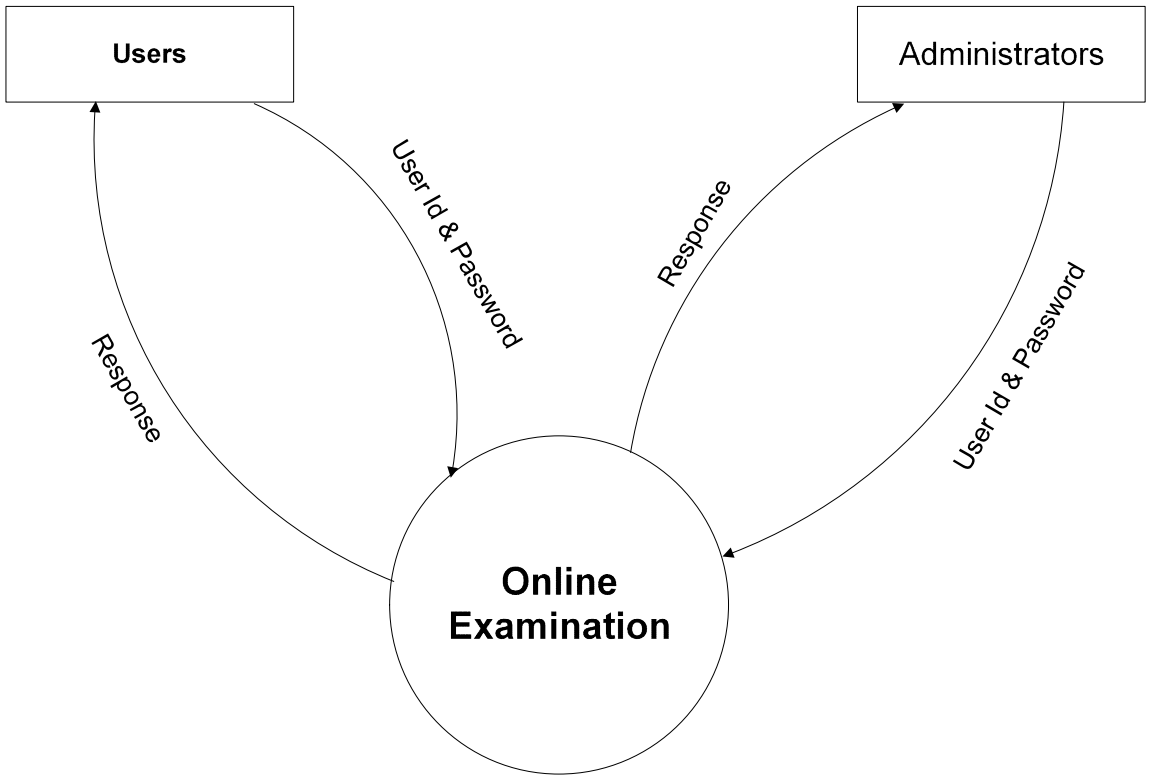


Fig. 0 Level DFD

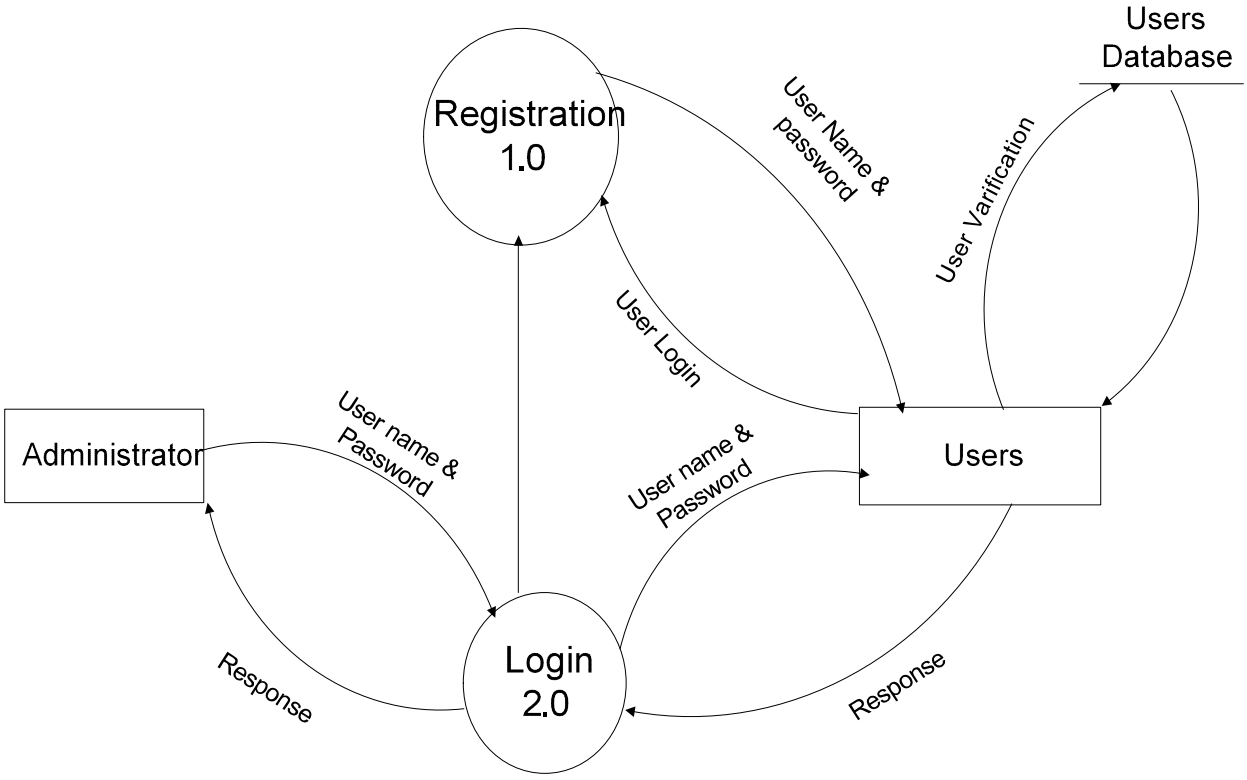


Fig. 1st Level DFD

OBJECT DIAGRAM

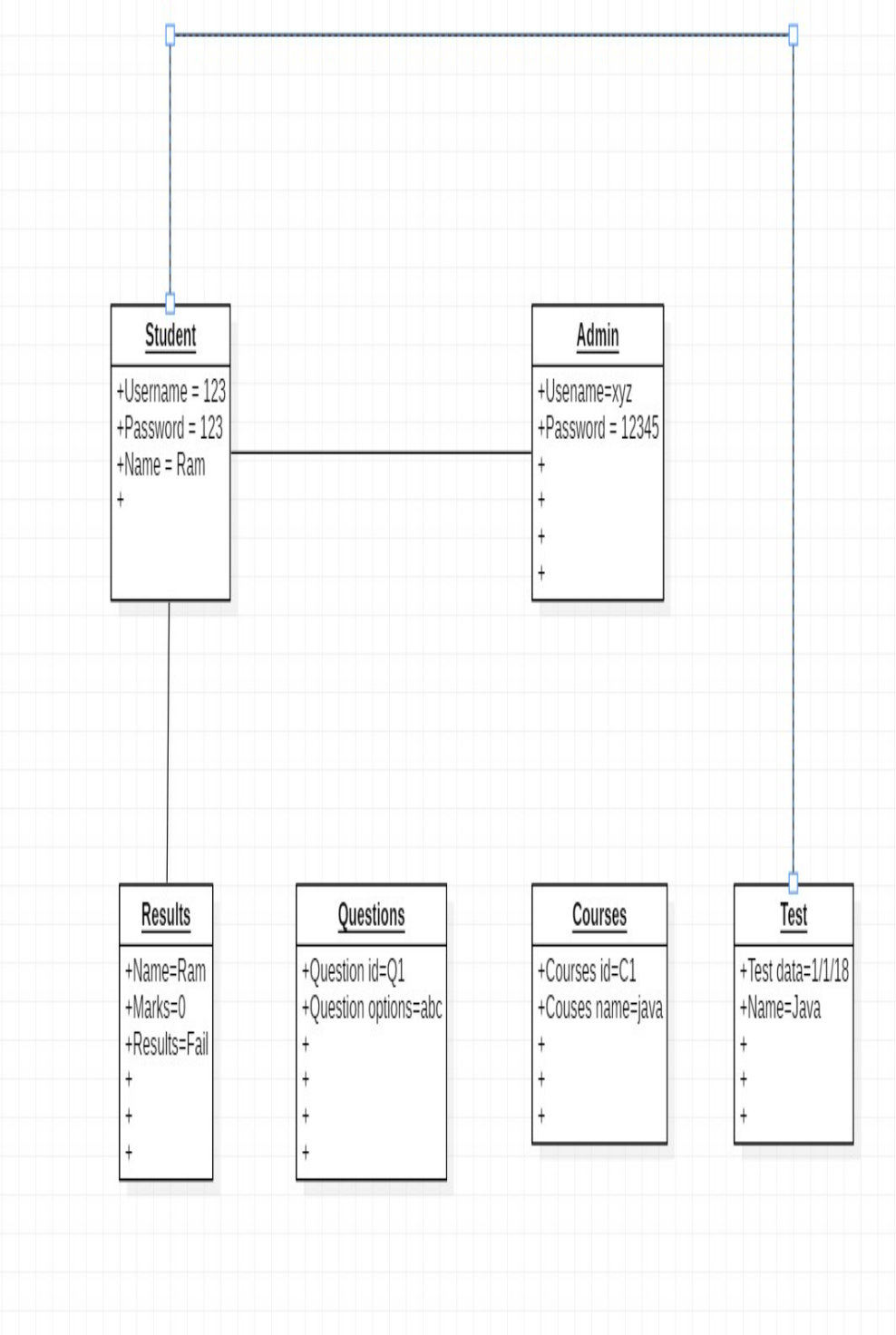
Object Diagram are derived from the class diagram so object diagram are dependent upon class diagram.

