Project Report

Online Testing System

Submitted by

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FINAL APPROVAL

This is to certify that we have read this report submitted **Muhammad Waqar (MCEIT-15-133)** and it is our judgment that this report is of sufficient standard to warrant its acceptance by Govt. Emerson College, Multan for the degree of BS (Information Technology).

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DECLARATION

This is to certify that **Muhammad Waqar (MCEIT-15-133)** Session (2015-2019) have worked on and completed their software project "**Online Testing System**" at the Department of Information Technology Govt. Emerson College, Multan, in partial fulfillment of the requirements for the degree of BS (Information Technology).

Date:_____

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Muhammad Waqar

DEDICATION

We dedicated this book to the Almighty God, thank you for the guidance, strength, power of mind, protection and skills and for giving us a healthy life. All of these, we offer to you.

This study is wholeheartedly dedicated to our beloved parents, who have been our source of inspiration and gave us strength when we thought of giving up, who continually provide their moral, spiritual, emotional, and financial support.

And lastly, to our brothers, sisters, relatives, mentor, friends, and classmates who shared their words of advice and encouragement to finish this study.

ACKNOWLEDGMENT

“In the name of Allah, the Most Beneficent and the Most Merciful. “First, we are thankful to **ALLAH ALMIGHTY**, who bless us sound health, abilities and gave courage to perform and complete our work in a successful manner. Without the help of **ALLAH ALMIGHTY** we were not able to do our work completely.

We are also thankful to our Parents who supported, encouraged and prayed for our great success. It all turned easy with their kind blessings and good wishes for us and our future.

We are also thankful to our Teachers who encouraged and guided us during our project. A great thanks to **Rana Saleem** (our supervisor), who gave us the opportunity to work in a kind supervision. We consider ourselves fortunate to have an opportunity to work in the supervision of such a phenomenal teacher and expert in research. We are also thankful to **Jasim Shah** (Lecturer). We are also very thankful to all the other staff who helped us during our project.

PROJECT BRIEF

PROJECT NAME	Online Testing System
ORGANIZATION NAME	Knowledge Academy, M.Garh
UNDERTAKEN BY	Muhammad Waqar
SUPERVISED BY	Rana Saleem
STARTING DATE	15th August 2019
COMPLETION DATE	5th January 2020
COMPUTER USED	Intel(R) Core(TM) i5-3437U CPU 2.40 GHz 4GB RAM & 500GB HARD
OPERATING SYSTEM	Windows 10 Pro x64
SOURCE LANGUAGE(S)	HTML,CSS, JAVASCRIPT,AJAX,JQUERY, ASP.NET,C#
DBMS USED	Microsoft SQL Server
TOOLS/PACKAGES	Visual Studio

ABSTRACT

Online testing System is an on-line test simulator is to take online examination, test in an efficient manner and no time wasting for manually checking of the test paper. The main objective of this web based online testing system is to efficiently evaluate the student thoroughly through a fully automated system that not only saves lot of time but also gives fast and accurate results. For students they give papers according to their convenience from any location by using internet and time and there is no need of using extra thing like paper, pen etc. Online testing system helps students to offer a quick and easy way to appear for the test. It also provides the results immediately after the examination with 100% accuracy and security. Student can enter to perform exam only with their valid username and password. This examination contains multiple choice questions and appropriate number of options. There are no limitations on number of options and it can be randomized so same set of question will not appear to all student so it prevent manipulation. More than one option can be correct but the user can select only one option. This provides time limit. The user can see their results after completing the exam.

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Chapter 1

INTRODUCTION

1.1 Project Introduction:

The software to be produced is on Online Testing System. Here there are 3 users. They are The Admin and the teacher (Testing system instructor) and the student. Student can register his/her details who wish to join the Test system. Their personal information including are collected. The admin provides timings for that person, when he can come to the Testing system. As soon as that particular person arrives, his day of test will be marked by the admin. The admin can also add the questions to Testing system he wishes to add.

Admin has more authority than the teacher/student. He provides unique username and password for the user. Teacher/student also has the right to modify it. Teacher even has the authority to add the questions in the testing system. He can also modify it. Finally when that person wishes to leave the testing system, his/ her present result will be compared to his old result. He can even store the details of the testing history information which are in the testing system.

1.1.1 Main Theme:

The purpose of the project entitles as "Online Testing System" is to end the Traditional online service in which you have to talk to many people then allow task to one of them and after some time they will say that they are not able to do your Job and some of them take money and don't do any kind of work. It is totally time wasting both the client and the customer. Online Testing system is user friendly, simple, fast, and cost-effective. It deals with the collection of Client's information, order details, etc. Traditionally, the payment system was using card or checkout system but we change it to the electronic currency as well as the traditional one support is also available according to the country. The main function of that system is to register and store Client's and Order details and retrieve these details as when required, and also to manipulate these details meaningfully System input contains Clients details, Order details and Complaint details while system output is to get these details on to the screen.

1.1.2 Scope of the Project:

Because of its usability this system will be helpful in field of education system where organization can use this site to as schools and colleges.

1.1.3 Aims and Objectives:

The objective of the project "Online testing System" is to make evaluation and conduction of examination simple, cost effective and faster. They are as follows:

- To provide an interface through which student can appear for examination online for objective type questions.
- Answer will be checked automatically by the system form the database.
- To provide username and password facility and credentials should be checked properly at the time of login for student and Exam Dept. Admin.
- To provide an interface from where Exam Dept. Admin can register new student, set new question paper.
- The authority to modify the student profile, question paper

1.2.1 Organizational Setup and Structure:

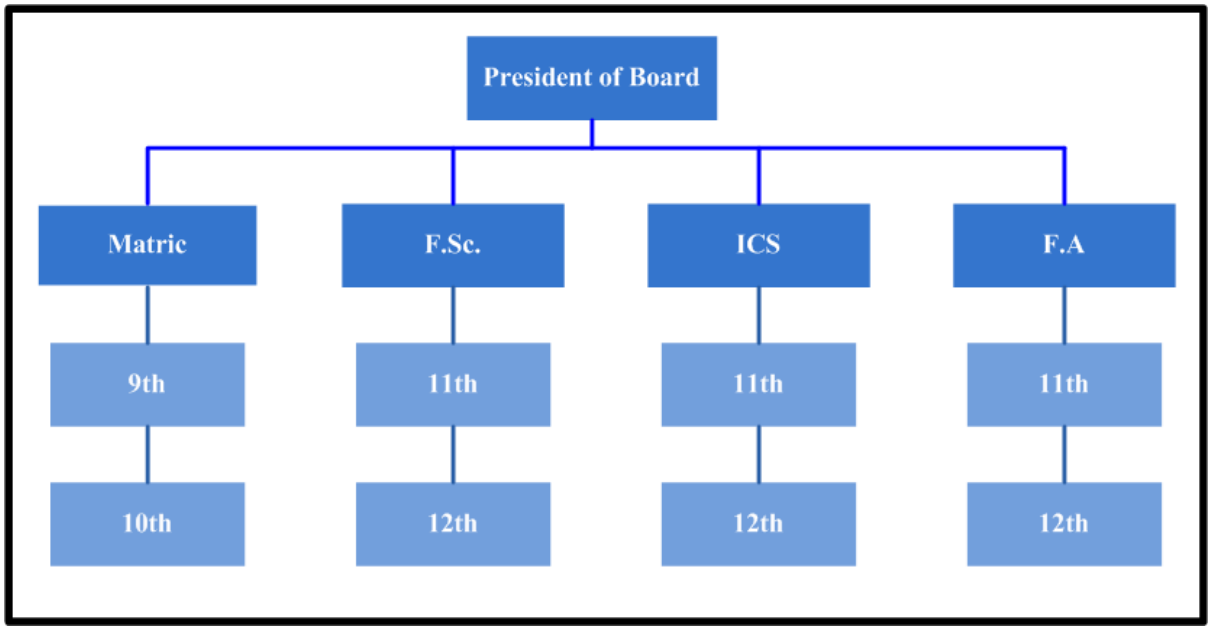


Figure 1.1 Organizational Structure

Board of directors and president control different departments of academy like support, and Administration. Administration service center controls facilities, information and Admission center (which is for student) and other related people within the organization.

1.2.2 Aim & Work Environment

The aim of this project is to develop an online testing system by applying software engineering principles and best practices. The system will be built using popular Asp.Net

web technologies and framework available for web development. The system will be designed to be scalable, secure and robust.

The online testing system will help in speeding up the process of conducting examination. Teachers will be able to create examinations by composing a set of questions. The questions can be multiple choice questions or single (text) answer question. The system will have the ability to automatically process the results of examination based on the question database. The system will have intelligent capabilities to mark the text based answers not only when there is an exact match, but it will also recognize similar answers by finding the synonyms of the words used in the answer. The system will also provide manual override feature where in the teacher can manually mark or update the result for an exam. The system will also have the capability to resume the examination from last save point, i.e., a student can stop the examination in the middle and can start again at any other time. When the student will start the same examination again, the exam will start from the same point where it was stopped.

Chapter 2

SYSTEM ANALYSIS

2.1 Feasibility Study:

A feasibility analysis usually involves a thorough assessment of the operational (need), financial and technical aspects of a proposal. Feasibility study is the test of the system proposal made to identify whether the user needs may be satisfied using the current software and hardware technologies, whether the system will be cost effective from a business point of view and whether it can be developed with the given budgetary constraints. A feasibility study should be relatively cheap and done at the earliest possible time. Depending on the study, the decision is made whether to go ahead with a more detailed analysis. When a new project is proposed, it normally goes through feasibility assessment. Feasibility study is carried out to determine whether the proposed system is possible to develop with available resources and what should be the cost consideration. Facts considered in the feasibility analysis were-

- Technical Feasibility
- Economic Feasibility
- Behavioral Feasibility

2.2 Existing System:

The whole process of assigning test and evaluating their scores after the test, was done manually till date. Processing the test paper i.e. checking and distributing respective scores used to take time when the software was not installed

2.2.1 Data Gathering:

Data collection system (DCS) is a computer application that facilitates the process of data collection, allowing specific, structured information to be gathered in a systematic fashion, subsequently enabling data analysis to be performed on the information. Typically a DCS displays a form that accepts data input from a user and then validates that input prior to committing the data to persistent storage such as a database.

Many computer systems implement data entry forms, but data collection systems tend to be more complex, with possibly many related forms containing detailed user input fields, data validations, and navigation links among the forms.

DCSs can be considered a specialized form of content management system (CMS), particularly when they allow the information being gathered to be published, edited, modified, deleted, and maintained. Some general-purpose CMSs include features of DCSs.

2.2.2 Sampling & Observation:

We collected data through questionnaire, visited all possible actors in that can be helpful in our system and get our required information from them. We have limited questions that were enough to get our required information e.g.

- Sir, will you be the part of Online Testing System?
- Can you use our system on daily basis?
- How many students appear in examination system?

Above questions are example that how we gather sample data or observe how many people are willing to use our system. (Questionnaire attached at the end)

2.3 Existing System Data Analysis:

In the existing system the user must give quiz manually. A disadvantage of manually system is that they can be highly labor-intensive. It is also more difficult to share result throughout the quiz because the lack of computerization makes accessing stock records a more cumbersome process. The manual quiz management consumes a lot of time and hard work. And also they can display only limited areas. And also they can get the little produce information and information may not be true. Many people do not know about the result information of quizzes and their products. It is also difficult for users to keeps manual record. So we need a new system for user convenient.

2.3.1 Requirement Engineering:

It is a process of gathering and defining service provided by the system.
Requirement Engineering has following activities.

- By questionnaire and survey
- By interview
- By observations
- Using software tools
- Using techniques for decision making

- Focus on facilitated groups and workshops
- Use of prototype

2.3.2 Requirement Elicitation:

It is related to the various ways used to gain knowledge about the project domain and Requirements. The Project domain is bound to cloud database which is real time database.

2.3.3 Requirement Specification:

A System Requirements Specification (abbreviated SRS when need to be distinct from a Software Requirements Specification SRS) is a structured collection of information that embodies the requirements of a system. A business analyst, sometimes titled system analyst, is responsible for analyzing the business needs of their clients and stakeholders to help identify business problems and propose solutions. Within the systems development life cycle domain, the BA typically performs a liaison function between the business side of an enterprise and the information technology department or external service providers. Software requirements specification establishes the basis for an agreement between customers and contractors or suppliers (in market-driven projects, these roles may be played by the marketing and development divisions) on what the software product is to do as well as what it is not expected to do. Software requirements specification permits a rigorous assessment of requirements before design can begin and reduces later redesign. It should also provide a realistic basis for estimating product costs, risks, and schedules. The software requirements specification document enlists enough and necessary requirements that are required for the project development. To derive the requirements, we need to have clear and thorough understanding of the products to be developed or being developed. This is achieved and refined with detailed and continuous communications with the project team and customer till the completion of the software.

2.3.4 Requirement Verification & Validation:

2.3.4.1 Verification:

This testing is sometimes called Integration and 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 system testing. Integration testing takes as its

input modules that have been unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates and delivers as its output the integrated system ready for system testing.

2.3.4.2 Validation:

Validation Testing can be defined in many ways, but a simple definition is that validation succeeds when the software functions in a manner that can reasonably expected by a customer. After validation test has been conducted, one of the following two possible conditions exists. The functions or performance characteristics confirm to specification and are accepted.

- In the administrator and marks modules, all the fields must be filled.
- In the student registration, mobile number should contain exactly 10 numbers.

2.3.4.3 Requirement Management.

This project is analyzed, documented, tracked and prioritized by agreeing on the requirements and controlling the communication to the relevant stakeholders. Web-Site can be modifiable at later stages too as per requirement by the end user in the systematic and controlled manners, which is the most important part of this.

2.3.5 Methodology

Methodology is the way to develop an application. Planning methodology consists of few steps which are given below

I. Developing the Solution Design and Architecture

In development of solution design and architecture we began with the process design and architecture and culminate it with a design document that becomes part of the functional specification.

II. Validating the Technology

We also validated technologies to ensure that they meet the business needs for the specific solution in a better way.

III. Creating the Functional Specification

We specified functional specifications that describe the solution requirements, the architecture and the detailed design for all the features in the assistance of our supervisor.

IV. Developing the Project Plans

Both of our team members develop a collection of plans to define the tasks to do during the development of the project, and considered it as a master plan.

V. Creating the Project Schedules

We and our supervisor created milestone driven schedules for each individual team role and considered it as a master project schedule.

VI. Close the Planning Phase

We completed the planning phase with the approval of our supervisor.

2.3.6 Available Methodology

2.3.6.1 Agile Methodology

Agile model believes that every project needs to be handled differently and the existing method needs to be tailored to best suits the project requirements. In Agile, the tasks are divided to time boxes (small time frames) to deliver specific features if the project.
Iterative approach is taken and working software solution is provided after each iteration. Each build is incremented in terms of failure; the final build holds all the features required for the software project.

2.3.6.2 Reason for Methodology

a. Accelerate product delivery
b. Enhance ability to manage changing priorities
c. Increase productivity
d. Enhance software quality
e. Improve project visibility
f. Transparency
g. Improves Quality
h. Promotes sustainable development

2.3.7 The General Principles of Agile Methodology

- Constant attention to technical excellence and good design will enhance agility
- Working software is the primary measurement of progress

- Agile processes will promote development that is sustainable. Sponsors, developers, and users should be able to maintain an indefinite, constant pace
- Simplicity is considered to be the art of maximizing the work that is not done, and it is essential
- Self-organized teams usually create the best designs
- At regular intervals, the team will reflect on how to become more effective, and they will tune and adjust their behavior accordingly
- Satisfy the client and continually develop software
- Changing requirements are embraced for the client's competitive advantage
- Concentrate on delivering working software frequently. Delivery preference will be placed on the shortest possible time span
- Developers and business people must work together throughout the entire project
- Projects must be based on people who are motivated. Give them the proper environment and the support that they need. They should be trusted to get their jobs done
- Face-to-face communication is the best way to transfer information to and from a team

2.3.8 Benefits of Using Agile Methodology

The Agile Method ensures that value is optimized throughout the development process. The use of iterative planning and feedback results in teams that can continuously align a delivered product that reflects the desired needs of a client. It easily adapts to changing requirements throughout the process by measuring and evaluating the status of a project. The measuring and evaluating allows accurate and early visibility into the progress of each project.
This method offers a light framework for assisting teams. It helps them function and maintain focus on rapid delivery. This focus assists capable organizations in reducing the overall risks associated with software development.

The Agile Method grew out of the experience with the real-life projects of leading software professionals from the past. Because of this, the challenges and limitations of traditional development have been discarded. Subsequently, the Agile Method has been accepted by the industry as a better solution to project development. Nearly every software developer has used the Agile Method in some form.

It could be stated that the Agile Method helps companies build the right product. Instead of trying to market software before it is written, the Agile Method empowers teams to optimize the release during its development. This allows the product to be as competitive as possible within the marketplace. It preserves the relevance of the critical market, and it ensures that a team's work doesn't wind up collecting dust on a shelf. This is why the Agile Method is an attractive developmental option for stakeholders and developers alike.
There are many critics of the Agile Method. However, this method produces results that clients can take to the bank. Although a project may not turn out exactly as the client envisions, it will be delivered within the time that it needs to be produced. Throughout the process, the client and the team are changing the requirements in order to produce the quality needed by the client. Clients are happy with the results, and the team satisfies the client's needs. The ongoing change can sometimes give both the client and the team more than they had originally envisioned for the product. The Agile Method really is a winning solution for everyone involved in software development.

Chapter 3

SYSTEM DESIGN

3.1 Introduction to System Design:

System is design on web. For a design system process, we start by researching and talk with the design and development team along with a key stakeholder from other areas of the organization to gather as much research and information about what is needed. This can generally include surveys or questionnaires that get sent out to individuals in the organization.

3.1.1 Function & Non-Functional Requirements:

3.1.1.1 Functional Requirements:

- We have used HTML for server side scripting so the current version of HTML must be available on the server.
- SQL Server database has been used for storing the data of the website.
- HTML has been used for creating the layout of the web application.
- CSS has been used for creating the designing of the web pages.

3.1.2 Non-Functional Requirements:

- Performance
- Reliability
- Availability
- Security
- Maintainability
- Portability
- Browser Compatibility

3.2 Proposed System:

The main purpose of Online Testing System is to give a simple and easy platform to the user to apply and to prepare for test at anywhere. Through this site a user get register him and then select a subject test to give a test.

3.2.1 Benefits of Proposed System:

- It is user friendly
- Speedy and effective information retrieval

- Reducing the hard work
- Saves lot of time
- Global access
- Easy to feed records.

3.3 System Design using UML:

A UML diagram is a diagram based on the UML with the purpose of visually representing a system along with its main actors, roles and action document information about the system.

3.3.1 Use case Diagram:

A use case model defines a system's behavior through a set of use cases. Use cases can be being at the specification stage as a means to communicate requirements between the User and Backend. Uses refer to the black box functionality of a program i.e. only what is seen from the outside. The internal structure of objects and of the system is not discussed in use cases. The purpose of use cases at this stage is to build a system model that is understandable both by the users and the developers. User interacts with the system by using use cases. It is essential that the buyer and the builder of the system agree on this black box view in order to know that the right system is being built.

Actors are objects that reside outside the modeled system and interact with the system. Actors may be human beings or other systems. An actor represents a specific role and can have multiple personalities within a use case or across multiple use cases.

- An Initiator
- External server
- Receiver
- A facilitator

1. **An Initiator:**

   Initiator is external entity that sets a certain system behavior in motion. Initiators can request services or generate events. In sequence diagrams where actors are present, initiators start the sequence in motion.

2. **External server:**

   Personalities provide services to others. Servers aid the system in achieving its goals by providing functionality or information extremely. Many external system including

operating systems are server personalities. Server tends to receive messages but probably will not generate them.

3. **Receiver:**

   Personalities receive information from the system. They may provide services but they do so in a passive way. As a result they may not provide value to the system but should provide value to the other actors. An example of a receiver is a data warehouse or external backup system. They receive message from the objects in the system but usually do not generate them.

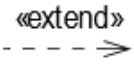
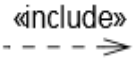
4. **Facilitator:**

   A facilitator is an actor that performs an action on behalf of another actor. An example of facilitator is video clerk who rents the video on behalf of video customer.

3.3.1.1 Benefits of use case:

- Good way to start identifying objects from scenario.
- Test plan can be immediately generated based on use case.
- Easier user validation.
- Helps technical writers in structuring the overall work on the user manuals at any early stages.

3.3.1.2 Kinds of use case relationship:

Relationship	*Function*	*Notation*
association	The communication path between an actor and a use case that it participates in	
extend	The insertion of additional behavior into a base use case that does not know about it	
use case generalization	A relationship between a general use case and a more specific use case that inherits and adds features to it	
include	The insertion of additional behavior into a base use case that explicitly describes the insertion	

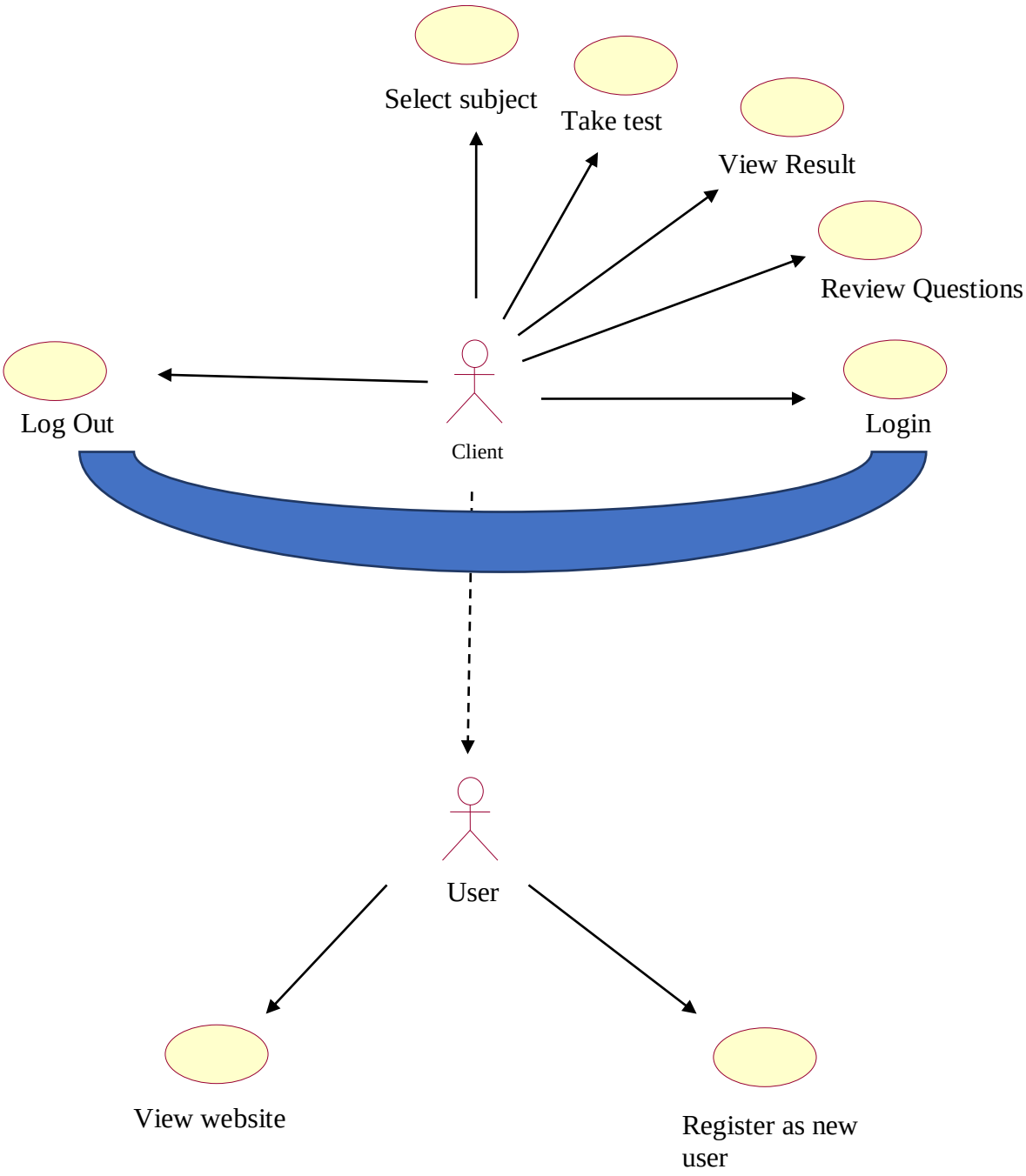


Figure 3.1 Use case Diagram

3.3.1.3 Use case diagram for Admin:

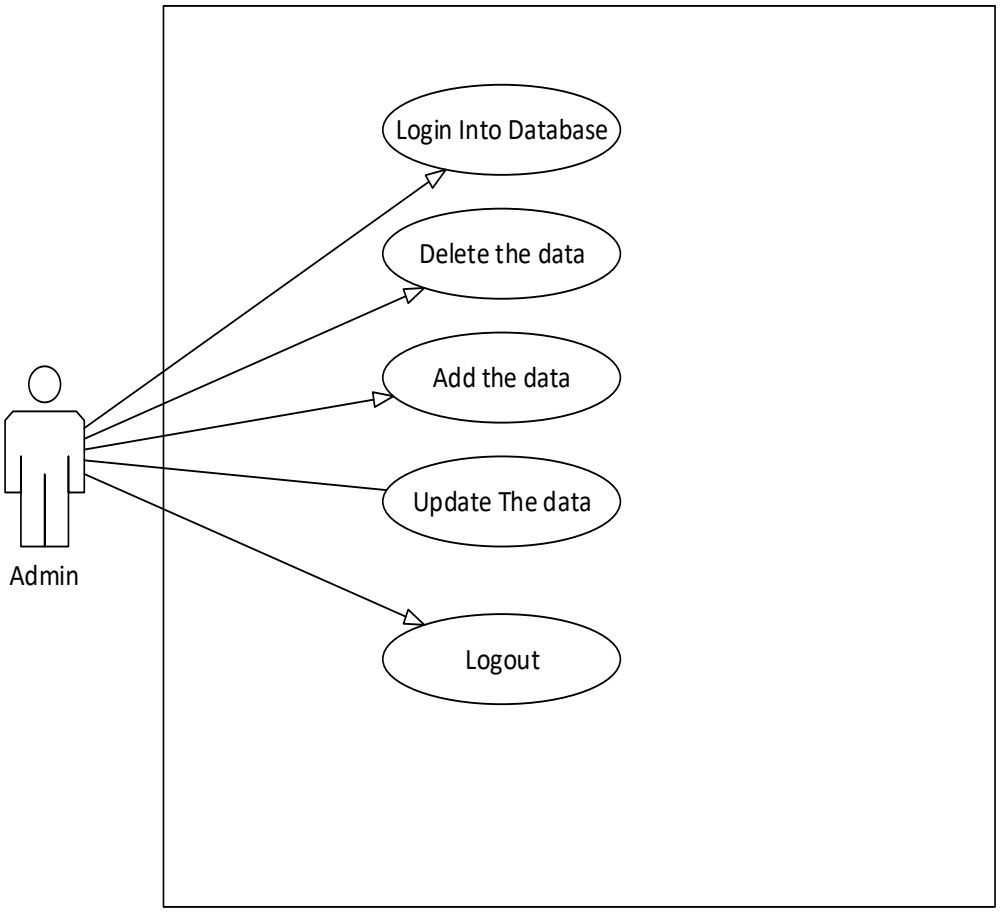


Figure 3.2 Use case Diagram for Admin

3.3.1.4 Data Flow Diagram:

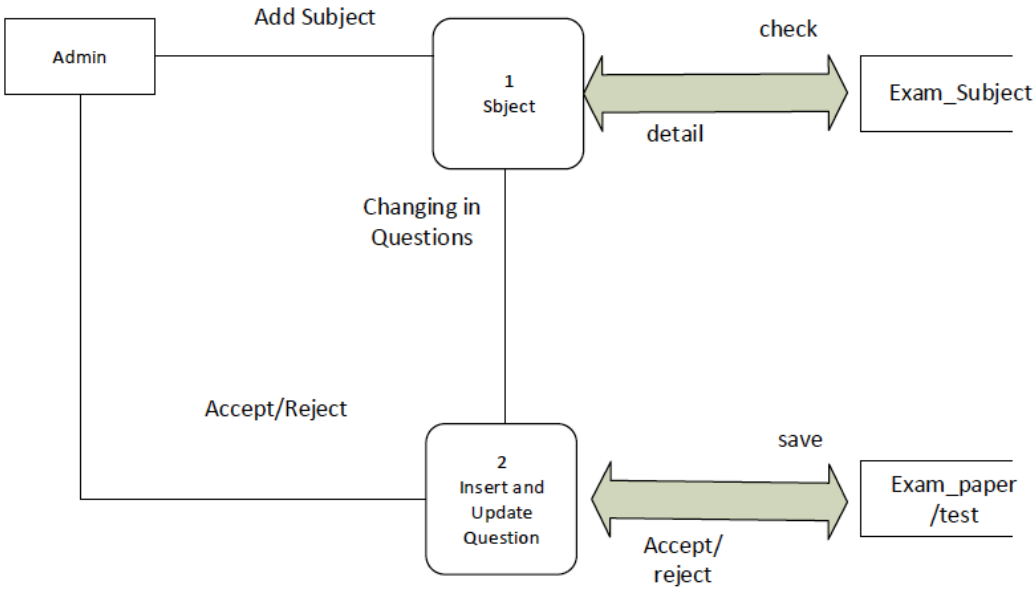


Figure 1DFD 1

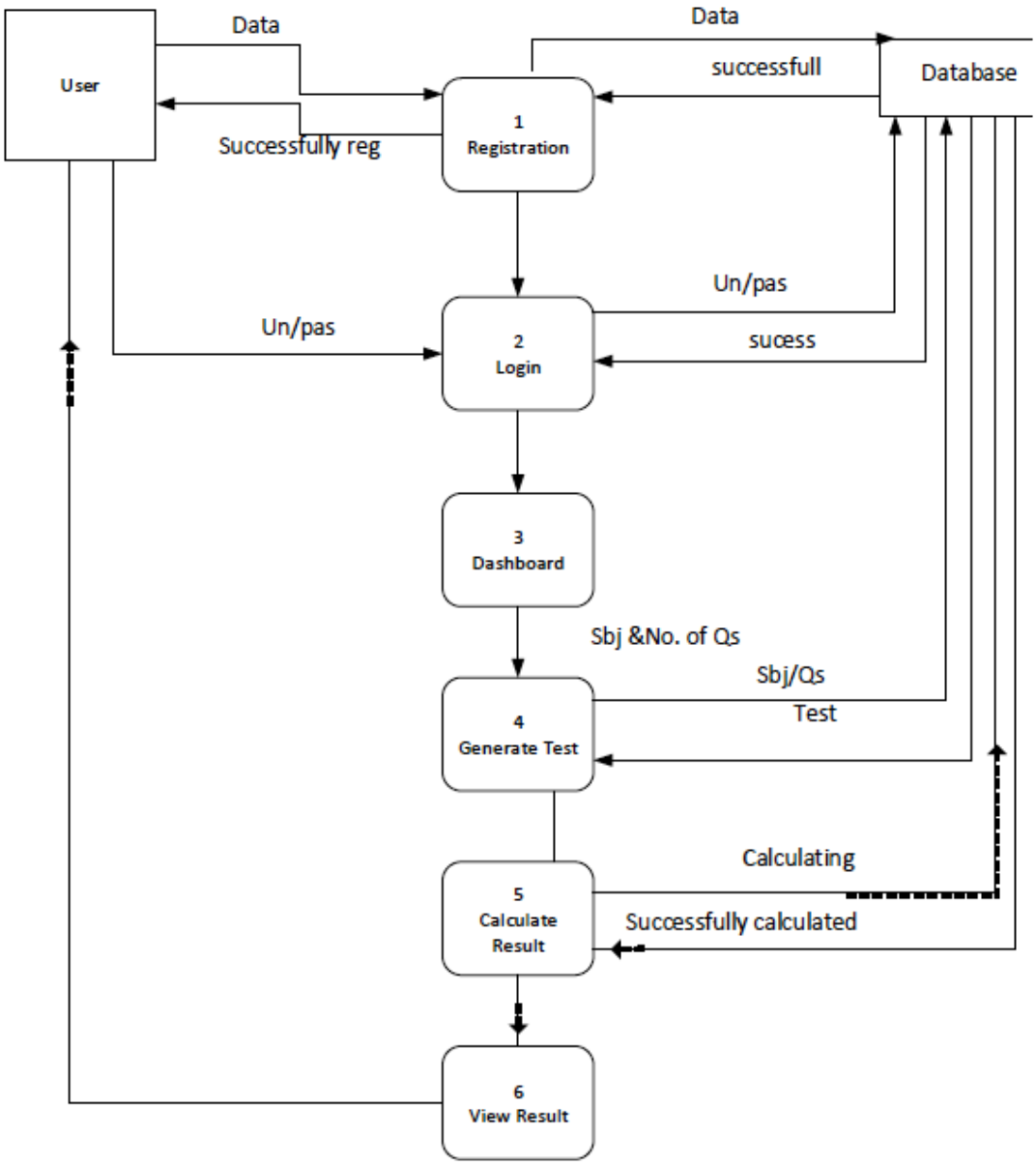


Figure 2 DFD 2

3.3.2 Sequence Diagram:

Sequence diagram shows object interactions arranged time sequence. Sequence diagram of our system is given below:

3.3.2.1 Sequence diagram of Admin and Student:

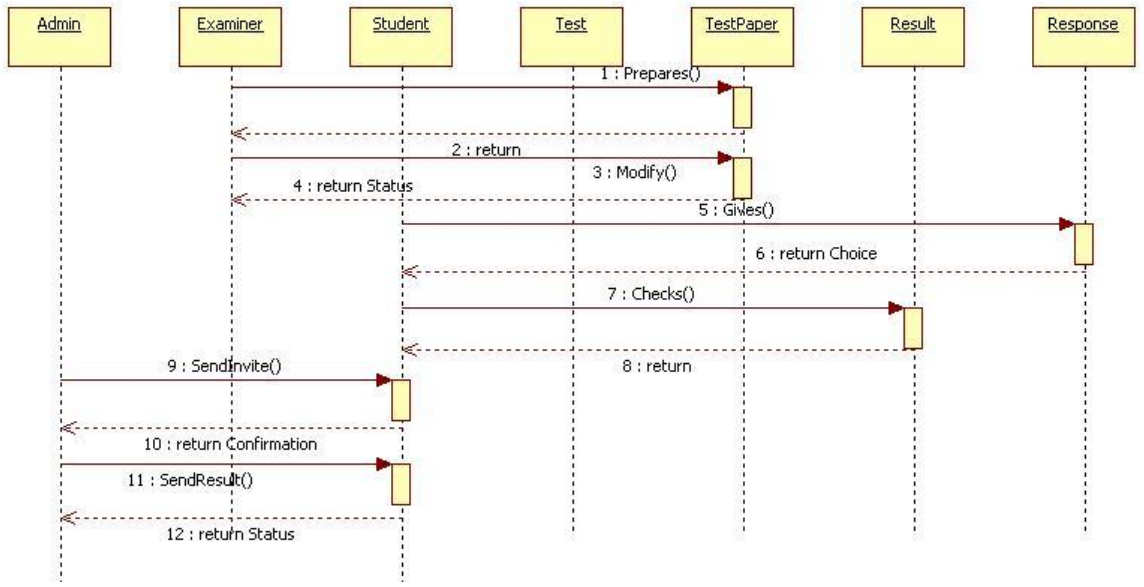


Figure 3 Sequence Diagram for Admin and Students

3.3.4 logical view of database:

3.3.4.1 Admin

Table comments: Admin

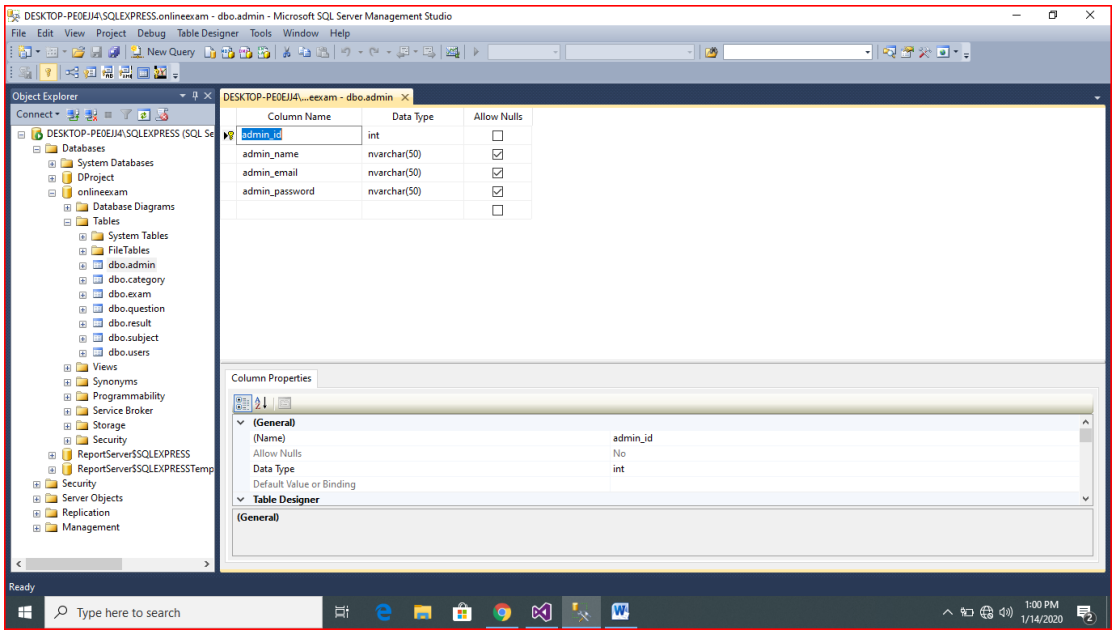


Table 1 Admin

3.3.4.2 Category

Table comments: category

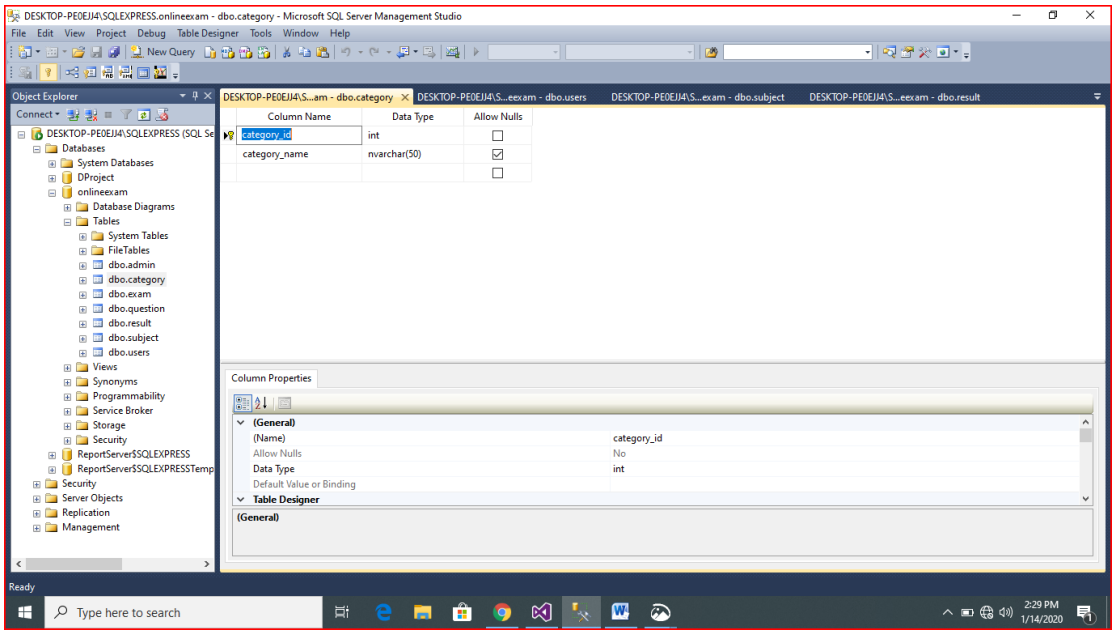


Table 2 Category

3.3.4.3 Exam

Table comments: Exam

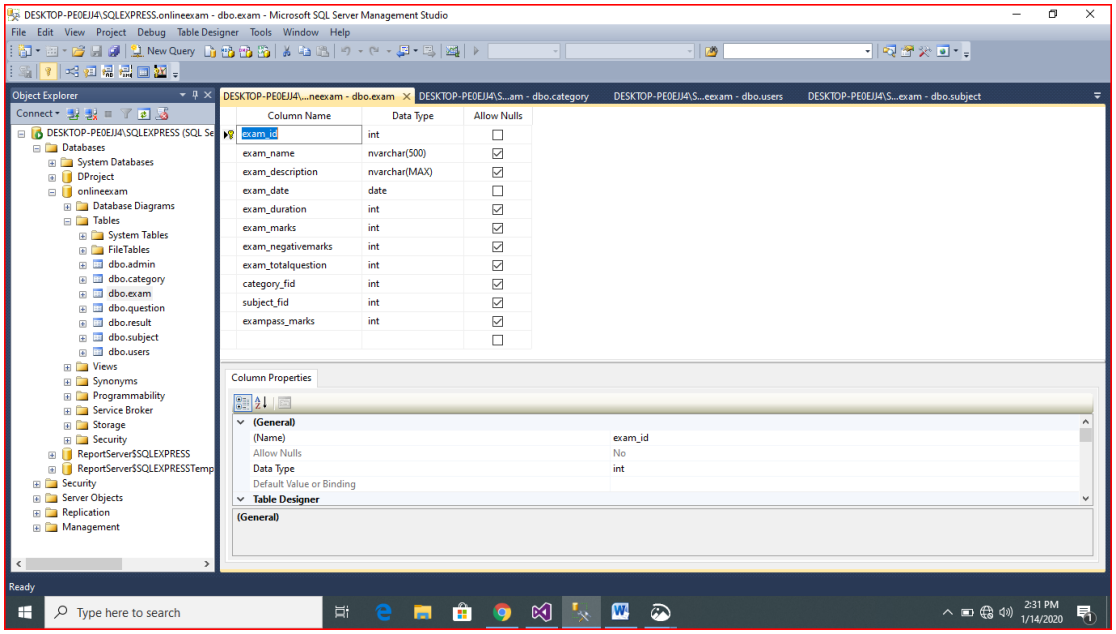


Table 3 Exam

3.3.4.4 Question

Table comments: Question

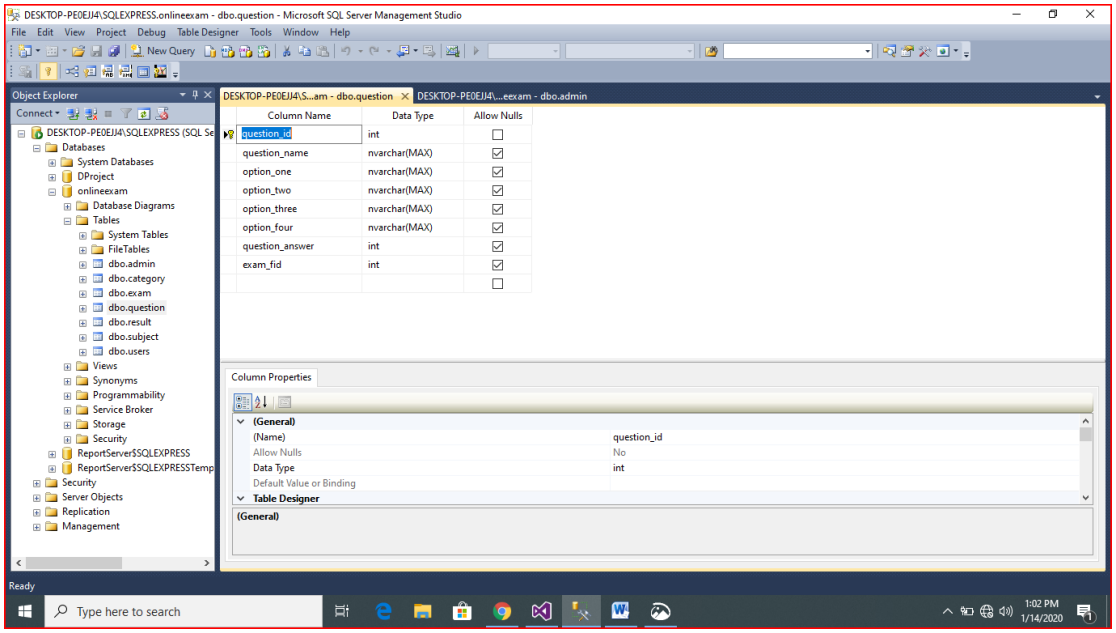


Table 4 Question

3.3.4.5 Result

Table comments: result

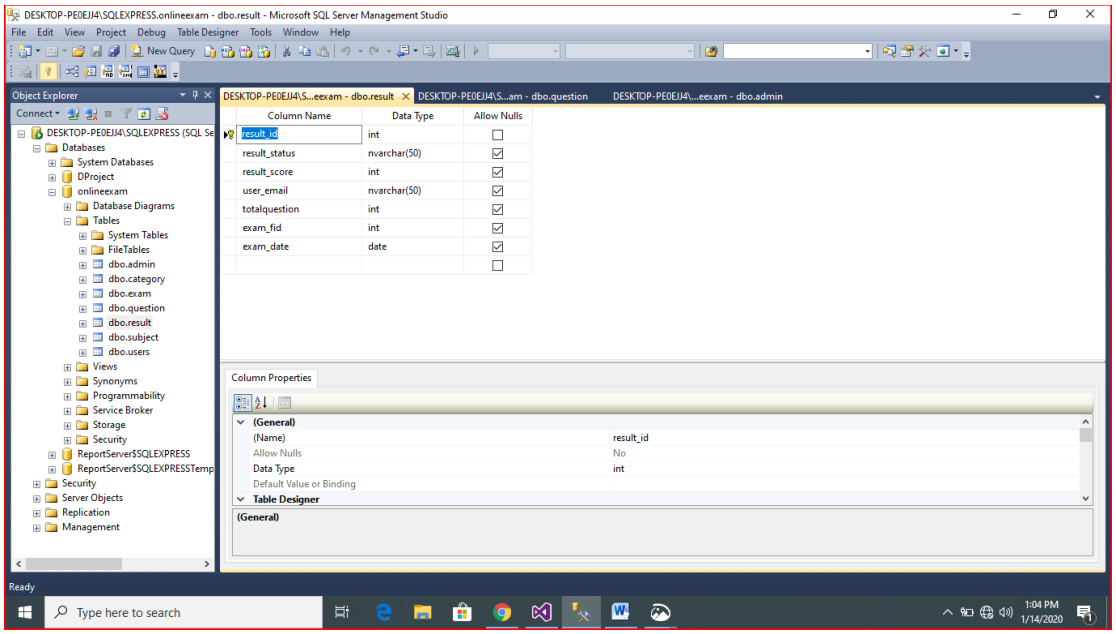


Table 5 Result

3.3.4.6 Subject

Table comments: subject

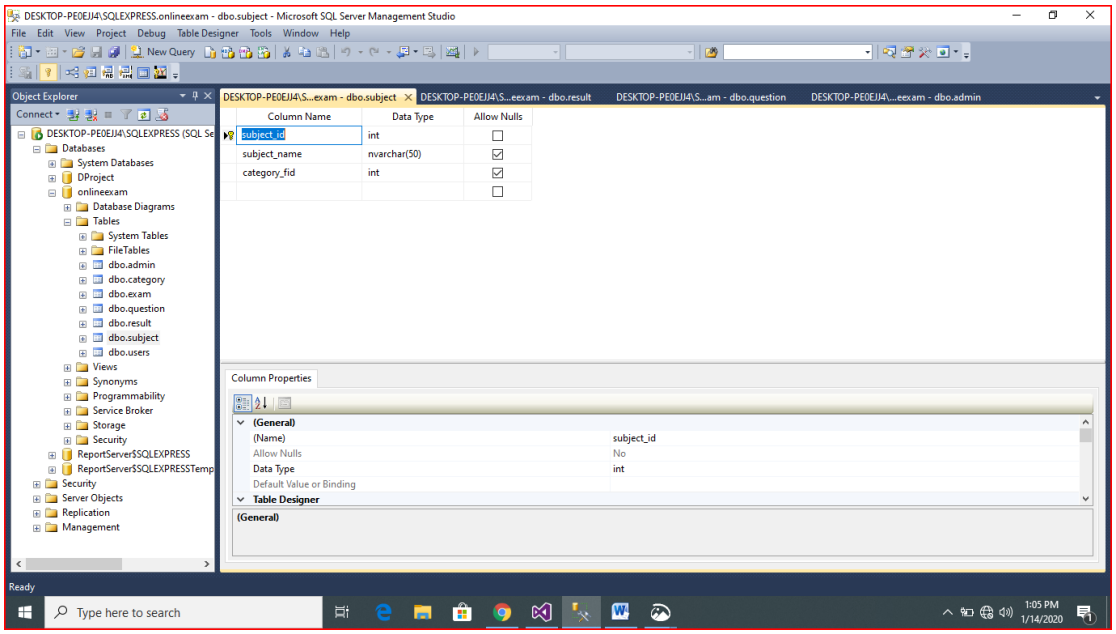


Table 6 Subject

3.3.4.7 User

Table comments: user

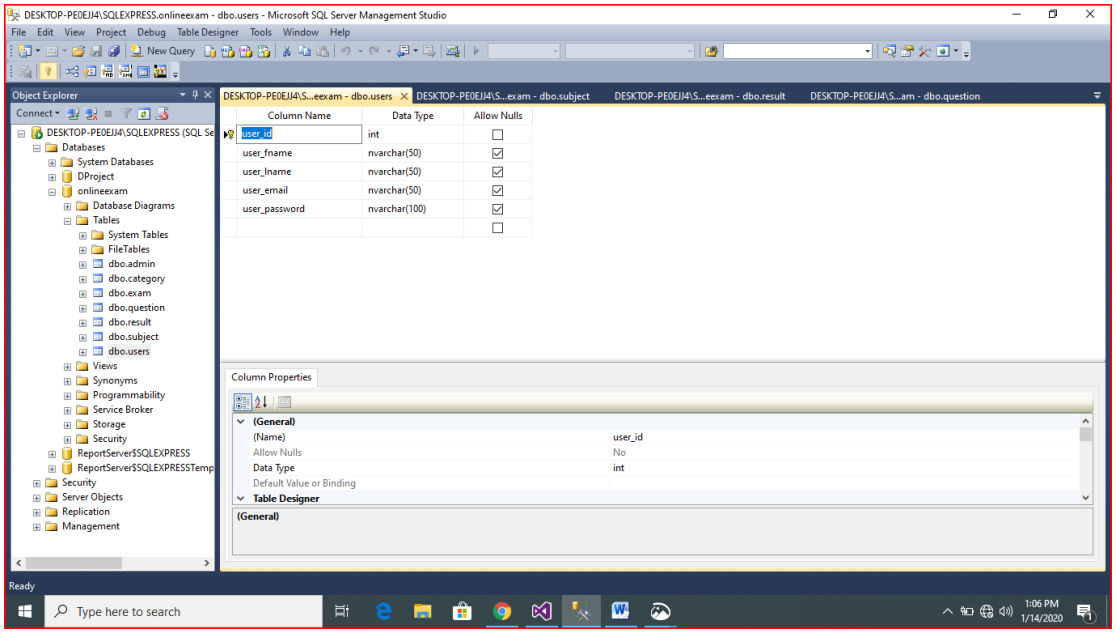


Table 7 User

Chapter 4

SYSTEM DEVELOPMENT

4.1 Introduction to System Development:

As system is s web-based we have used different platforms we can use to develop this system. So it is based on different developmental tools and languages like tools contains contain HTML CSS for frontend and ASP.NET for Backend Database Connectivity. Values are fetched through databases and perform queries. Online Testing System aims to produce high quality systems that meet or exceed customer expectations, based on customer requirements, by delivering systems which move through each clearly defined phase, within scheduled time-frames and cost estimates. In the preliminary analysis, Online Testing System needs to find out the organization's objectives and the nature and scope of the problem under study. Even if a problem refers only to a small segment of the organization itself, then we need to find out what the objectives of the client are.

4.2 Tool/Language Selection:

Name of Component	Specification
Operating System	Windows 10
Language	HTML5, CSS3, AJAX, JQUERY, ASP.NET, JavaScript, C#
Database	SQL
Database Tool	Microsoft SQL Server
Coding Tool	Visual Studio
Browser enable	Opera, Chrome, Mozilla etc.
Scripting language	ASP.NET

Table 4.2 Tools and Language Selection

4.3 Hardware of the System:

We are developing web based system which is required minimum hardware requirements. It can run on almost every computer system which has browser. List of requirements are given below:

1. Operating System (Windows 10, 8.1, 7)
2. 2.5 GHz Processor and Above
3. RAM 2GB and Above
4. HDD 80 GB Hard Disk Space and Above
5. Generation will be counted if speedy work is required

4.4 Software Development & Implementation:

4.4.1 Client Side Technology:

Client side technology is rich and interactive portal web applications use a variety of technologies such as Ajax, JavaScript. These technologies and patterns allow developers to create responsive and highly interactive web applications. HTML & CSS are relatively stable, JavaScript, by means of the application frameworks and utilities developers work with to build web-based applications evolving at breakneck speed.

4.4.1.1 HTML:

Hypertext Markup Language is the standard markup language for creating web pages and web applications. Web Browser receives HTML Documents from a web server or from local storage and renders the documents into multimedia web pages. HTML Describes the structure of the web page semantically and originally. HTML is a markup language that web browsers use to interpret and compose text, images, and other material into visual and audible web pages. Default characteristic of the web pages are defined in the browser, and these characteristics can be altered or enhanced by the web page designer's additional use of CSS. CSS Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language like HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by

specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

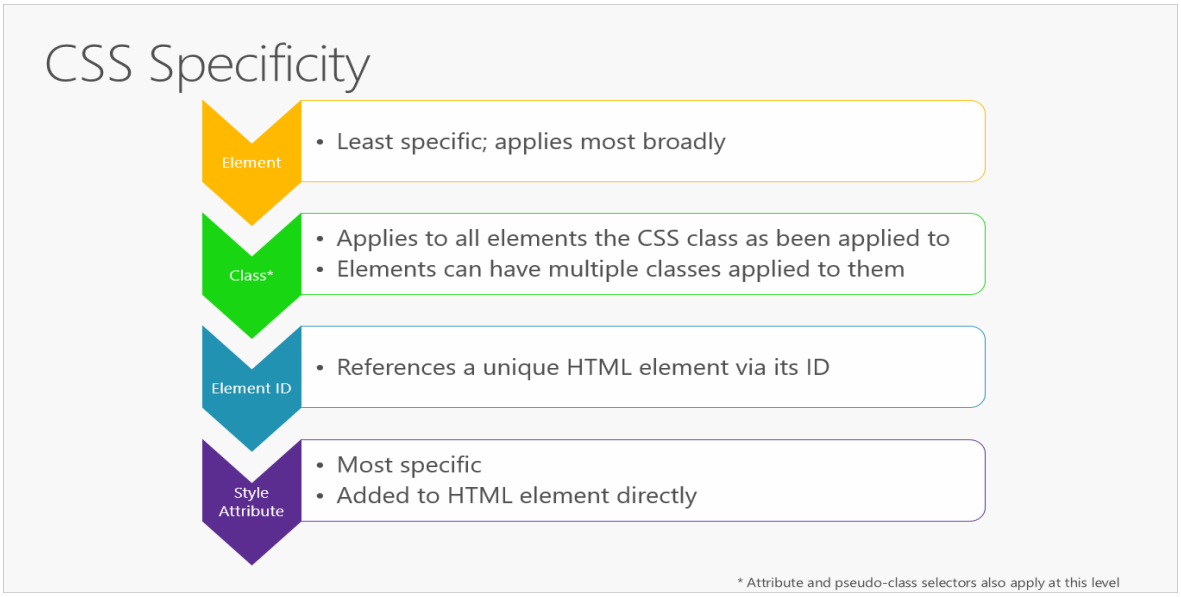


Figure 4.1 CSS Specificity

4.4.1.2 jQuery:

Although ancient by JavaScript framework standards, jQuery continues to be a very commonly used library for working with HTML/CSS and building applications that make AJAX calls to web APIs [8]. However, jQuery operates at the level of the browser document object model (DOM), and by default offers only an imperative, rather than declarative, model.

For example, imagine that if a textbox's value exceeds 10, an element on the page should be made visible. In jQuery, this would typically be implemented by writing an event handler with code that would inspect the textbox's value and set the visibility of the target element based on that value. This is an imperative, code-based approach. Another framework might instead use data binding to bind the visibility of the element to the value of the textbox declaratively. This would not require writing any code, but instead only requires decorating the elements involved with data binding attributes. As client side behaviors grow more complex, data binding approaches frequently result in simpler solutions with less code and conditional complexity.[8]

4.4.2 Server-Side Technology:

Asp.Net

ASP.NET is a web development platform, which provides a programming model, a comprehensive software infrastructure and various services required to build up robust web applications for PC, as well as mobile devices. ASP.NET works on top of the HTTP protocol, and uses the HTTP commands and policies to set a browser-to-server bilateral communication and cooperation. ASP.NET is a part of Microsoft .Net platform. ASP.NET applications are compiled codes, written using the extensible and reusable components or objects present in .Net framework. These codes can use the entire hierarchy of classes in .Net framework.

The ASP.NET application codes can be written in any of the following languages:

- C#
- Visual Basic.Net
- Jscript
- J#

ASP.NET is used to produce interactive, data-driven web applications over the internet. It consists of a large number of controls such as text boxes, buttons, and labels for assembling, configuring, and manipulating code to create HTML pages.

4.5 Code of important Modules:

Login page code:

ASP Code:

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


<! DOCTYPE html>

<html lang="en">


<head>

   <meta charset="utf-8">

   <meta http-equiv="X-UA-Compatible" content="IE=edge">
```

```
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <meta name="description" content="">
    <meta name="author" content="">
    <title>Login - Online exam sytem</title>
    <!-- Bootstrap core CSS-->
    <link href="assets/css/bootstrap.min.css" rel="stylesheet">
    <!-- Custom fonts for login-->
    <link href="assets/css/custom.css" rel="stylesheet">
</head>

<body class="bg-dark">
    <div class="container">
        <div class="card card-login mx-auto mt-5">
            <div class="card-header">Login</div>
            <div class="card-body">
                <form runat="server" id="formlogin">
                    <asp:Panel ID="pnl_warning" runat="server" Visible="false">
                    <div class="form-group card-header text-center">
                        <div class="alert-danger">
                        <asp:Label ID="lbl_warning" runat="server" Text="Label" CssClass="col-
form-label text-center"></asp:Label>
                        </div>
                    </div>
                    </asp:Panel>
                    <div class="form-group">
                        <label for="exampleInputEmail1">Email address</label>
                        <asp:TextBox ID="txt_email" runat="server" CssClass="form-control"
placeholder="Enter email" TextMode="Email"></asp:TextBox>
                        <asp:RequiredFieldValidator ID="rqr_emil" runat="server"
ErrorMessage="Enter email" ControlToValidate="txt_email" Display="Dynamic"
ForeColor="Red"></asp:RequiredFieldValidator>
```

```
                <asp:RegularExpressionValidator ID="rqrexpre_email" runat="server"
ErrorMessage="Enter validate email" ValidationExpression="\w+([-+.']\w+)*@\w+([-
.]\w+)*\.\w+([-.]\w+)*" ControlToValidate="txt_email" Display="Dynamic"
ForeColor="Red"></asp:RegularExpressionValidator>

            </div>

            <div class="form-group">

                <div class="form-row">

                    <div class="col-md-6">

                        <label for="exampleInputPassword1">Password</label>

                        <asp:TextBox ID="txt_pass" runat="server" CssClass="form-control"
placeholder="Enter password" TextMode="Password"></asp:TextBox>

                        <asp:RequiredFieldValidator ID="rqr_pass" runat="server"
ErrorMessage="Enter password" ControlToValidate="txt_pass" Display="Dynamic"
ForeColor="Red"></asp:RequiredFieldValidator>

                    </div>

                    <div class="col-md-6">

                        <label for="exampleConfirmPassword">Confirm password</label>

                        <asp:TextBox ID="txt_repass" runat="server" CssClass="form-control"
placeholder="Re-type password" TextMode="Password"></asp:TextBox>

                        <asp:CompareValidator ID="rqrcopm_pass" runat="server"
ErrorMessage="Password do not match" ControlToValidate="txt_repass"
Display="Dynamic" ForeColor="Red"
ControlToCompare="txt_pass"></asp:CompareValidator>

                    </div>

                </div>

            </div>

            <div class="form-group">

                <div class="form-check">

                    <label class="form-check-label">

                        <asp:CheckBox ID="chk_remember" runat="server" CssClass="form-
check-input remembermecustom" />

                        Remember Password</label>

                </div>

            </div>
```

```
                <asp:Button ID="btn_login" runat="server" Text="Log In" CssClass="btn btn-primary btn-block" OnClick="btn_login_Click" />
                <div class="text-center">
                    <a class="d-block small mt-3" href="register.aspx">Register an Account</a>
                    <a class="d-block small" href="forgot-password.aspx">Forgot Password?</a>
                </div>
            </form>

        </div>
    </div>
  </div>
</body>

</html>
```

C# Code:

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

public partial class login : System.Web.UI.Page
{
   protected void Page_Load(object sender, EventArgs e)
   {
```

```
}
string s = ConfigurationManager.ConnectionStrings["dbcs"].ConnectionString;
//for login
protected void btn_login_Click(object sender, EventArgs e)
{
   if (Page.IsValid)
   {

      using (SqlConnection con = new SqlConnection(s))
      {
         SqlCommand cmd = new SqlCommand("spUserslogin", con);
         cmd.Comm  andType = CommandType.StoredProcedure;
         cmd.Parameters.AddWithValue("@user_email", txt_email.Text);
         cmd.Parameters.AddWithValue("@password", txt_pass.Text);
         try
         {
            con.Open();
            int value = (int)cmd.ExecuteScalar();
            if (value == 1)
            {
               if (chk_remember.Checked)
               {
                  HttpCookie user = new HttpCookie("user_cookies"); //creating cookie object where user_cookies is cookie name
                  user["Useremail"] = txt_email.Text; // cookie content
                  user.Expires = DateTime.Now.AddYears(3); // give the time/duration of cookie
                  Response.Cookies.Add(user); // it gives the response in browser
               }
               else
               {
```

```
                    Session["Useremail"] = txt_email.Text;
                }
                Response.Redirect("index.aspx");
            }
            else
            {
                pnl_warning.Visible = true;
                lbl_warning.Text = "Use correct email and password</br>";
            }

        }
        catch (Exception ex)
        {
            pnl_warning.Visible = true;
            lbl_warning.Text = "Something went wrong! Contact your devloper </br>" +
ex.Message;
        }
      }
    }
    else
    {
      pnl_warning.Visible = true;
      lbl_warning.Text = "Please fill all the requirements";
    }

  }


}
```

Chapter 5

USER GUIDE

5.1 User Guide with input Forms

5.1.1For All Student

- When user will be login or register our website then he see first page of site will be l
- There are some options in Manu bar like category, my result, about, login etc.
- User can pick one of following and move to the next page

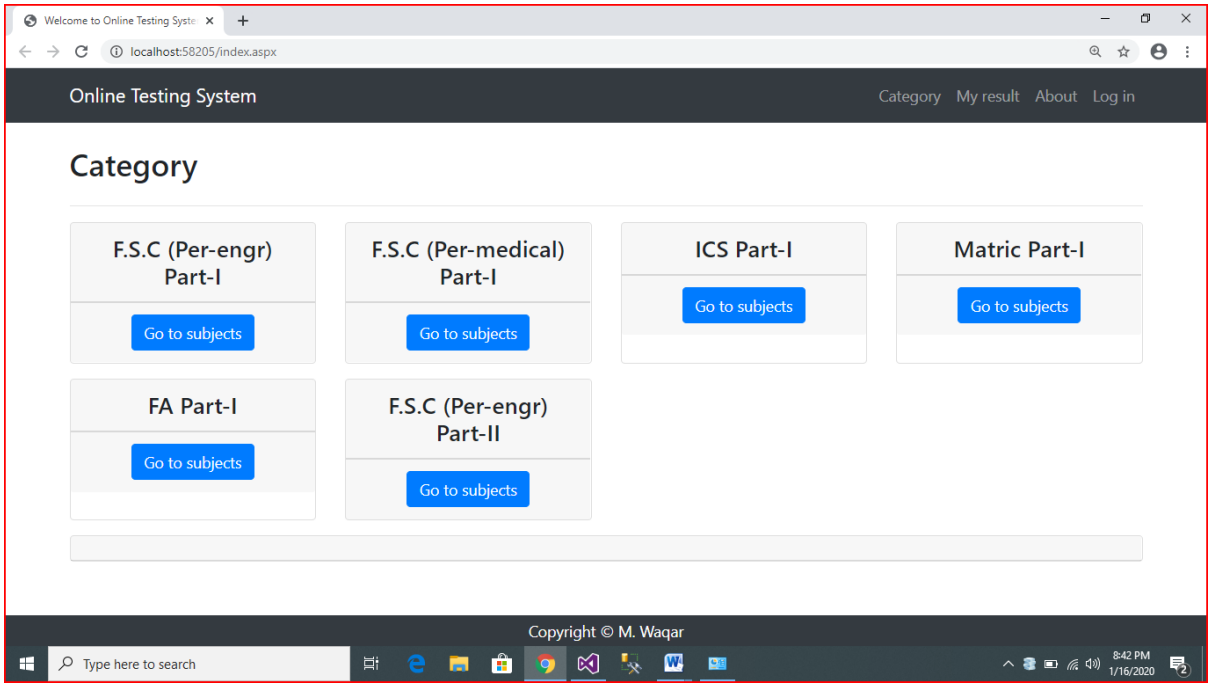


Figure 5.1 Homepage

5.1.2 For Registration

At first, the user registers himself in the Online Testing System. In this, the user enters his name, email and password that require to be register him in Online Testing System.