Object Diagram represent an instance of an class diagram. The basic concept are similar to class diagrams and Object Diagrams. Object diagram also represent the static view of the system but this static view is snapshot of the system at a particular moment.

Object diagrams are used to render a set of objects and their relationships as an instance.

So the purpose of the Objects Diagram can be summarized as:

- Forward and Reverse Engineering.
- Object relationship of a system.
- Static view of an interaction.
- Understand Object behavioral and their relationship from practical
- perspective


Student
+Username = 123
+Password = 123
+Name = Ram
+
Admin
+Usename=xyz
+Password = 12345
+
+
+
+
Results
+Name=Ram
+Marks=0
+Results=Fail
+
+
+
Questions
+Question id=Q1
+Question options=abc
+
+
+
+
Courses
+Courses id=C1
+Couses name=java
+
+
+
Test
+Test data=1/1/18
+Name=Java
+
+
+

Chapter 4

SYSTEM DESIGN

4.1 Basic Modules:

Module Design

The proposed system consists of two modules,

- Administrator Module
- User Module

USER (EXAMS) MODULE

User interface consists of a login name and unique password using which he/she can login into the Online Examination System. This will be supplied by the administrator to the user. Once the user has logged in, he has the privilege to view the names of the candidates listed by the administrator, view the results after the termination date of the election. The user module constitutes only one sub module:

Objective question module

This module involves unit test and final examination.

Objective question module is the first part of tests that a student participates in. After students login in subject selection page, select the corresponding subject and type of tests, then the system will automatically jump to page of objective questions. In this page, students must finish the test within the given time. When students submit paper, the system will record their answers to the database and show about the correct answers and score of the objective questions.

2) In addition, the system sets the test time depending on the type of tests. The time is displayed on page of the test.

Subjective question module

At present, the system supports short answer question and essay question.

Subjective question module is the second part of tests that a student takes part in it also involves unit test and final exam.

The subjective topic test is a kind of test that is arranged by teachers. When students submit paper, the system will record their answers to the database.

On the page of subjective topic test, the system uses the timer similarly.

Score-inquiring module

For objective question test, the system will give scores immediately when students submit answers. If questions on the paper are subjective, the teachers will send email to students after correcting the answers online.

View the details of each subject. Detailed page includes the scores of all kinds of questions.

The user information module

It shows teachers' information, 'students' information, etc.

Paper- scoring module

This module is one of the core functions of the online examination system. It includes automatic and manual mode.

The automatic mode needs to match the students' the correct answers. In the system, the types of objective questions are divided into single topic selection, multiple choice, and judgment question. According to the characteristics of the different types of questions, the system designs different matching algorithms of the correct answers and quickly calculates the student's test scores. At the end of the exam, the system will automatically give scores for students to look at in according to the students' answers in the manual mode, teachers correct subjective questions online. When the examination is over, teachers score' students' answers and record scores into database.

Event	**Trigger**	**Source**	**Activity**	**Response**	**Destination**
Admin Login	Login request sent	Admin	Validate password & login name	Login successful or denied	Admin
Admin creates Login for member	Create login account for member	Admin	Login Creation	Login Created	Admin
Admin Add Examination details	Add Examination details	Admin	Verify Examination details	Examination details added successfully	Admin
Admin Add constituencies details	Add constituencies details	Admin	Verify the constituencies details	Constituencies details added successfully	Admin
Admin add members details for examination	Add member details for examination	Admin	Verify the member details for examination	Member details added successfully.	Admin

4.2 Data Design

4.2.1 Schema Design

A database system is an overall collection of different database software components and database containing the parts viz. Database application programs, front-end components, Database Management Systems, and Databases.

Normalization:

Normalization is the process of organizing data in a database. This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency. Redundant data wastes disk space and creates maintenance problems .If data that exists in more than one place must be changed, the data must be changed in exactly the same way in all locations. A buyer's or promoter's address change is much easier to implement if that data is stored only in the buyer's or promoter's table and nowhere else in the database. There are a few rules for database normalization. Each rule is called a "normal form. Data structuring is defined through a process called normalization. Data are grouped in the simplest way possible so that later changes can be made with a minimum of impact on the data structure.

There are different forms of normal forms

- First normal form (1NF)
- Second normal form (2NF)
- Third normal form (3NF)
- Boyce code normal form (BCNF)
- Fourth Normal form(4NF)
- Fifth Normal Form (5NF)

TABLE

Login Table:

Field	Data Type	Size	Constraints
Username	Varchar	30	
Password	Varchar	30	
Q1	Varchar	5	
Q2	Varchar	5	
Q3	Varchar	5	
Q4	Varchar	5	
Q1	Varchar	5	
Q2	Varchar	5	
Q3	Varchar	5	
Q4	Varchar	5	
Q1	Varchar	5	
Q2	Varchar	5	
Total	Varchar	5	
Grade	Varchar	5	

Feedback Table:

Field	Data Type	Size	Constraints
name	Varchar	20	
Email id	Varchar	20	
Contact no	Varchar	13	
Comments	Varchar	200	
Suggestion	Varchar	300	

Exam Table:

Field	Data Type	Size	Constraints
Q.no	Varchar	3	
Q.no	Varchar	300	
OP_A	Varchar	50	
OP_B	Varchar	50	
OP_C	Varchar	50	
OP_D	Varchar	50	
Tans	Varchar	3	

4.2.2 Data Integrity and Constraints:

The term data integrity refers to the accuracy and consistency of data. When creating databases, attention needs to be given to data integrity and how to maintain it. A good database will enforce data integrity whenever possible.

For example, a user could accidentally try to enter a phone number into a date field. If the system enforces data integrity, it will prevent the user from making these mistakes.

Maintaining data integrity means making sure the data remains intact and unchanged throughout its entire life cycle. This includes the capture of the data, storage, updates, transfers, backups, etc. Every time data is processed there's a risk that it could get corrupted (whether accidentally or maliciously).

Risks to Data Integrity

Some more examples of where data integrity is at risk:

- A user tries to enter a date outside an acceptable range.
- A user tries to enter a phone number in the wrong format.
- A bug in an application attempts to delete the wrong record.
- While transferring data between two databases, the developer accidentally tries to insert the data into the wrong table.
- While transferring data between two databases, the network went down.

Types of Data Integrity

In the database world, data integrity is often placed into the following types:

- Entity integrity
- Referential integrity
- Domain integrity
- User-defined integrity

Entity Integrity

Entity integrity defines each row to be unique within its table. No two rows can be the same. To achieve this, a primary key can be defined. The primary key field contains a unique identifier – no two rows can contain the same unique identifier.

Referential Integrity

Referential integrity is concerned with relationships. When two or more tables have a relationship, we have to ensure that the foreign key value matches the primary key value at all times. We don't want to have a situation where a foreign key value has no matching primary key value in the primary table. This would result in an orphaned record.

Domain Integrity

Domain integrity concerns the validity of entries for a given column. Selecting the appropriate data type for a column is the first step in maintaining domain integrity. Other steps could include, setting up appropriate constraints and rules to define the data format and/or restricting the range of possible values.

User-Defined Integrity

User-defined integrity allows the user to apply business rules to the database that aren't covered by any of the other three data integrity types. Constraints enforce limits to the data or type of data that can be inserted/updated/deleted from a table.

Types of constraints

- Not null
- Unique
- Default
- Check

4.3 Procedural Design:

Procedural design is often classified as a computational approach relying upon a set of instructions that, when used in a particular sequence, are the generators of form. While within this framework certain methods may be iterative and cyclical, procedural design often denotes the construction, conceptually, of a linear solver. The work documented in this section, though, shows a significant evolution of this approach. Intelligent systems are formed in which computation is given the freedom to absorb, interpret, and respond within the sequential set of procedures, thus shifting from linear logics to networked ones.

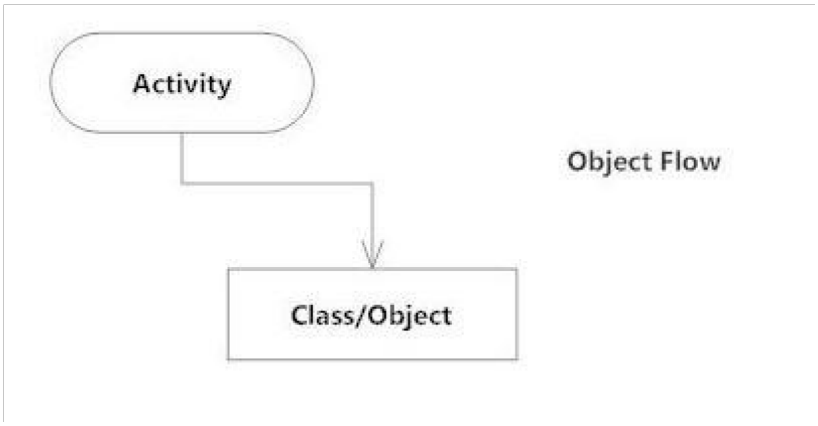
4.3.1 LOGIC DIAGRAMS:

ACTIVITY DIAGRAM

Activity diagram is another important diagram in UML to describe the dynamic aspects of the system. Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system.