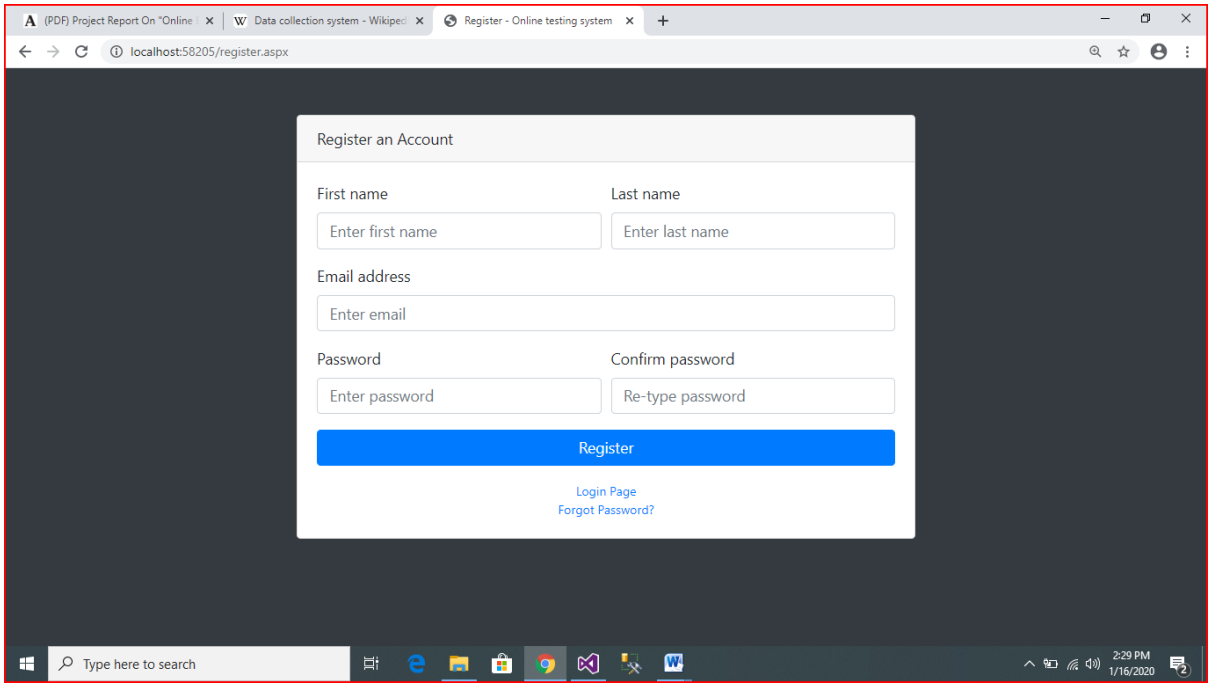


Figure 5.2 Registration

5.1.3 For login

Here! The registered user can access backend with the help of email and password. After this a full functional system will be appeared on his screen.

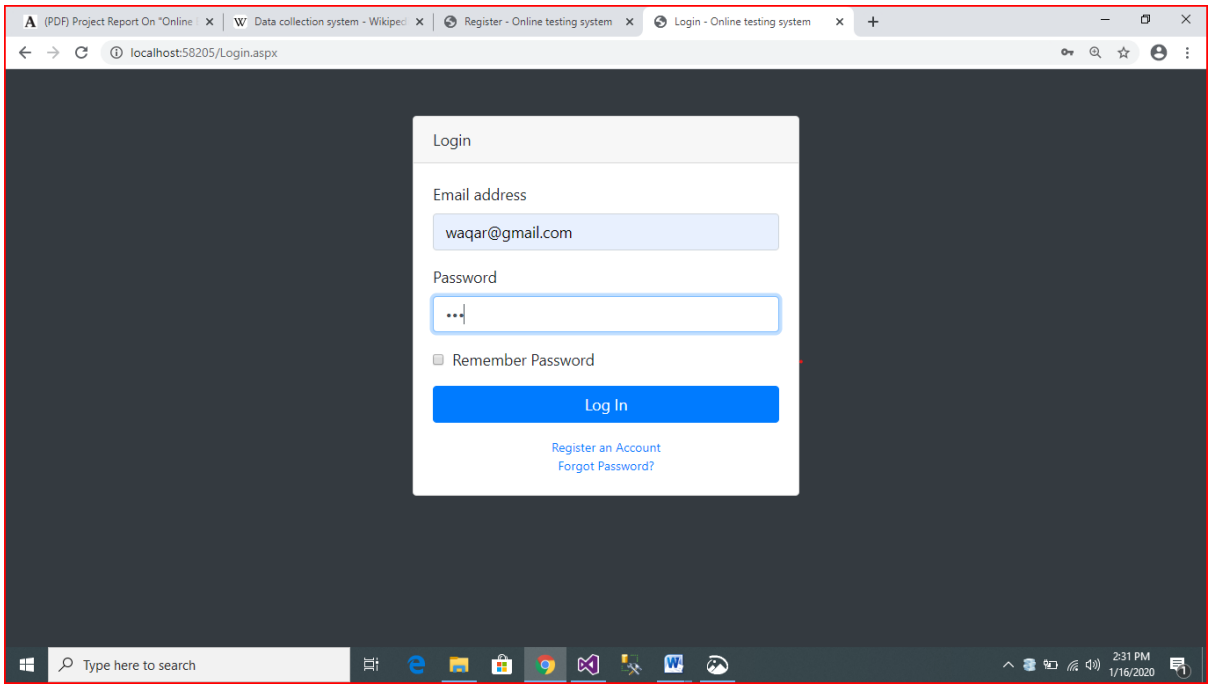


Figure 5.3 student login

5.1.4Category:

In the figure 5.4, the user can see a varieties of discipline that he can be used to check his knowledge.

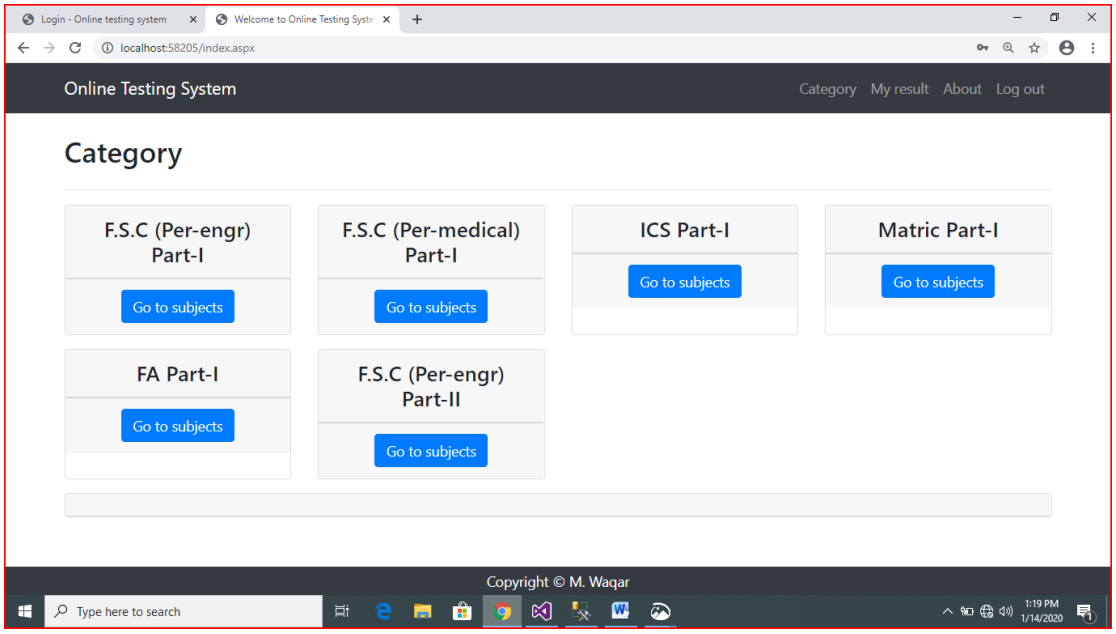


Figure 5.4 category

5.1.5 Subject-wise Category:

In the figure 5.5, the user can see a varieties of subjects related to particular discipline that he can be used to check his knowledge.

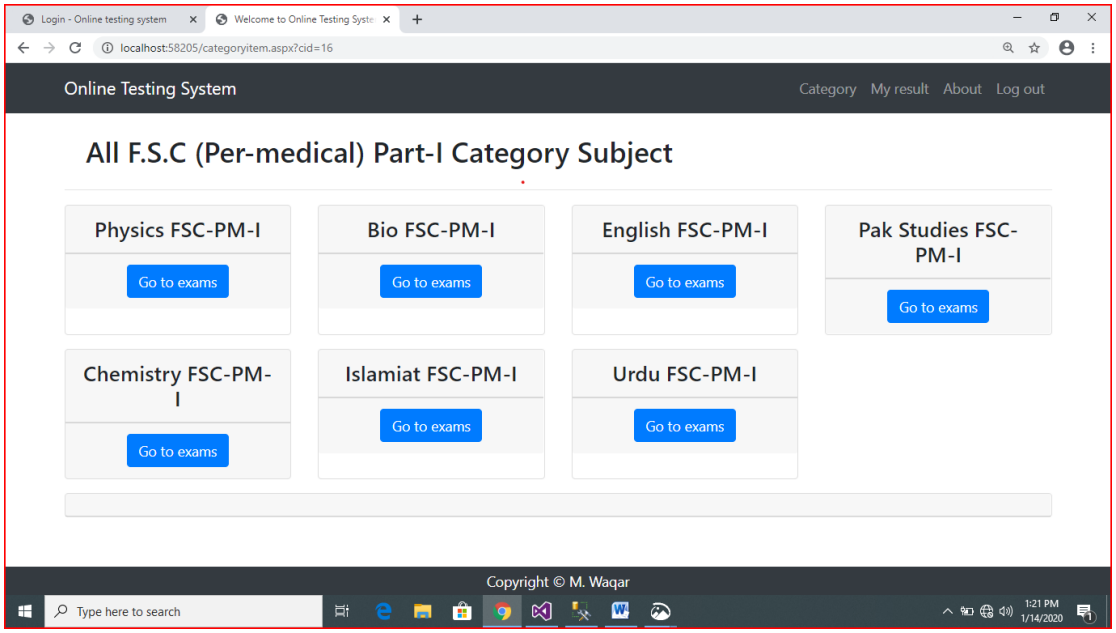


Figure 5.5 subject wise category

5.1.6.Chapter-wise Category:

In the figure 5.6, the user can see a varieties of chapter related to particular discipline that he can be used to check his knowledge

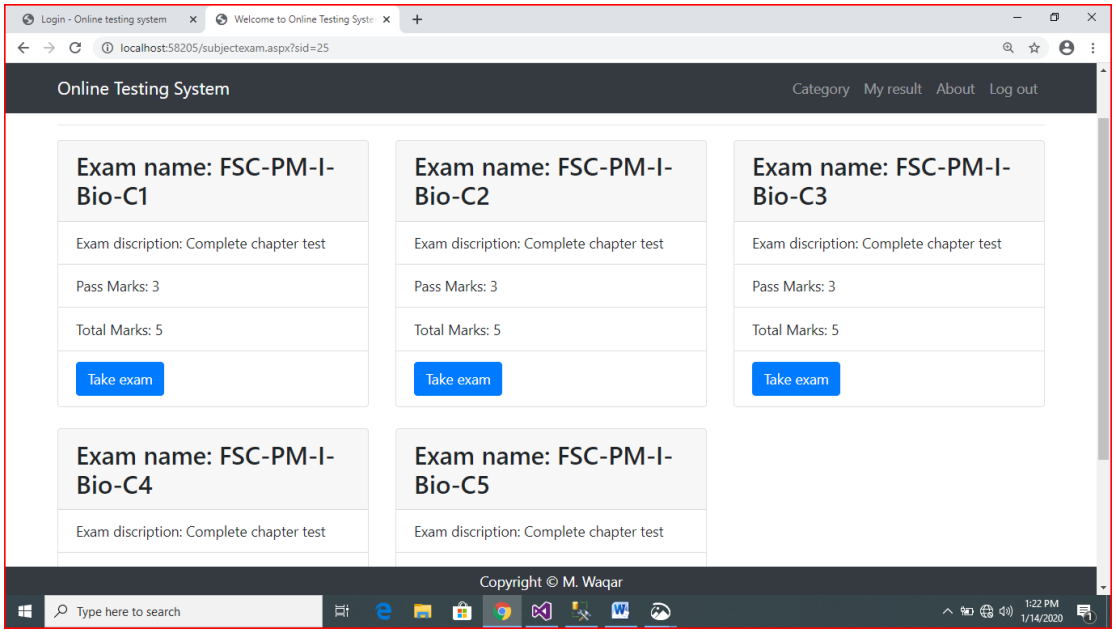


Figure 5.6 chapter wise category

5.1.7. MCQ:

In the figure 5.7, here a user can see mcq based questions each with have four options. In this each question has one correct answer and the user have to select it to appear as a passing candidate in the Online Testing System. Time allocated for each mcq in quiz is one minute.

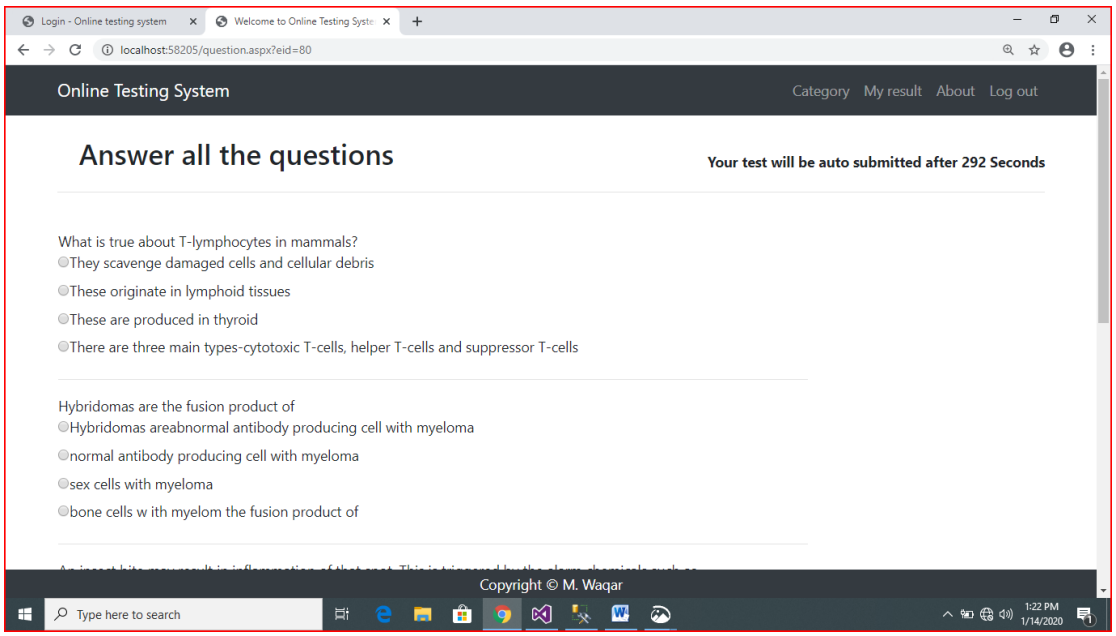


Figure 5.7 mcq

5.1.8. Submission:

In the figure 5.8, the user submitted the quiz after completion.

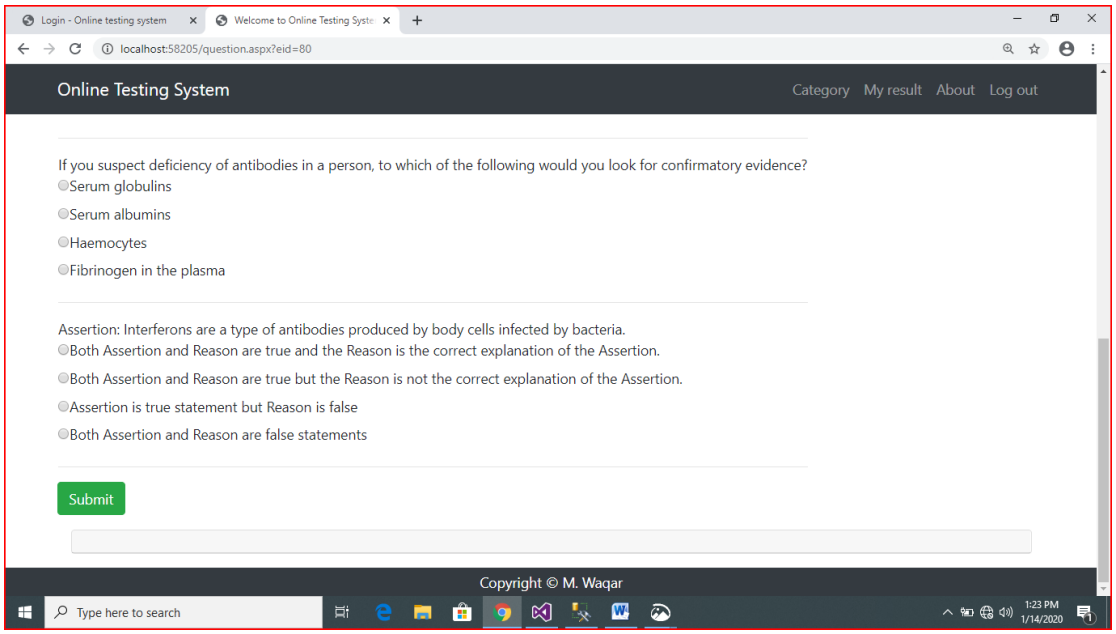


Figure 5.8 submission

5.1.9. My Result:

In the figure 5.9, in my result panel a user can see his acquired marks that he can after completing selected quiz.

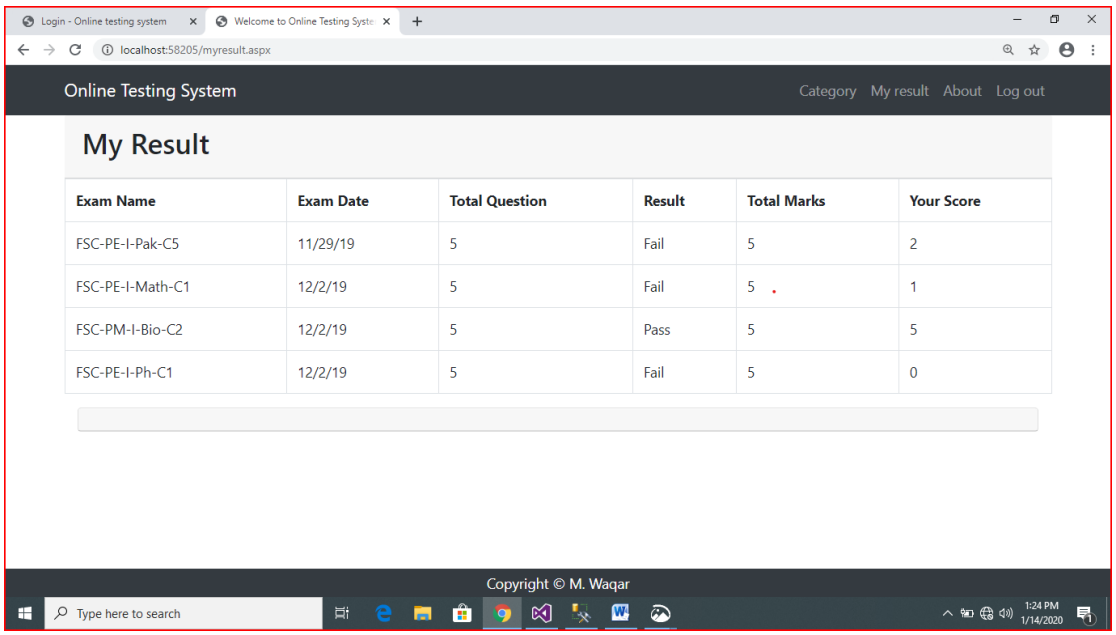


Figure 9 my result

5.2 Graphical user interface:

5.2.1 Admin:

Here! The registered user can access backend with the help of email and password. After this a full functional system will be appeared on his screen.

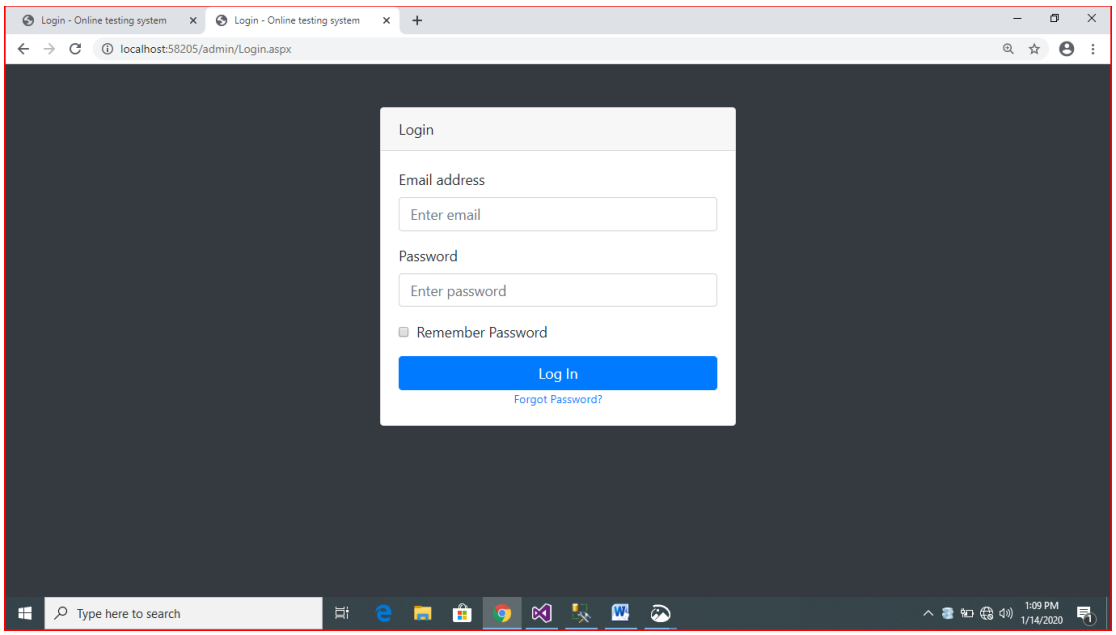


Figure 5.10 admin

5.2.2 Dashboard

In dashboard the admin can access all the operations and function that is used in online testing system here the admin can see category, subject, exam, question and result related to student.

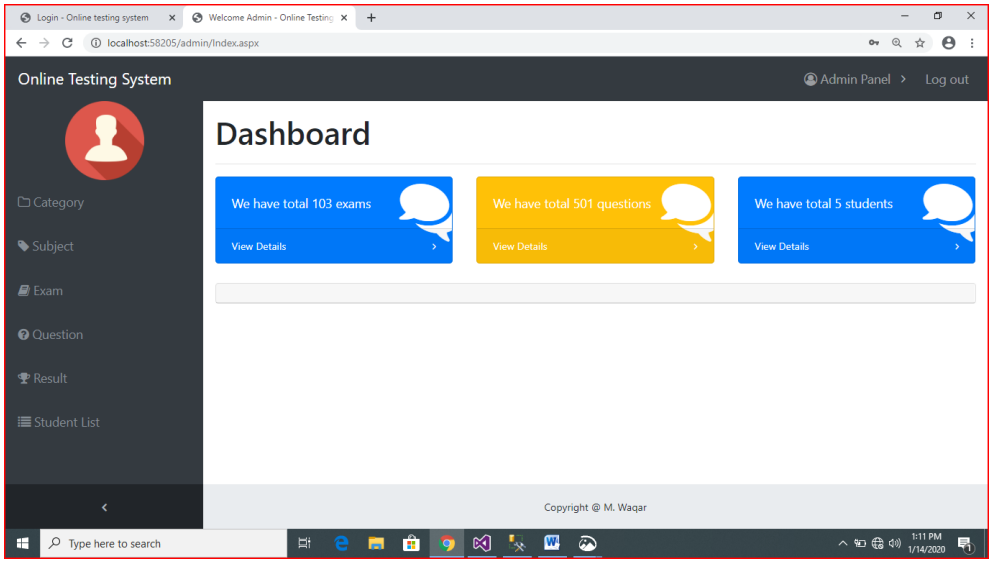


Figure 5.11 dashboard

5.2.3 Category:

In the category section and admin can access default discipline that he can be used for testing system the admin can also add new discipline category and can also change the existing system.

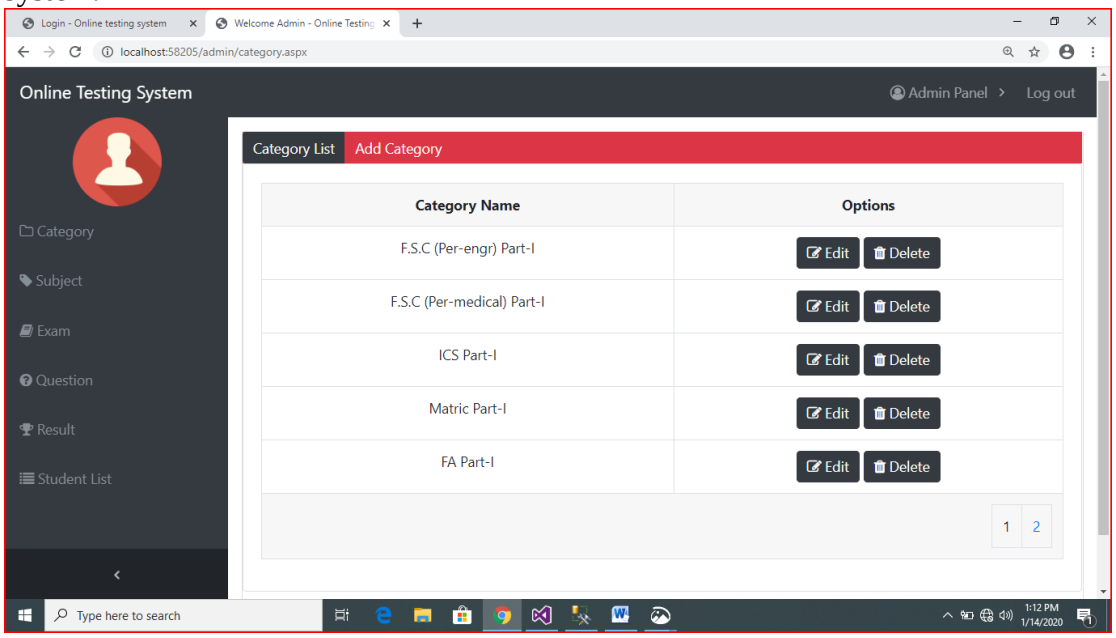


Figure 5.12 category

5.2.4 Add Category:

In the category section and admin can access default discipline that he can be used for testing system the admin can also add new discipline category and can also change the existing system

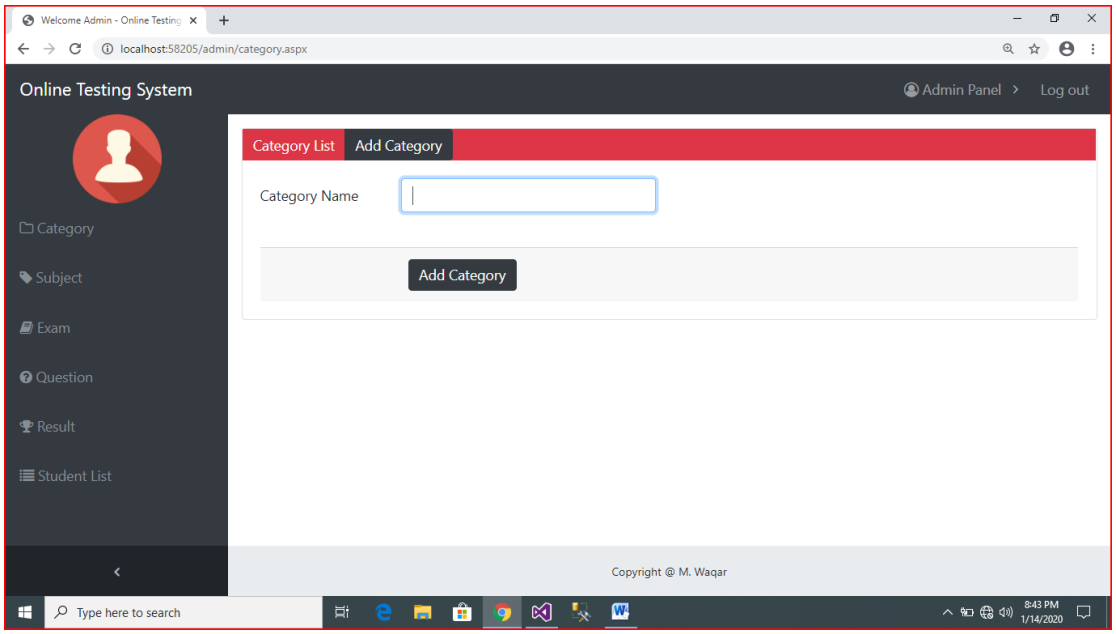


Figure 5.13 add category

5.2.5 Edit Category:

In the category section and admin can access default discipline that he can be used for testing system the admin can also edit discipline and can also change the existing system.

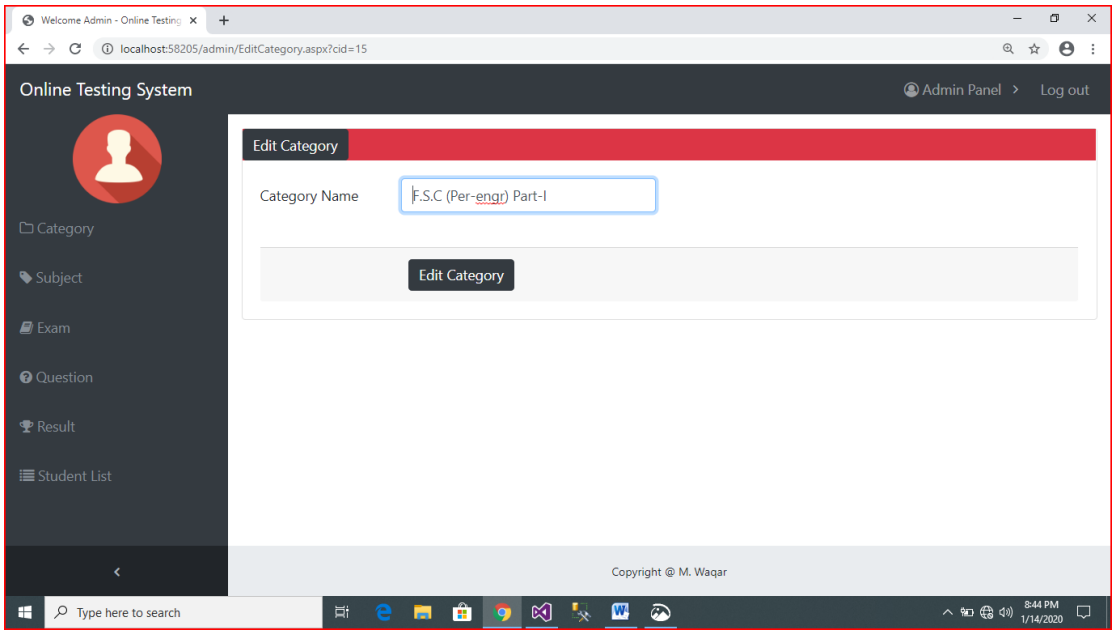


Figure 5.14 edit category

5.2.6 Subject:

after choosing a particular discipline the admin can see a varies of subject.