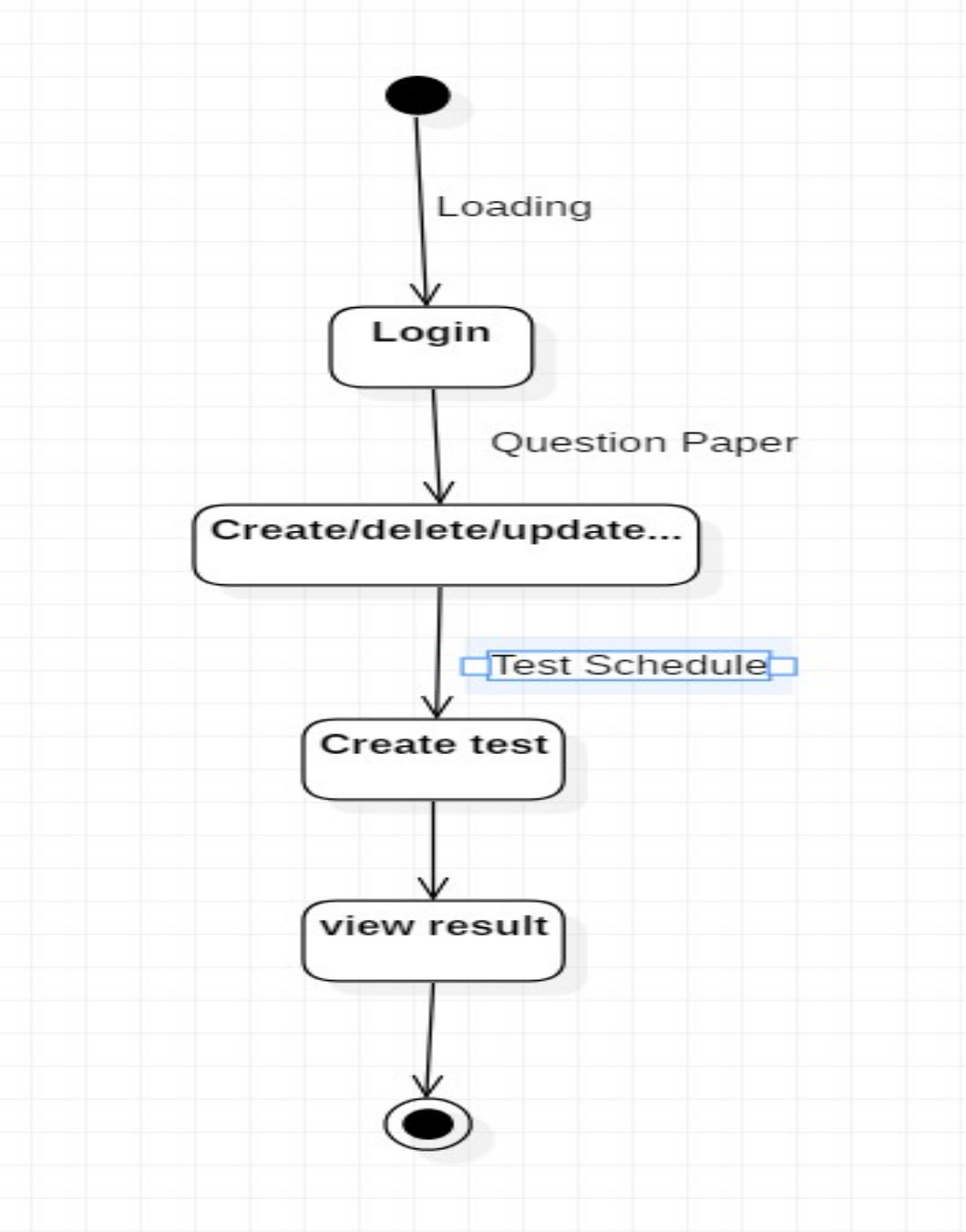
The control flow is drawn from one operation to another. This flow can be sequential, branched, or concurrent. Activity diagrams deal with all type of flow control by using different elements such as fork, join, etc.