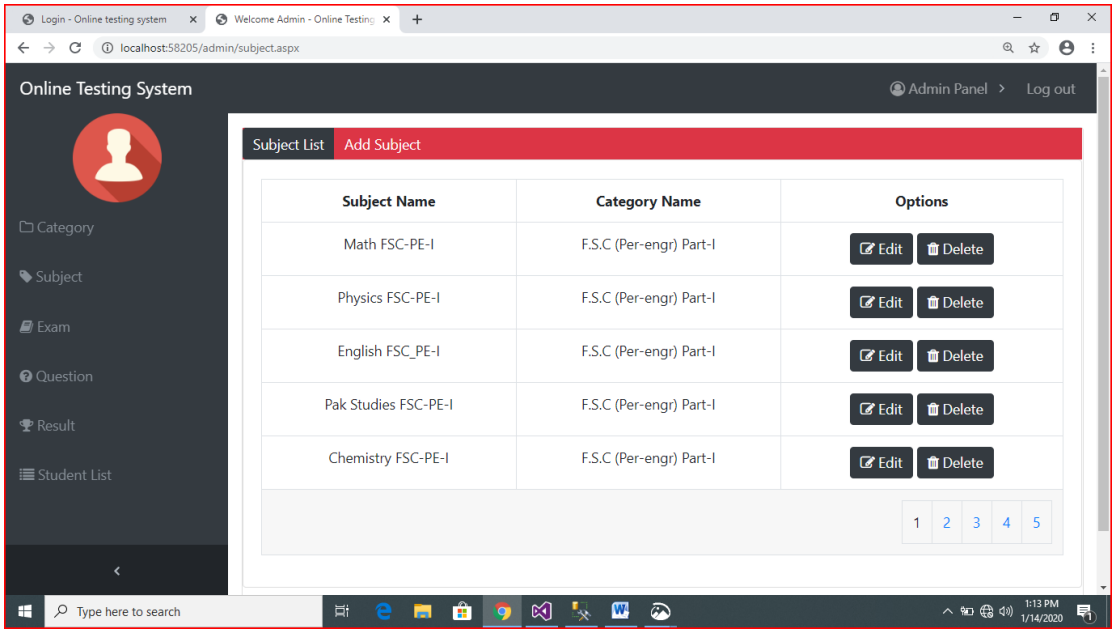


Figure 5.15 subject

5.2.7 Add Subject:

Here the admin can add new subject in specific category

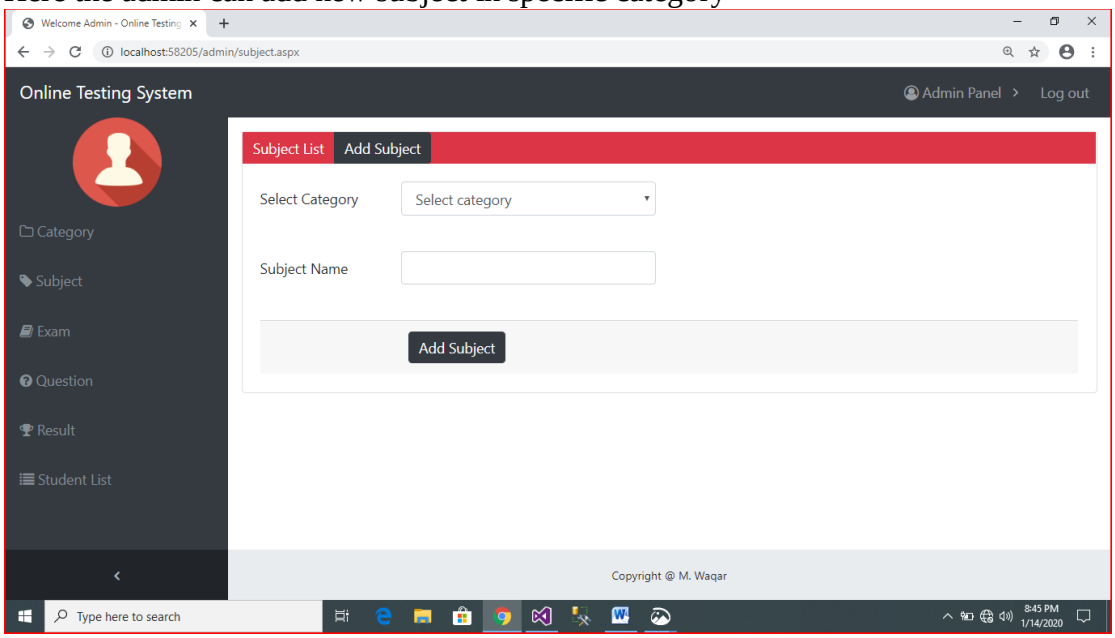


Figure 5.16 add subject

5.2.8 Edit Subject:

Here the ad min can edit subject in specific category.

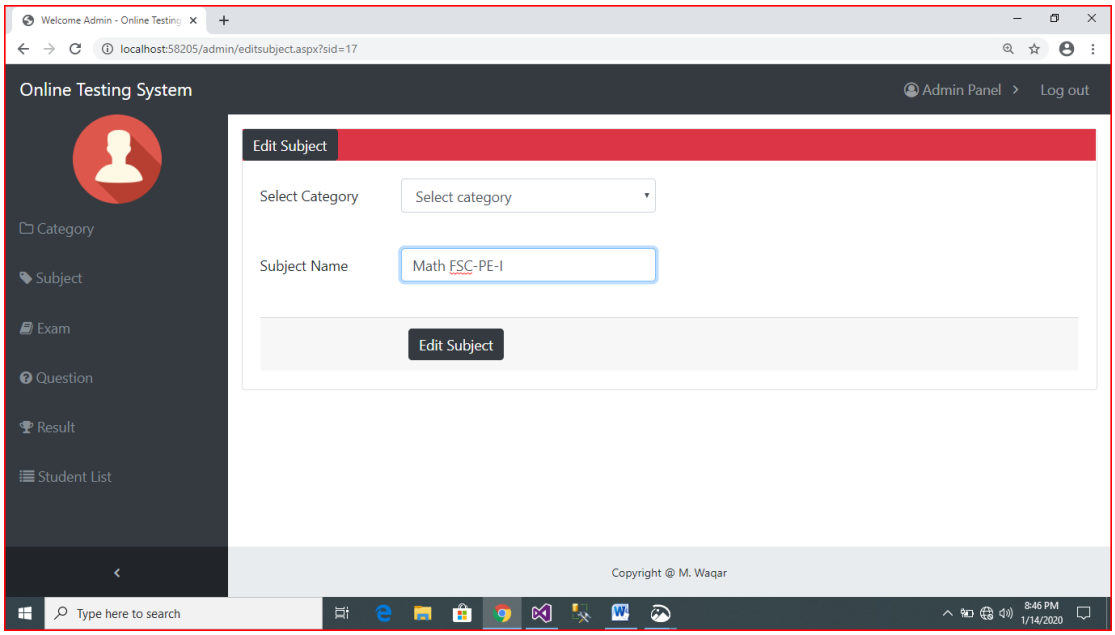


Figure 5.17 edit subject

5.2.9 Exam:

In this section admin can be edit, change, delete and add other question in a specific category in this section basically this is a exam list

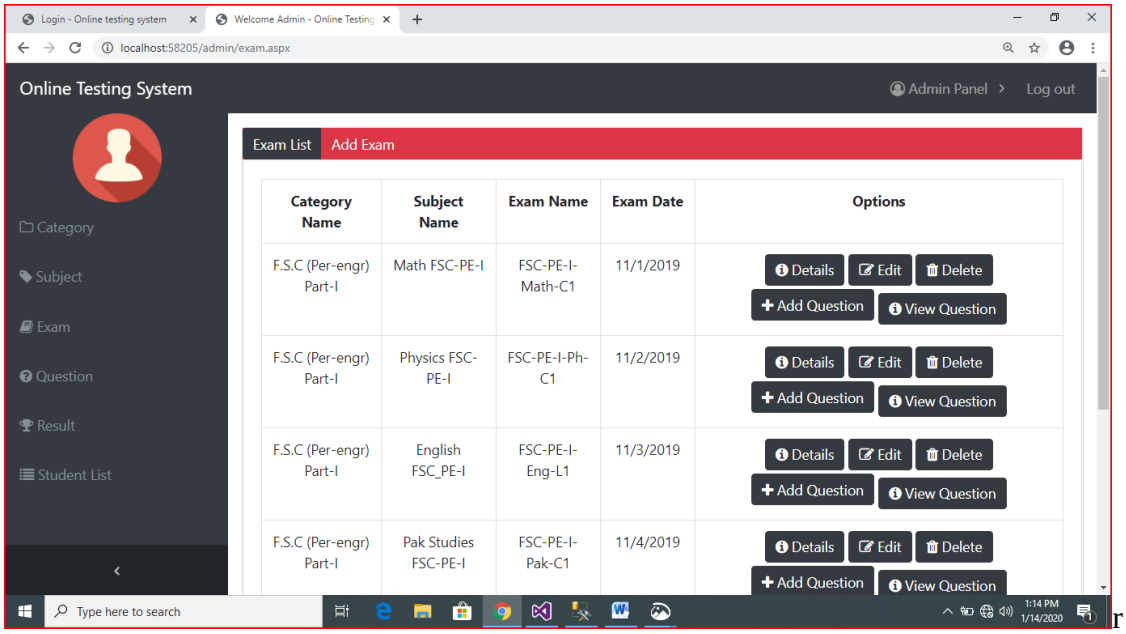


Figure 5.18 exam

5.2.10 Add Exam:

In this figure, the admin adds exam. In this he required to choose exam category, exam subject and writes short description about specific exam like syllabus. He can also select date for any exam to be held.

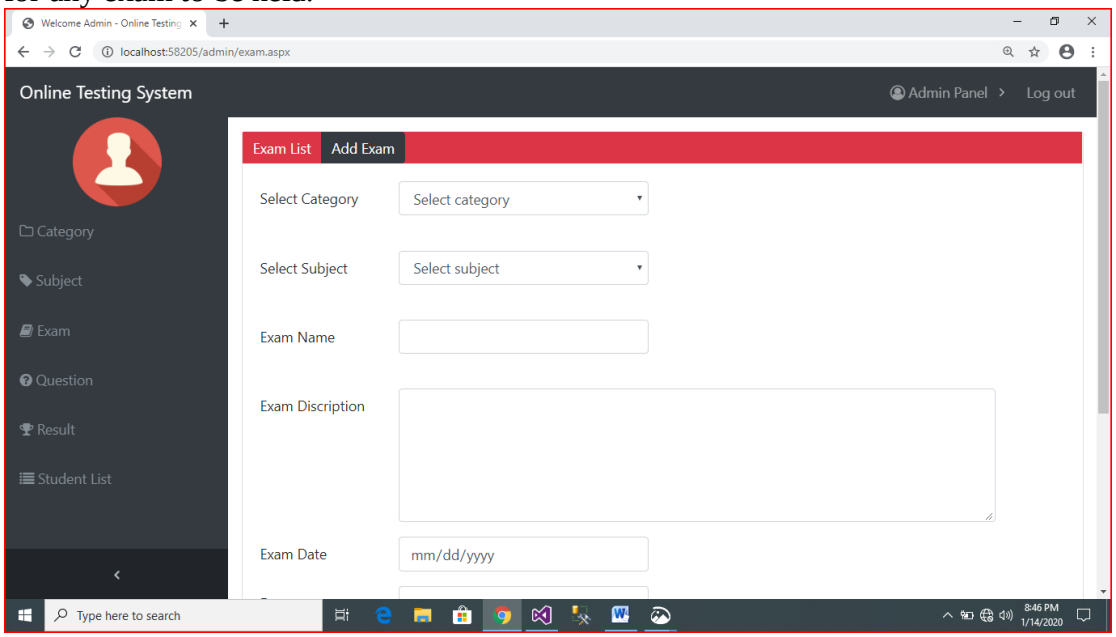


Figure 5.19 add exam

5.2.11 Add Question:

In this the admin writes question description and writes four related options that is required to judge the knowledge of pupil.

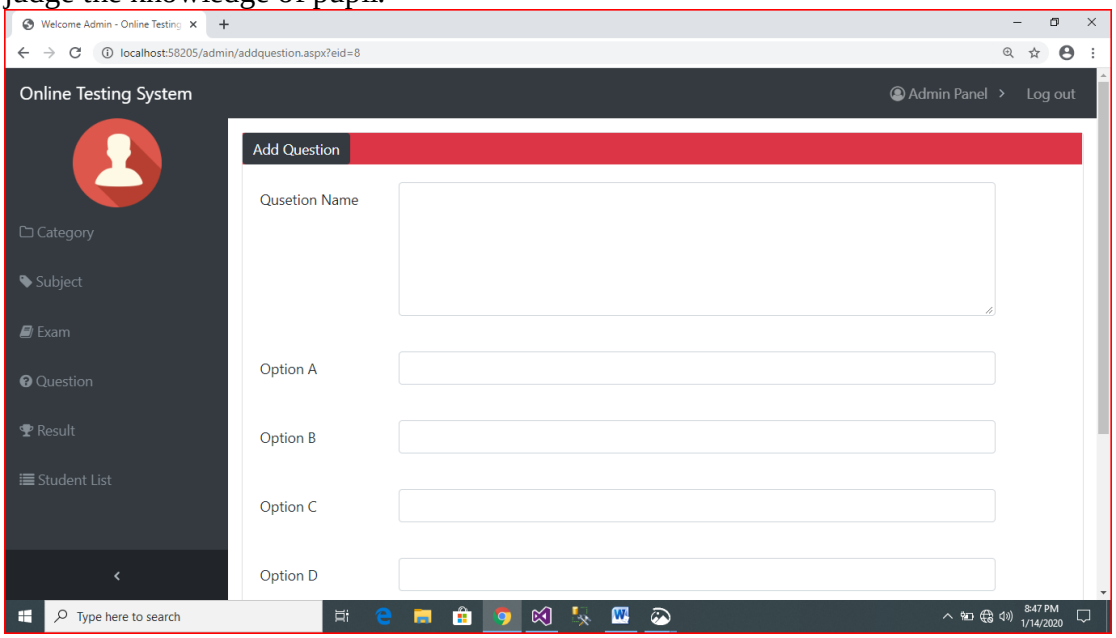


Figure5.20 add question

5.2.12 Details Exam:

In this figure, the admin the add information about exams i.e category, subject, exam date, passing marks etc.

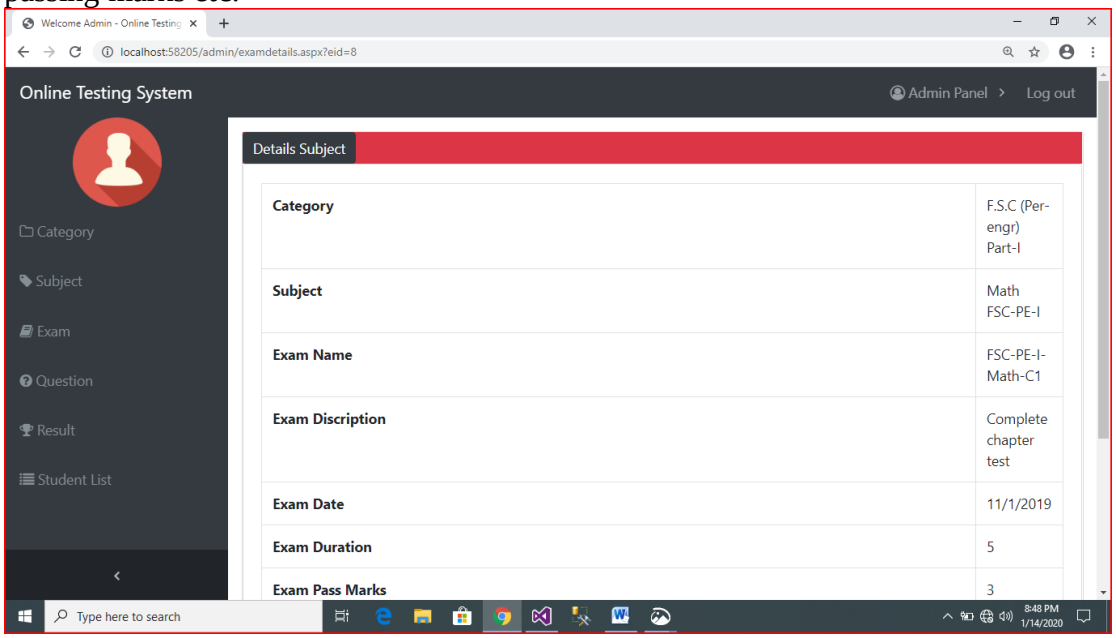


Figure 5.21 details exam

5.2.13 Exam Question:

In this the admin writes question description and writes four related options that is required to judge the knowledge of pupil.