Action Flow


Activity
Object Flow
Class/Object

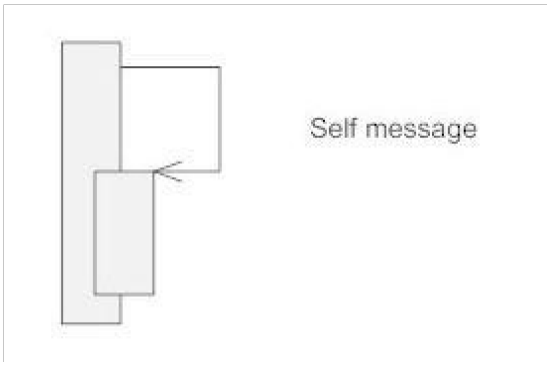

Decision Symbol

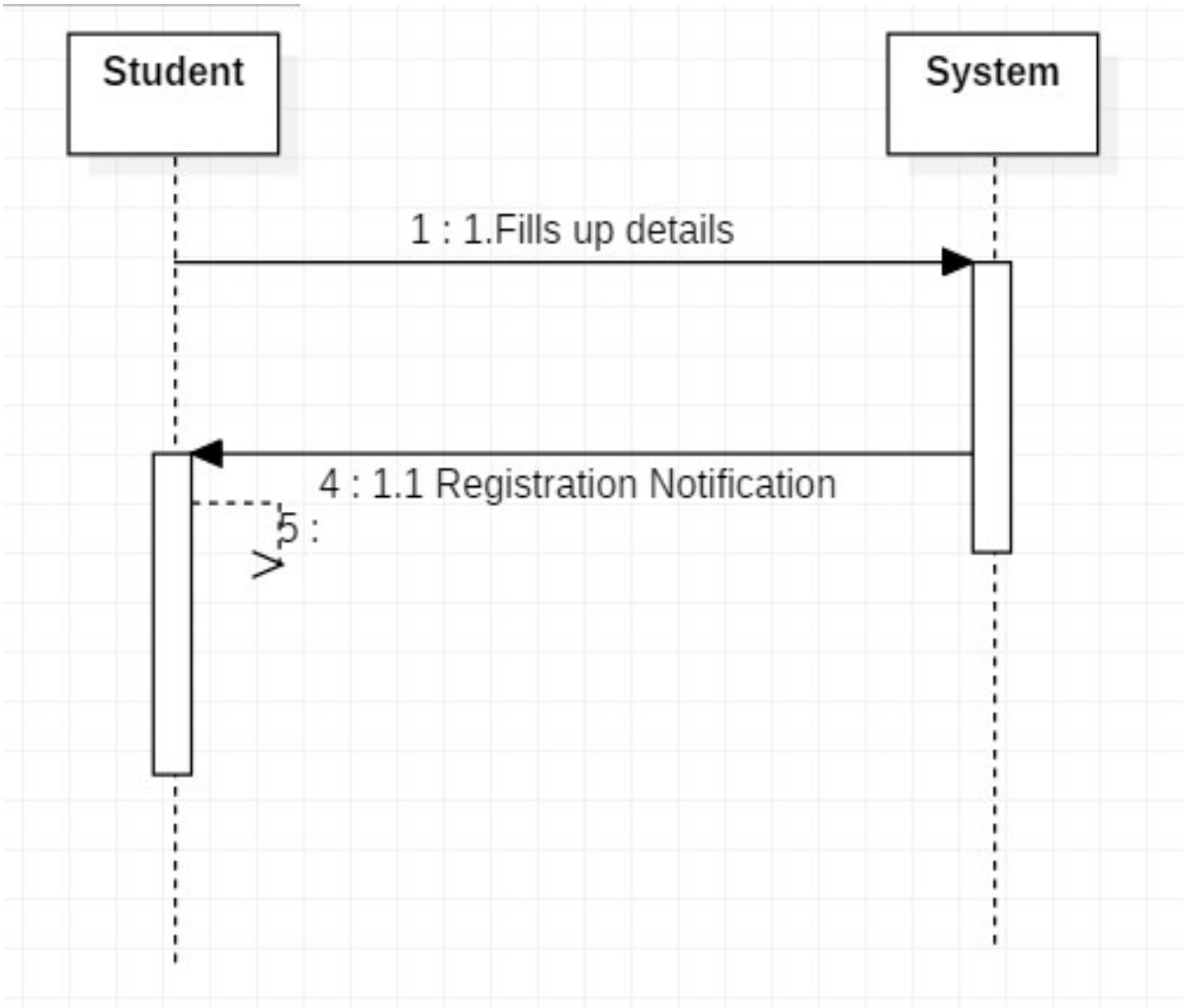

End Point Symbol

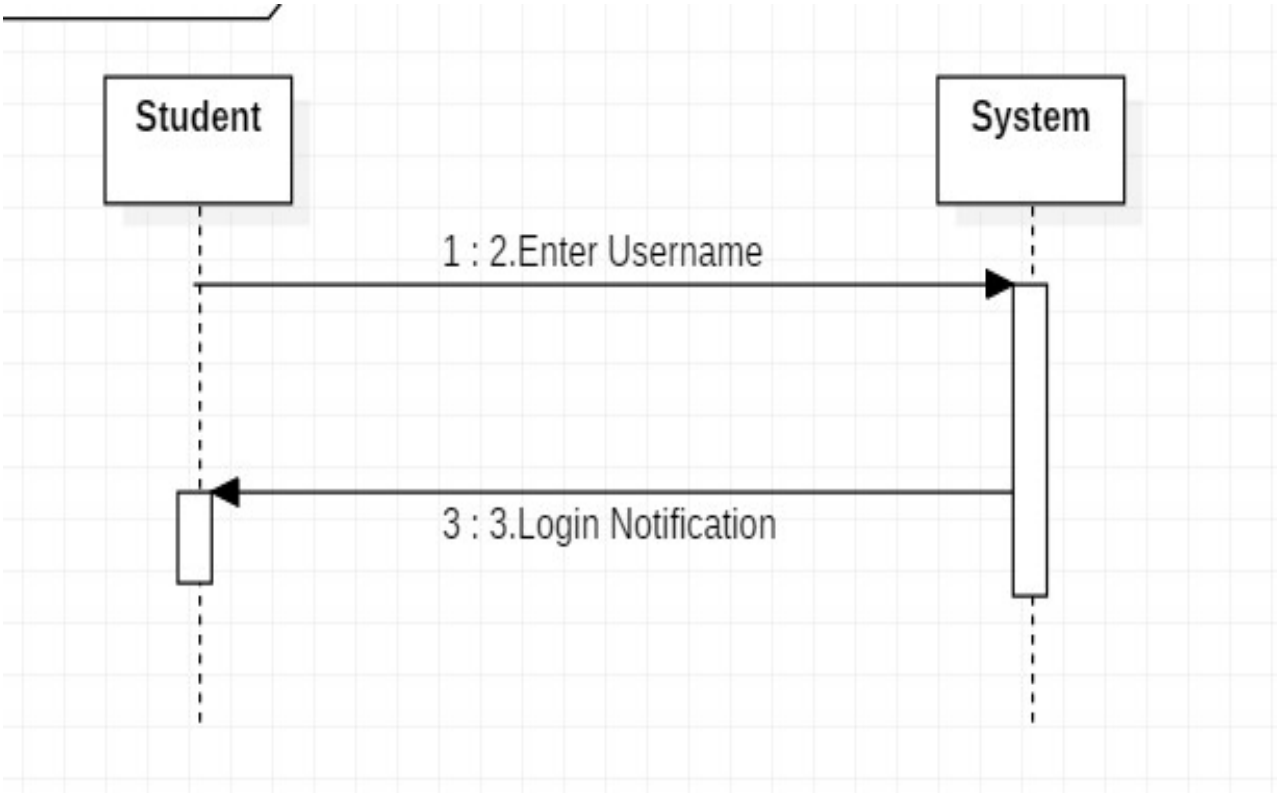

Loading
Login
Question Paper
Create/delete/update...
Test Schedule
Create test
view result

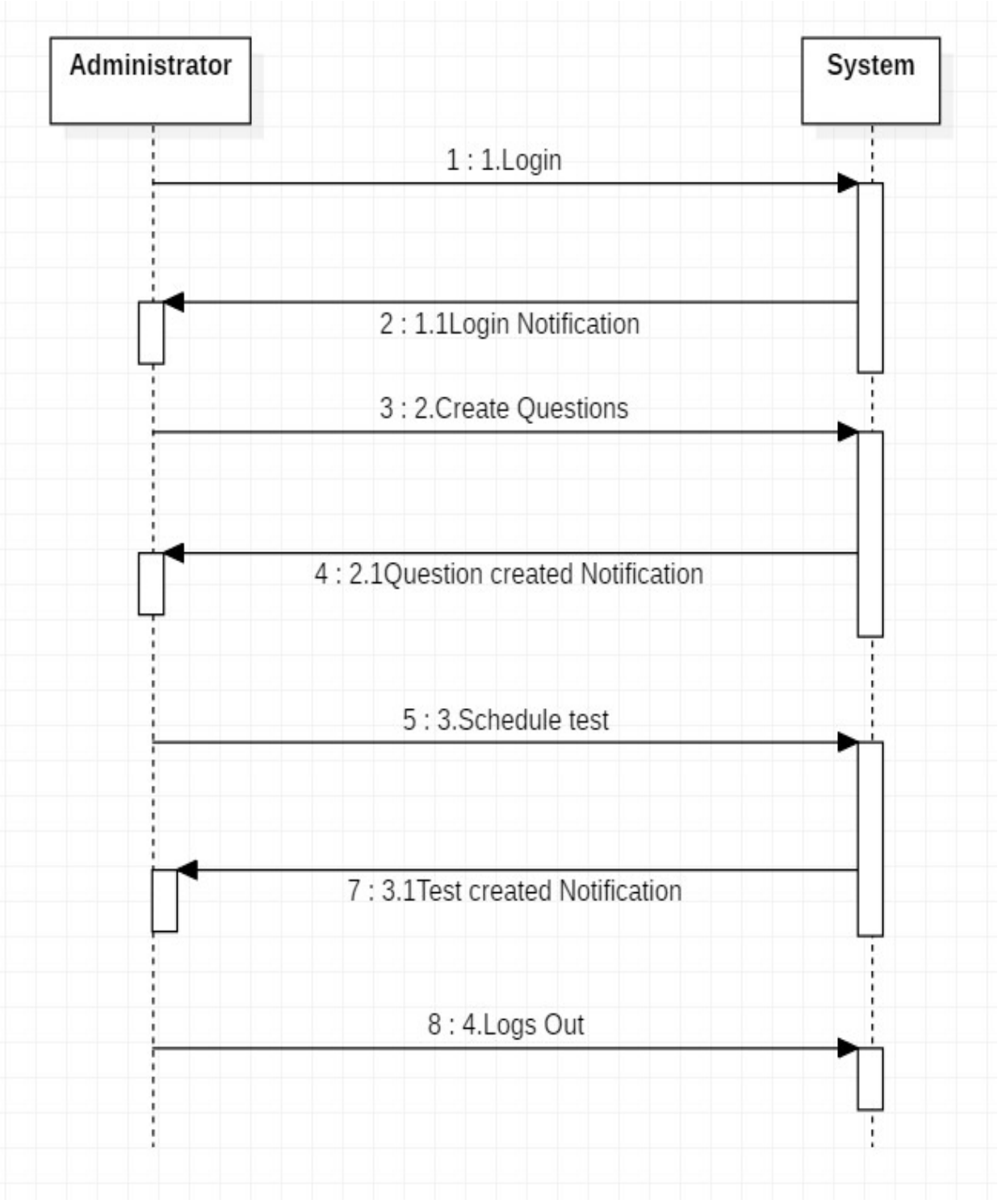
SEQUENCE DIAGRAM

Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're also called event diagrams. A sequence diagram is a good way to visualize and validate various runtime scenarios. These can help to predict how a system will behave and to discover responsibilities a class may need to have in the process of modelling a new system.




Student
System
1 : 1.Fills up details
4 : 1.1 Registration Notification
5 :


Student
System
1 : 2.Enter Username
3 : 3.Login Notification


Administrator
System
1 : 1.Login
2 : 1.1Login Notification
3 : 2.Create Questions
4 : 2.1Question created Notification
5 : 3.Schedule test
7 : 3.1Test created Notification
8 : 4.Logs Out

4.3.2 Data Structures

Data Structures are the programmatic way of storing data so that data can be used efficiently. Almost every enterprise application uses various types of data structures in one or the other way. This tutorial will give you a great understanding on Data Structures needed to understand the complexity of enterprise level applications and need of algorithms, and data structures.

4.3.3 Algorithms

An algorithm is a finite set of instructions or logic, written in order, to accomplish a certain predefined task. Algorithm is not the complete code or program, it is just the core logic (solution) of a problem, which can be expressed either as an informal high level description as **pseudo code** or using a **flowchart**.

Every Algorithm must satisfy the following properties:

1. **Input**- There should be 0 or more inputs supplied externally to the algorithm.
2. **Output**- There should be at least 1 output obtained.
3. **Definiteness**- Every step of the algorithm should be clear and well defined.
4. **Finiteness**- The algorithm should have finite number of steps.
5. **Correctness**- Every step of the algorithm must generate a correct output.

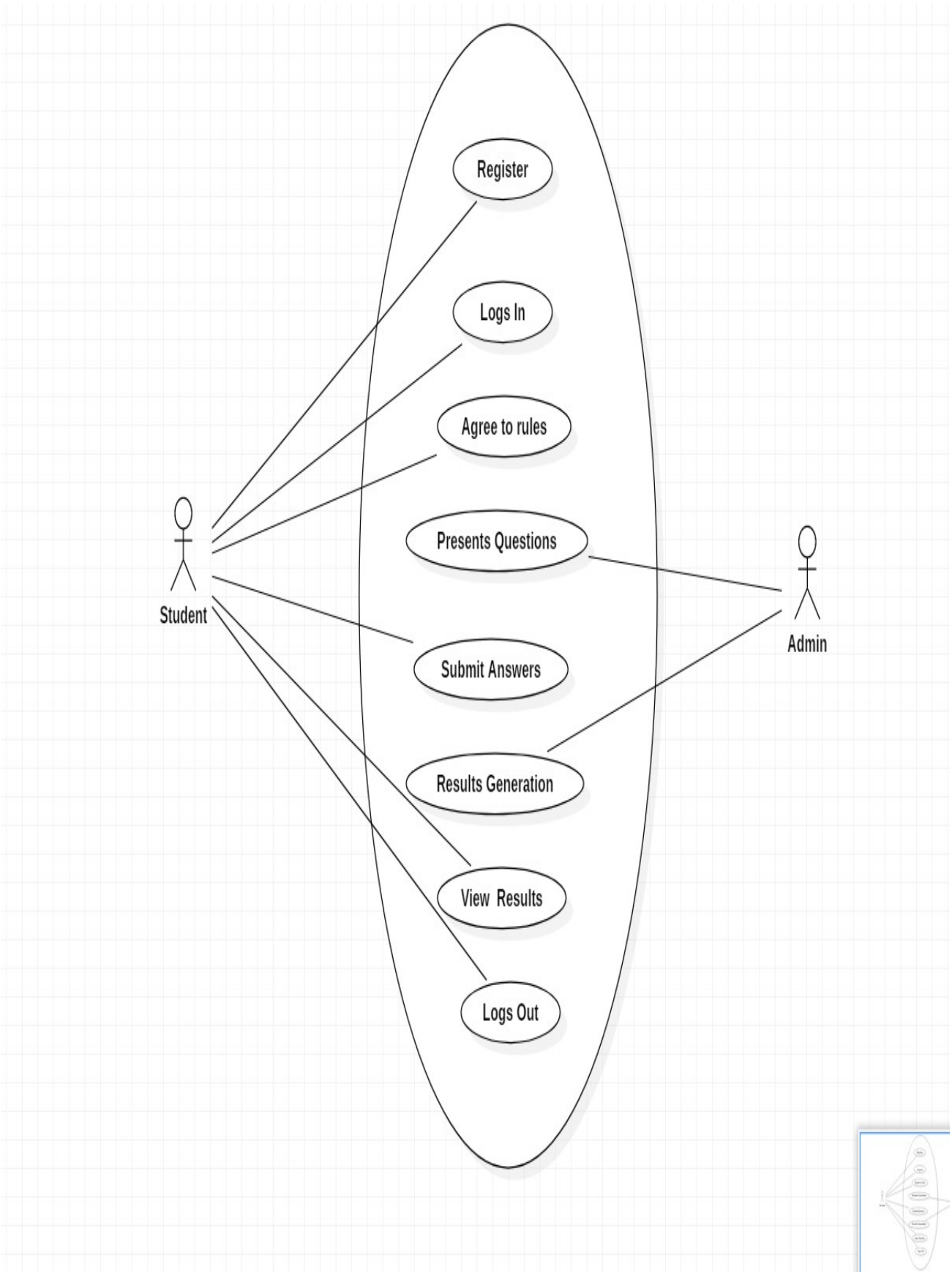
4.4 User Interface Diagram:

Use case diagrams

A UML use case diagram is the primary form of system/software requirements for a new software program under developed

Use case diagrams are usually referred to as behaviour diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors). Each use case should provide some observable and valuable result to the actors or other stakeholders of the system.

Use case diagrams are in fact twofold - they are both behaviour diagrams, because they describe behaviour of the system, and they are also structure diagrams - as a special case of class diagrams where classifiers are restricted to be either actors or use cases related to each other with associations.


Register
Logs In
Agree to rules
Presents Questions
Submit Answers
Results Generation
View Results
Logs Out
Student
Admin

4.5 Security Issue

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.

Some of the factors that are identified to protect the software from accidental or malicious access, use, modification, destruction, or disclosure are described below. Keep specific log or history data sets

- ✓ Assign certain functions to different modules
- ✓ Restrict communications between some areas of the program
- ✓ Check data integrity for critical variables
- ✓ Later version of the software will incorporate encryption techniques in the user/license authentication process.

Chapter 5

IMPLIMENTATION AND TESTING

5.1 Implementation Approaches

The implementation approaches for project planning. An implementation method tailored to the project is a prerequisite for successful software implementation. This involves costing, planning, controlling, and monitoring the necessary tasks, including resource.

5.2 Coding details and code efficiency

Login page :-

```
<%@ Page Language="C#" AutoEventWireup="true" CodeFile="login.aspx.cs" Inherits="login" %>

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>login</title>
    <style type="text/css">
        .auto-style1
        {
            width: 978px;
        }
    </style>
    </head>
<body>
    <form id="form1" runat="server">
    <div>

        <table class="style1" align="center">
            <tr>
                <td colspan="2" class="style2">
                REGNA ONLINE EXAMINATION SYSTEM
                 </td>
            </tr>
            <tr>
                <td >
                     </td>
                <td class="auto-style1"> </td>
            </tr>
            <tr>
                <td> </td>
                <td class="auto-style1"> </td>
            </tr>
```

```
            <tr>
                <td bgcolor="#0099ff" id="un">
                Username:</td>
                <td bgcolor="#0099ff" class="auto-style1">
                    <asp:TextBox ID="name" runat="server" Width="200px"></asp:TextBox></td>
            </tr>
            <tr>
                <td >
                     </td>
                <td class="auto-style1"> </td>
            </tr>
            <tr>
                <td bgcolor="#0099ff" id="pw">
                Password</td>
                <td bgcolor="#0099ff" class="auto-style1">
                    <asp:TextBox ID="pass" runat="server" Width="200px"
Textmode="Password"></asp:TextBox></td>
            </tr>
            <tr>
                <td> </td>
                <td class="auto-style1"> </td>
            </tr>
            <tr>
                <td> </td>
                <td class="auto-style1">
                    <asp:Button ID="Submit" runat="server" Text="Login" height="28px" Width="95" Font-
bold="true" OnClick="Submit_Click"/>
                </td>
            </tr>
            <tr>
                <td> </td>
                <td class="auto-style1">
                    <asp:Label ID="Label1" runat="server" Height="28px" Text="msg"></asp:Label>
                </td>
            </tr>
            <tr>
                <td colspan="2" bgcolor="#666666" style="text-align:center">
                <span class="style3">Designed by:-CODER BABA</span>
                 </td>
            </tr>
        </table>

    </div>
    </form>
</body>
</html>
```

5.3 Testing Approach

Full system is divided into modules, so first of all modules are tested. The registration and login module is tested is tested and check all the validation of the registration form are working properly or not. Then checking of the other pages was done.

5.3.1 Unit Testing

Unit testing in l have a test for a One by one module created and test module for a unit wise and find a error and solve this error. Unit testing focuses verification effort on the smallest unit of software design the module. The unit testing we have is white box oriented and some modules the steps are conducted in parallel. The tests that occur as part of unit testing are testing the module interface, examining the local data structures, testing the boundary conditions, executing all the independent paths and testing error-handling paths.

1. WHITE BOX TESTING

This type of testing ensure that

- All independent paths have been exercised at last once.
- All logical decisions have been exercised on their true and false sides.
- All loop are executed at their boundaries and within their operational bounds.
- All internal data structures have been exercised to assure their validity.

To follow the concept of white box testing we have tested each form. We have created independently to verify that Data flow is correct, on their boundaries. In white box testing an internal perspective of the system, as well as programming skills, are used to design test cases.

2. BLACK BOX TESTING

Black box testing treats the software as a “black box” , examining functionality without any knowledge is supposed to do, not how it does it. Black box testing methods includes: equivalence partitioning, boundary value analysis, all pairs testing, state transition tables, decision tables testing, fuzz testing, model based testing, use case testing. Explomtory testing and specification based testing.

3. BASIC PATH TSTING

Established technique of flow graph with Cyclomatic complexity was used to drive test cases for all the functions. The main steps in deriving test cases were:

Use the design of the code and draw correspondent flow graph.

Determine the Cyclomatic complexity of resultant flow graph, using formula:

V(G)=E-N+2 or

V(G)=P+1 or
V(G)=Number Of Regions
Where, V(G) is Cyclomatic complexity,
E is the number of edges,
N is the number of flow graph nodes,
P is the number of predicate nodes.
Determine the basis of set of linearly independent paths.

4. CONDITIONAL TESTING

In this part of the testing each of the conditions were tested to both true and false aspects. And all the resulting paths were tested. So that each path that may be generate on particular condition is traced to uncover any possible errors.

5. DATA FLOW TESTING

This type of testing selects the path of the program according to the location of definition and use of validation. This kind of testing was used only when some local variable were declared. The *definition-use chain* method was used in this type of testing. These were particularly useful in nested statements.

6. LOOP TESTING

In this type of testing all the loops are tested to all the limits possible. The following exercise was adopted for all loops:

All the loops were tested at their limits, just above them and just below them.
All the loops were skipped at least once.
For nested loops test the inner most loop first and then work outwards.

For concatenated loops the values of dependent loops were set with the help of connected loop.
Unstructured loops were resolved into nested loops or concatenated loops and tested as above.
Each unit has been separately tested by the development team itself and all the input have been validated.

5.3.2. Integration Testing

Integration testing implements a module code for a system and test for a work correctly or not. And error are occurs this time solve problems of a error. Integration testing is a systematic technique for constructing tests to uncover error associated within the interface. In the project, all the modules are combined and then the entire programmer is tested as a whole. In the integration-testing step, all the error uncovered is corrected for the next testing steps.

5.3.3. Beta Testing

Beta testing is also known as field testing. It takes place at customer's site. It sends the system/software to users who install it and use it under real-world conditions. A beta test is the second phase of software testing in which a sampling of the intended audience tries the product out.

5.4. Modifications and Improvements

The system modification is depends on their implementation which is done by using software which we use for project development. In the development of project we finish the testing and then find the bugs, errors and after that we improve it. But for implementation we have to focus on problems also decisions necessary to solve the problems. Information needs to make these decisions.

5.5. Test Cases

A test case is specification of the inputs, execution conditions, testing procedure, and expected results that define a single test to be executed to achieve a particular software testing objective, such as to exercise a particular program path or to verify compliance with a specific requirement. Test cases underlie testing that is methodical rather than haphazard. A battery of test cases can be built to produce the desired of the software being tested. Formally defined test cases allow the same tests to be run repeatedly against successive versions of software, allowing for effective and consistent regression testing.

I have discussed the various test case designs that can be implemented in this project.

5.5.1. Login

The test case design of login is given below.

Description of test case	Client will login
Pre-condition	Project is running
Expected Result	OK
Pass/Fail Criteria	Pass when OK fail when other

5.5.2. Register

This test case checks whether client is able to register.

Description of test case	Client will register itself
Pre-condition	Project is running
Expected Result	OK
Pass/Fail Criteria	Pass when OK ail when other

Chapter 6

RESULTS AND DISCUSSION

6.1. Test Reports

By using test cases we explain the test report for determine the project was capable to face the different problems or not. If they are capable to solve the problems then the project is correctly implemented with the help of software. Also they capable to work fine on different conditions like if the registration was not correctly done then we can again re-entered the information.

1. Login Table :

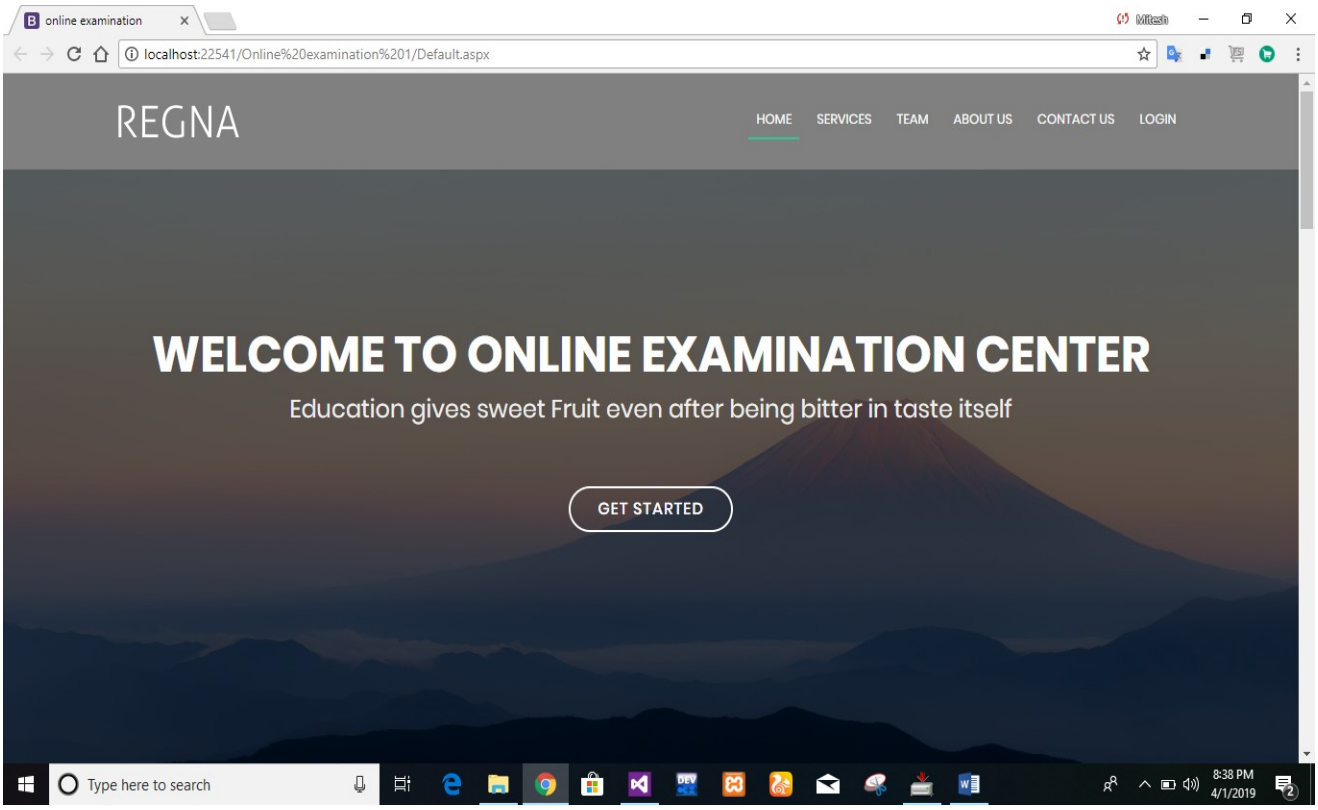
Sr. No.	Steps	Data	Excepted Data	Actual result	Status
1	Enter user name, password and press submit button.	Correct	Should navigate to admin's page	Display valid	Pass
2	Enter User name and press submit button.	Correct	Should Display message box 'please fill all the fields'	Display valid	Pass
3	Enter password and press submit button.	Correct	Should Display message box 'please fill all the fields'	Display valid	Pass
4	Enter black user name and black password and press submit button.	Correct	Should Display message box 'please fill all the fields'	Display valid	Pass
5	Enter wrong user and password.	Incorrect	Should Display message box 'Invalid ID or password'	Display valid	Fail

2. Navigation Table:

Sr. No.	Steps	Data	Excepted Data	Actual Result	Status
1	Click on Home page hyperlink menu.	Again home page	Should display home page	Display valid	Pass
2	Click on new questionnaires hyperlink menu.	Again home page	Should display questionnaires details page	Display valid	Pass
3	Click on quiz hyperlink menu.	Again home page	Should display quiz details page	Display valid	Pass
4	Click on show result hyperlink menu.	Again home page	Should display result details page	Display valid	Pass
5	Click on login hyperlink menu.	Again home page	Should display respective login page	Display valid	Pass
6	Click on queries hyperlink menu.	Again home page	Should display queries details page	Display valid	Pass
7	Click on feedback hyperlink menu.	Again home page	Should display feedback form page	Display valid	Pass

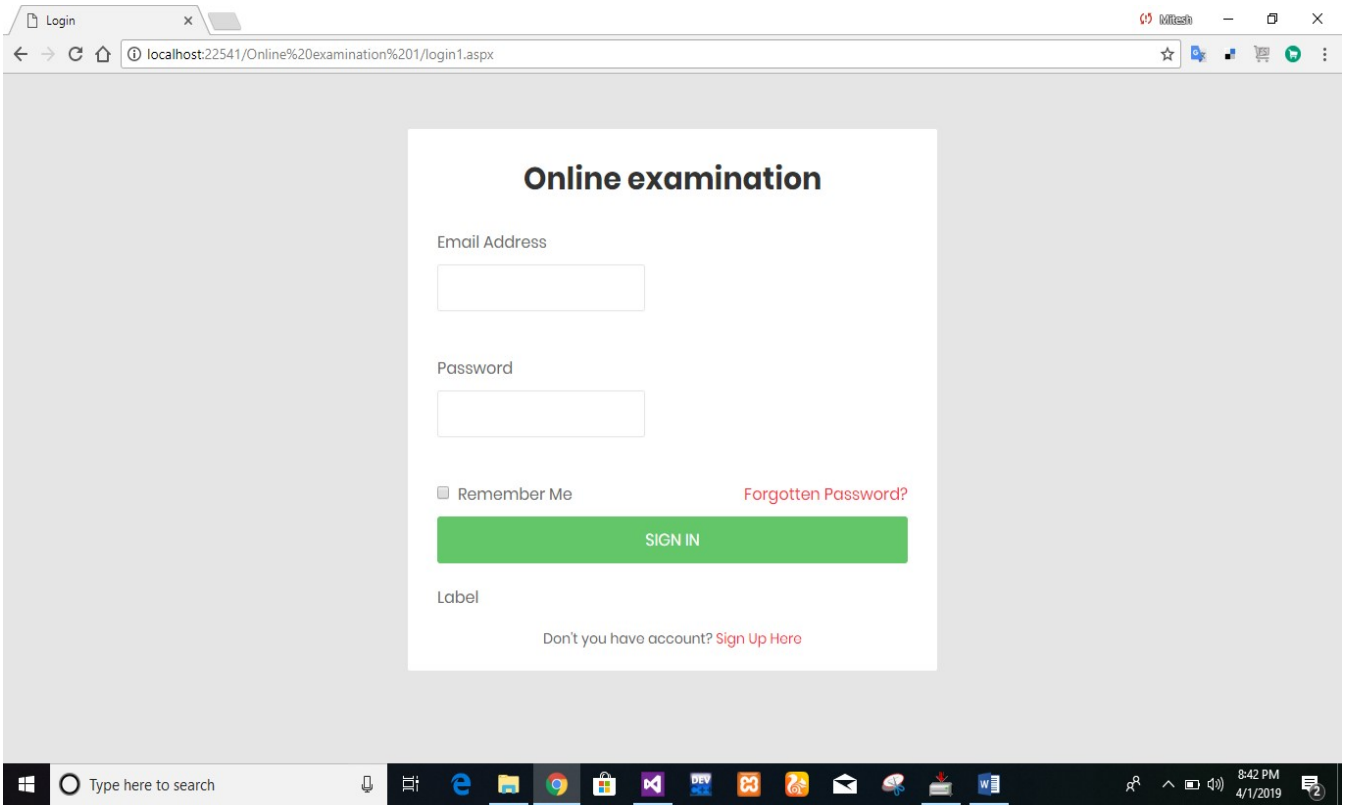
6.2. User Documentation

Home Page:



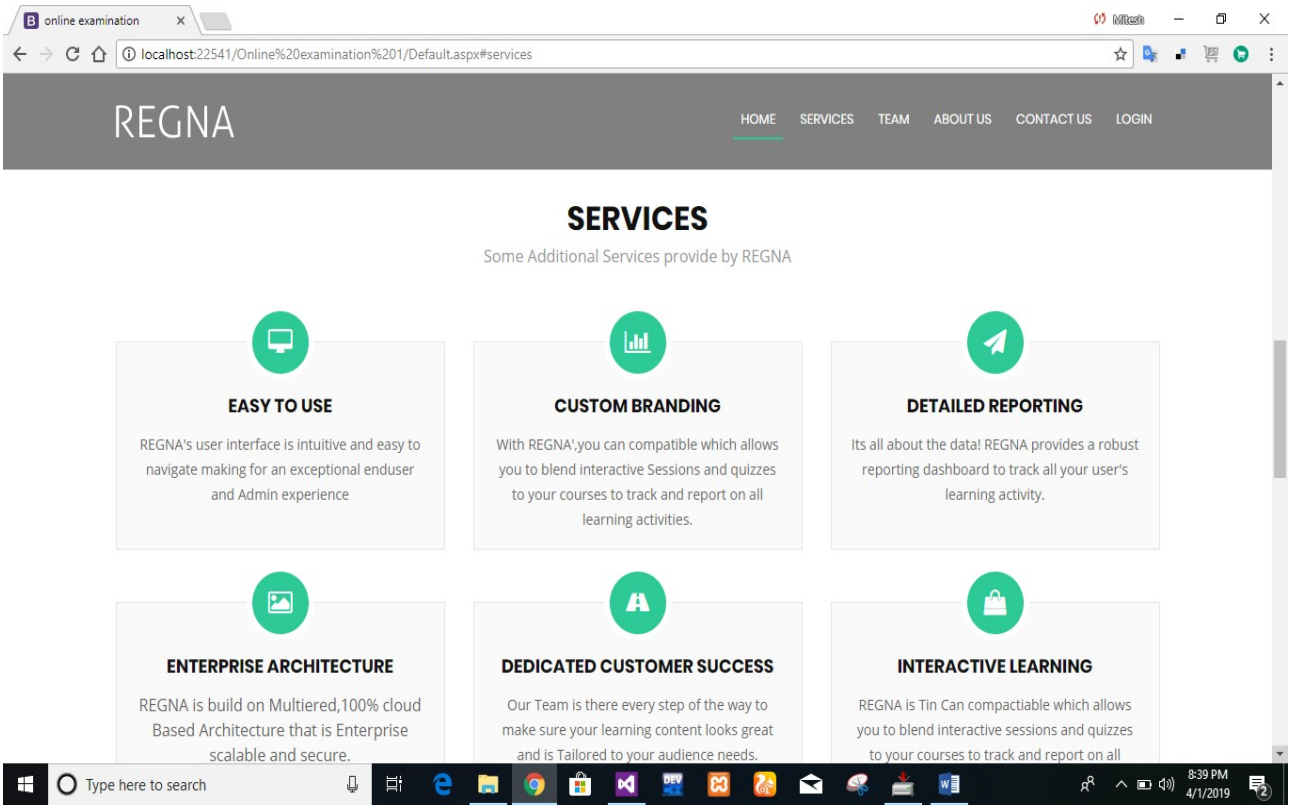
- **This is our home page give information about our website.**

Login Page for Admin:



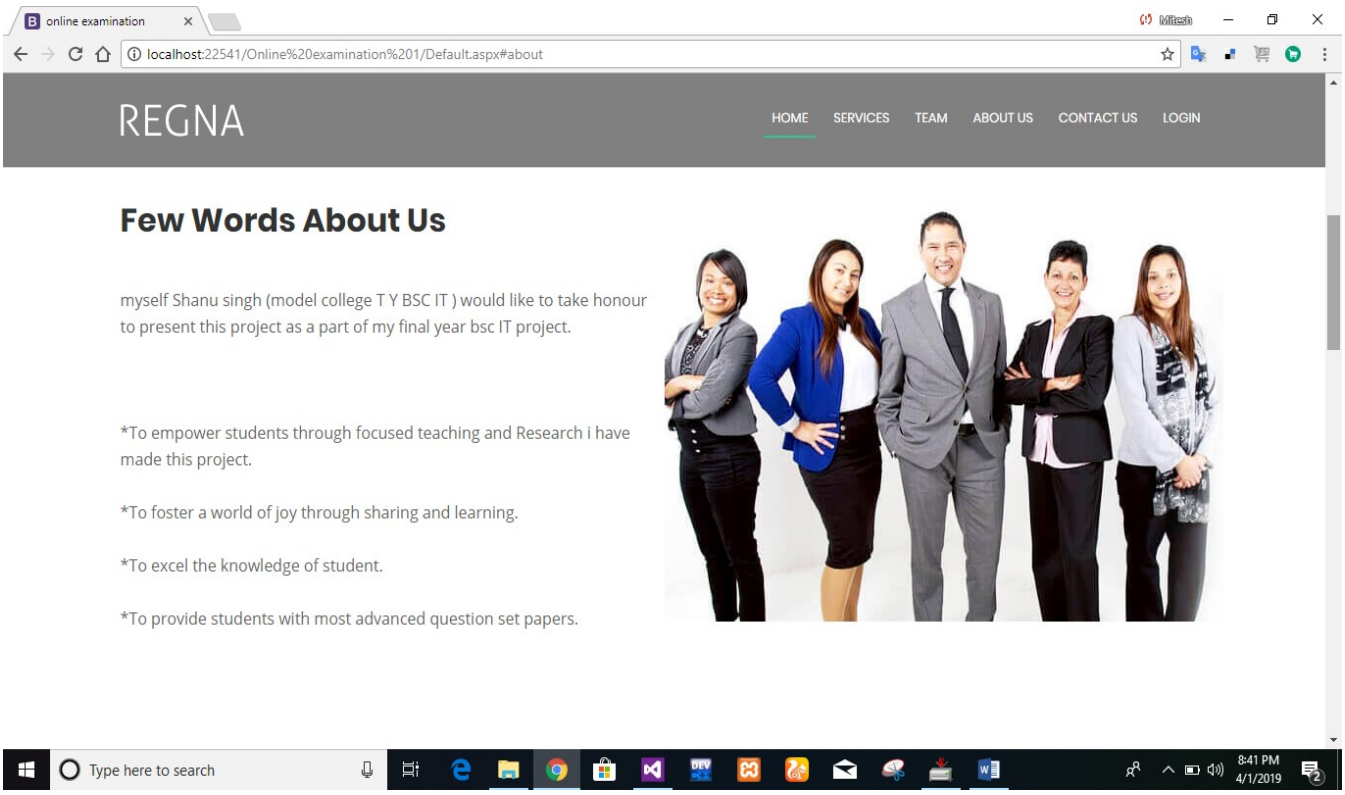
- **Admin can login in this page.**

Home Page 1(Services):



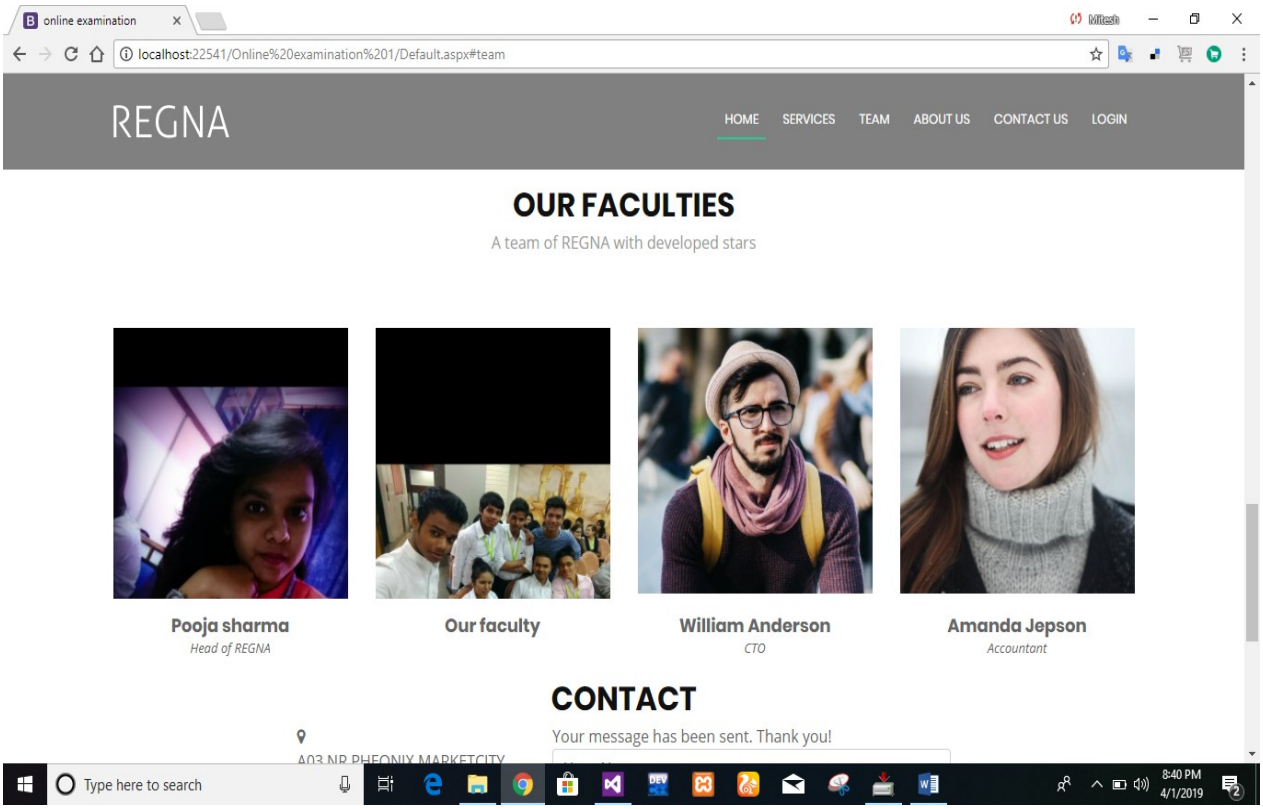
- **This is home page admin can look the services.**

Home page 2:



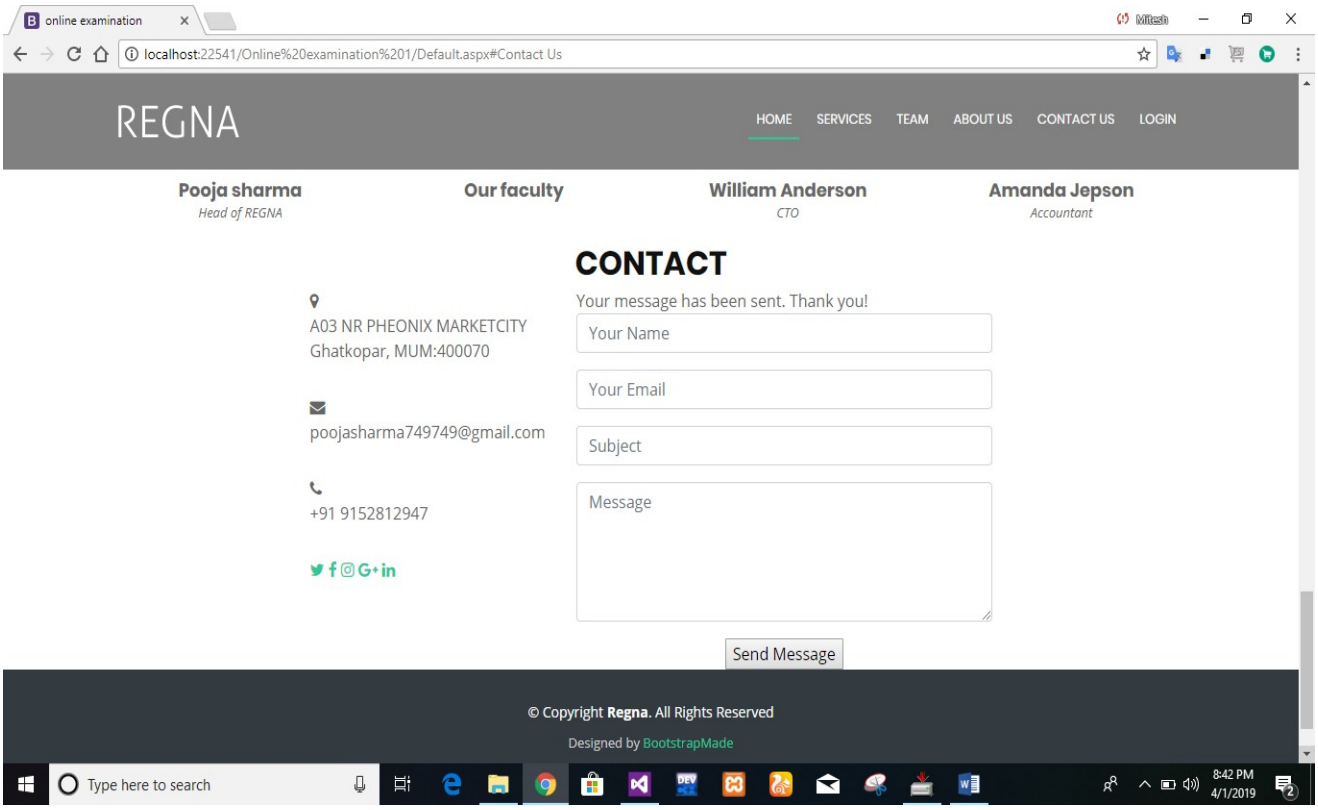
- **Information about the page.**

Home page 3(faculties):



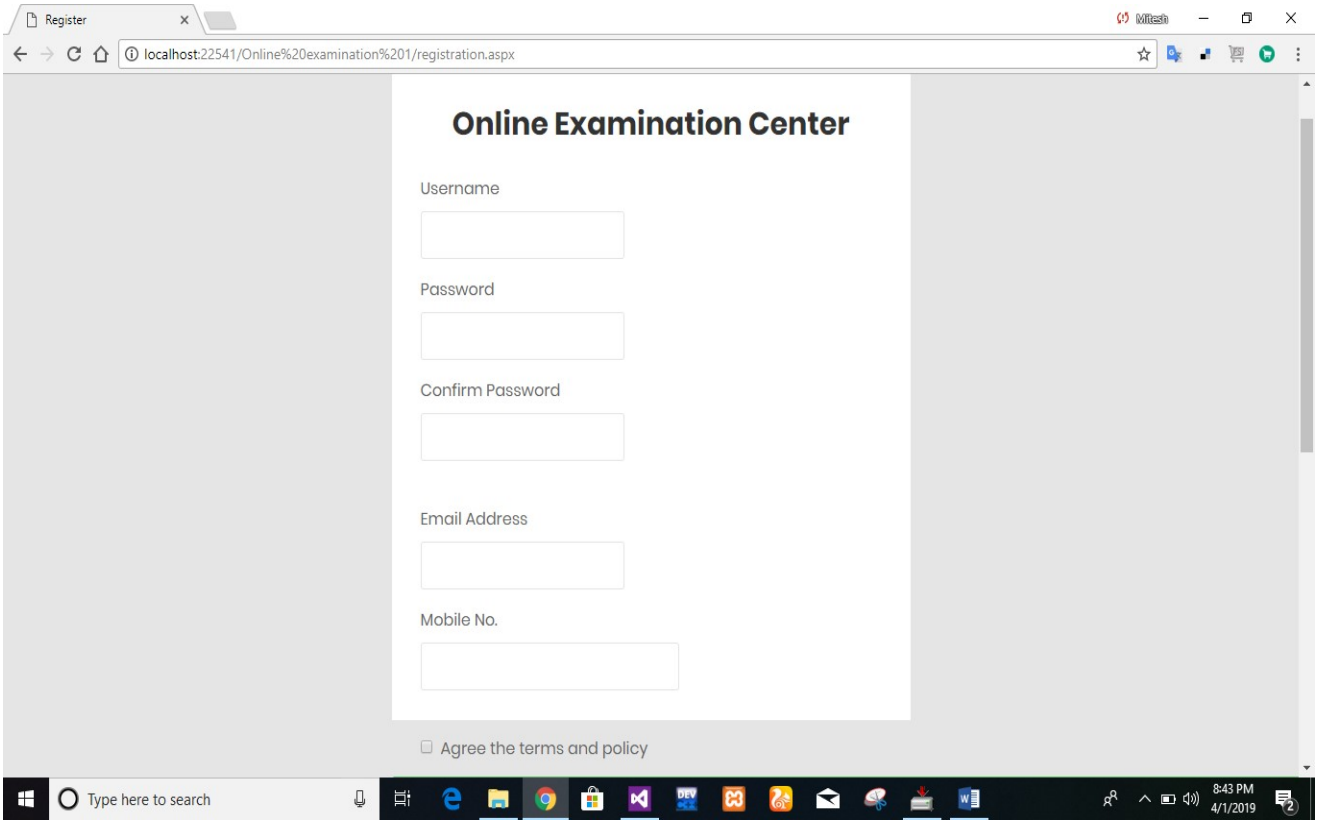
- **Faculties of web site.**

Contact Page:



- **User can uplode his/her Profile.**

Online Examination center:



- **This page give the online examination center.**

Chapter 7

CONCLUSIONS

7.1. Conclusion

This Web Application provides facility to conduct online examination worldwide. It saves time as it allows number of students to give the exam at a time and displays the results as the test gets over, so no need to wait for the result. It is automatically generated by the server.

Administrator has a privilege to create, modify and delete the test papers and its particular questions. User can register, login and give the test with his specific id, and can see the results as well.

The entire project has been developed and deployed as per the requirements stated by the user, it is found to be bug free as per the testing standards that is implemented. Any specification-untraced errors will be concentrated in the coming versions, which are planned to be developed in near future. The system at present does not take care off the money payment methods, as the consolidated constructs need SSL standards and are critically to be initiated in the first face, the application of the credit card transactions is applied as a developmental phase in the coming days. The system needs more elaborative technicality for its inception and evolution.

Online Examination System is a web application. The key concept is to minimize the amount of paper and convert all forms of documentation to digital form. It can observe that the information required can be obtained with ease and accuracy in the computerized system. The user with minimum knowledge about computer can able operate the system easily.

7.1.1. Significance of the System

Module specification is the major part of system design specification. All modules in the system design is complete, and these modules should be specified in the document. To specify a module, the design document must specify,

i The abstract behavior of the module:
Specifying the module's functionality or its input/output.

ii The interface of the module:
All data items, their types, and whether they are for input and/or output.

iii All other modules used by the module being specified:
This information is quiet useful in maintaining and understanding the design.

7.2. Limitations of the System

Although I have put my best effort to make the software flexible, easy to operate but limitations cannot be ruled out even by me. Though the software presents a broad range of options to its users some intricate options could not be covered into it; partly because of logistic and partly due to lack of sophistication. Paucity of time was also major constraint, thus it was not possible to make the software foolproof and dynamic. Lack of time also compelled me to ignore some part such as storing old result of the candidate etc.

Considerable efforts have made the software easy to operate even for the people not related to the field of computers but it is acknowledgment that a layman may find it a bit problematic at the first instance. The user is provided help at each step for his convenience in working with the software.

- **Current system provides only multiple choice but single correct answer selection.**
- **Incase questions and answers need to be in graphics, current system has no provision.**
- **Unregistered users can only access the home page not any thing else.**
- **Student only can him/her result by login.**

7.3. Future Scope of the Project

The project has a very vast scope in future. The project can be implemented on internet in future. Project can be updated in near future as and when requirement for the same arises, as it is very flexible in terms of expansion. With the proposed software of Web Space Manager ready and fully functional the client is now able to manage and hence run the entire work in a much better, accurate and error free manner. The following are the future scope for the project.

The number of levels that the software is handling can be made unlimited in future from the current status of handling up to N Levels as currently laid down by the software. Efficiency can be further enhanced and boosted up to a great extent by normalizing and de-normalizing the database tables used in the alternative set of data structures and advanced calculation algorithms available.

We can in future generalize the application from its current customized status wherein other vendors developing and working on similar applications can utilize this software and make change to it according to their business needs.

- We can add printer in future.
- We can give more advance software for bus reservation system including more facilities.
- We will host the platform on online servers to make it accessible worldwide.
- Integrate multiple load balancers to distribute the loads of the system.
- Create the master and slave database structure to reduce the overload of the database queries.
- Implement the backup mechanism for taking backup of codebase and database on regular basis on different servers.

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- http://stackoverflow.com
- www.c-sharpcorner.com
- www.google.com
- www.youtube.com