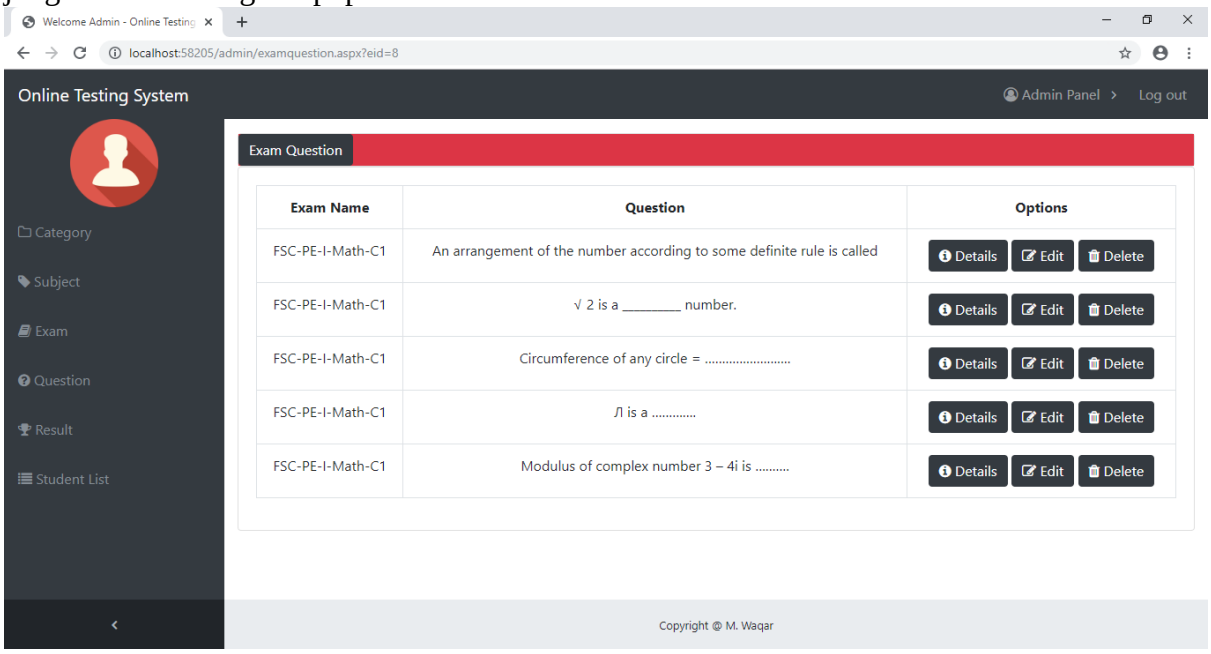


Figure 5.22 exam question

5.2.14 Edit Exam:

In this figure, the admin can edits exams details.

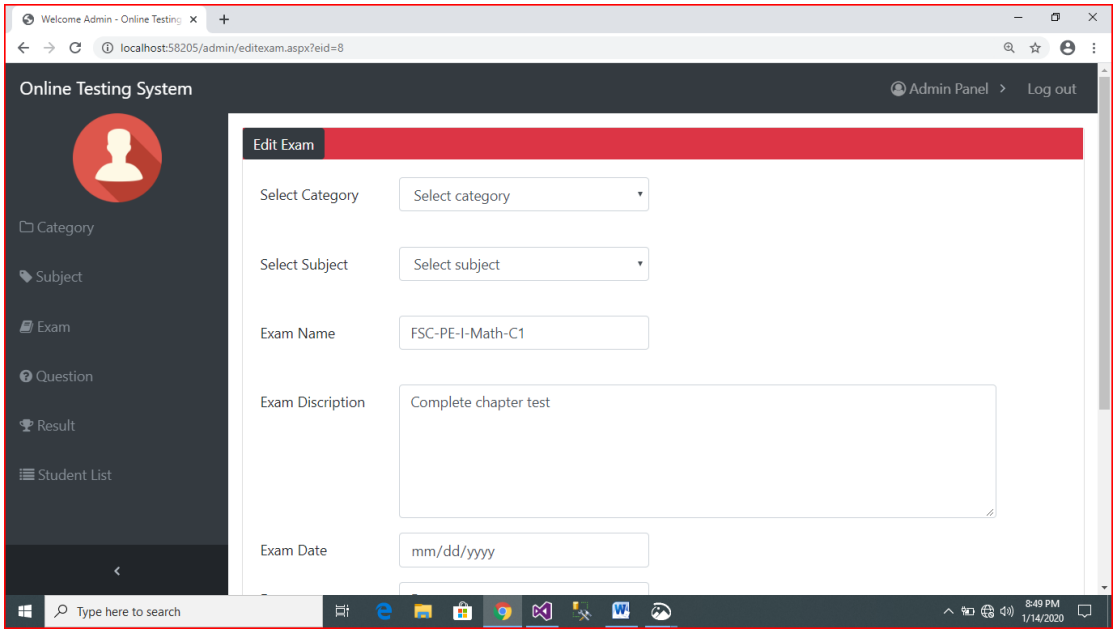


Figure 5.23 edit exam

5.2.15 All Question:

Here the admin can see all the added question in online testing system.

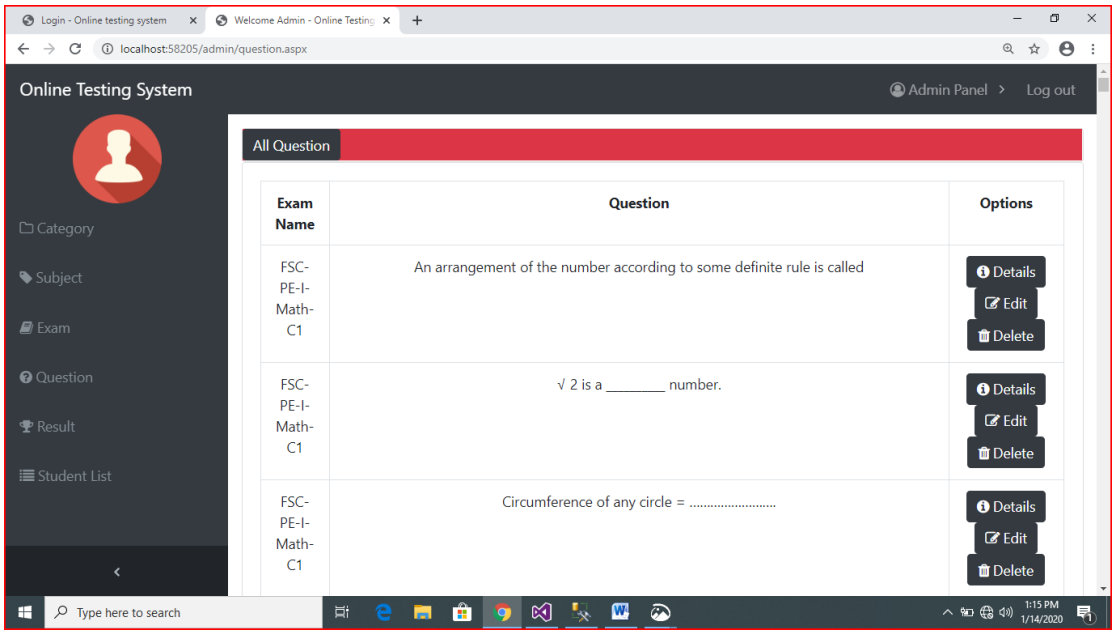


Figure 5.24 all question

5.2.16 Details Exam Question:

In this the admin writes question description and writes four related options that is required to judge the knowledge of pupil.

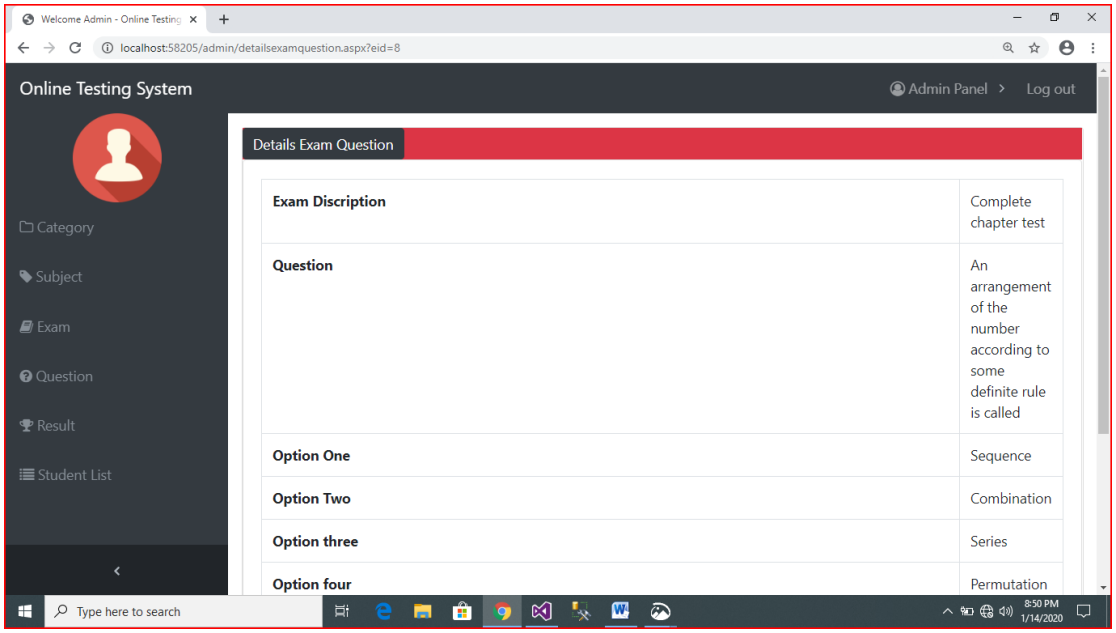


Figure 5.25 details exam question

5.2.17Edit Question:

In this figure, the admin can edits exams question.

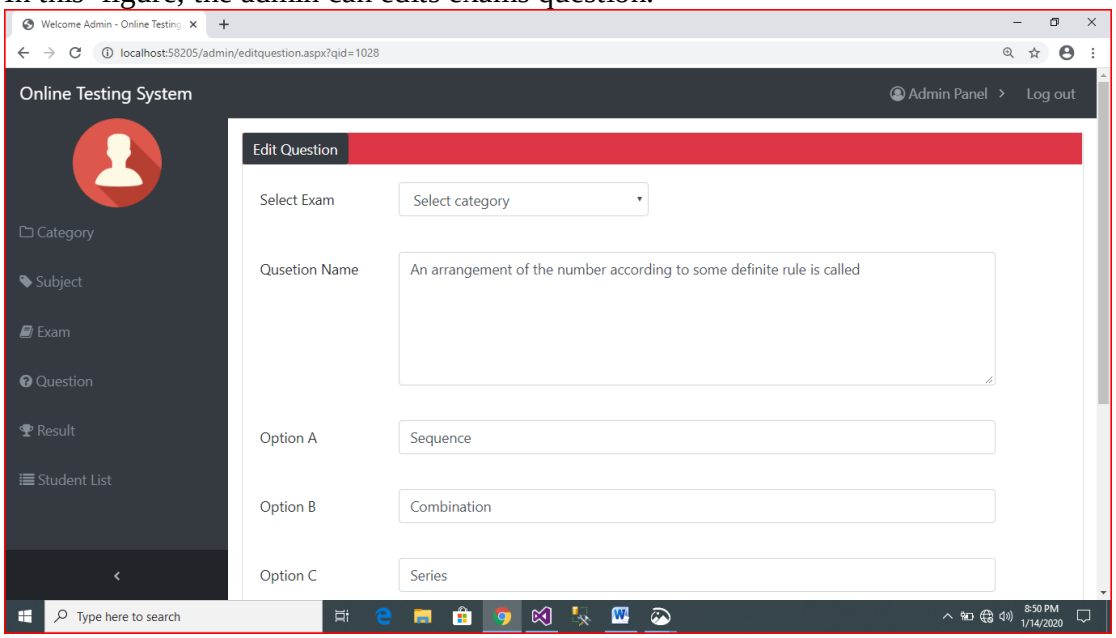


Figure 5.26 edit question

5.2.18 All Result:

The admin can access result of all the candidate that was appeared in testing system.

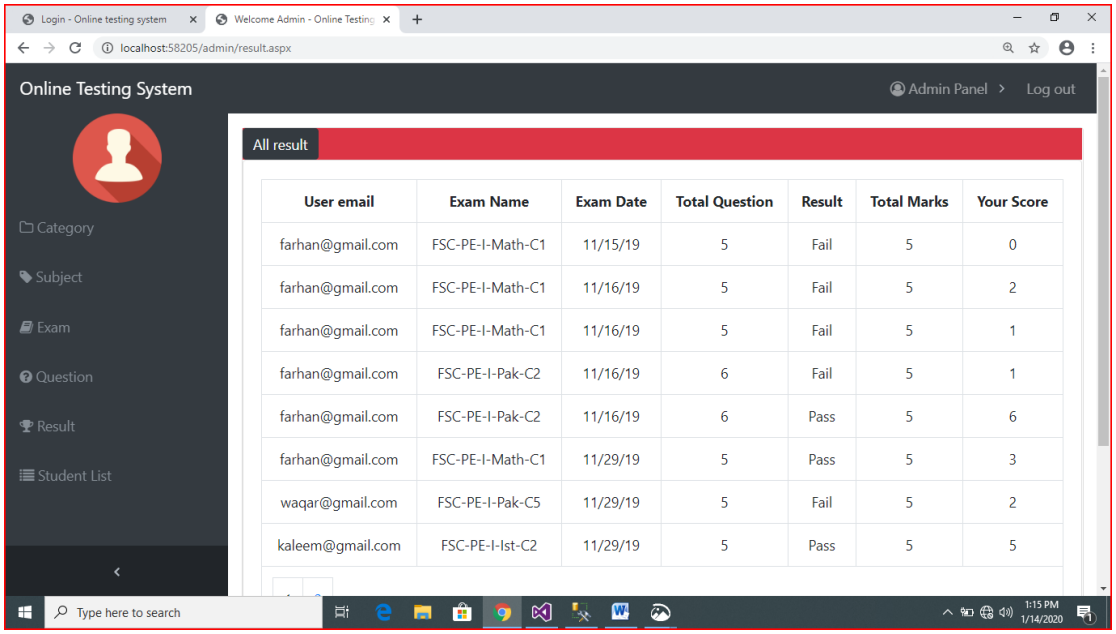


Figure5.27 all result

5.2.19 Print Result:

Here the admin can print result of any candidate

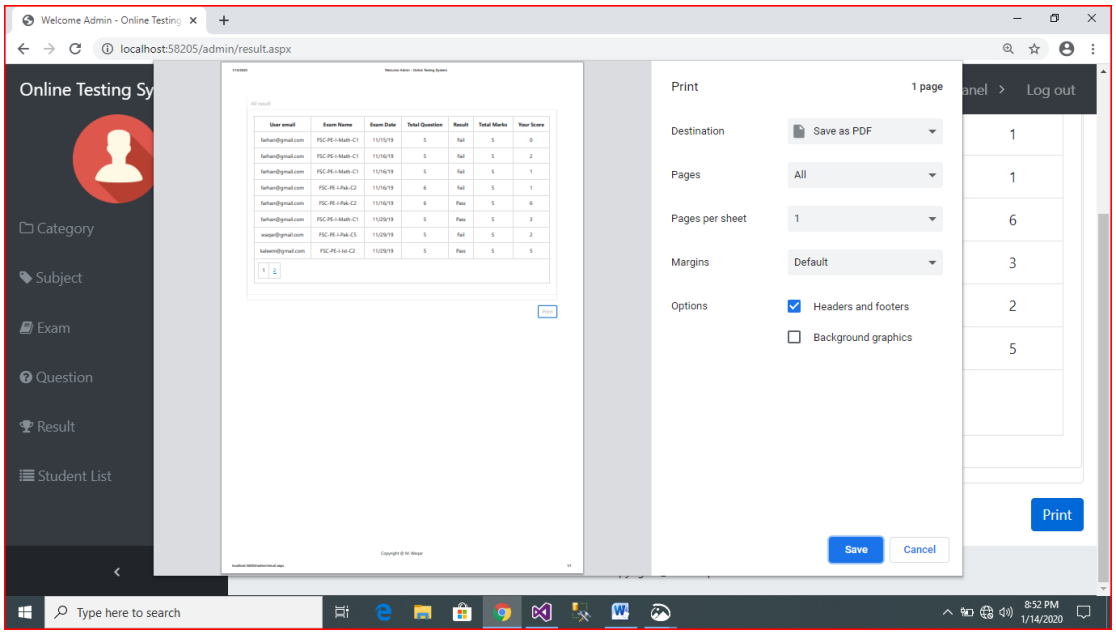


Figure 5.28 print result

5.2.20 All Student:

Here the admin can see all list of all students including new or old student and can also view the resut of each candidate.

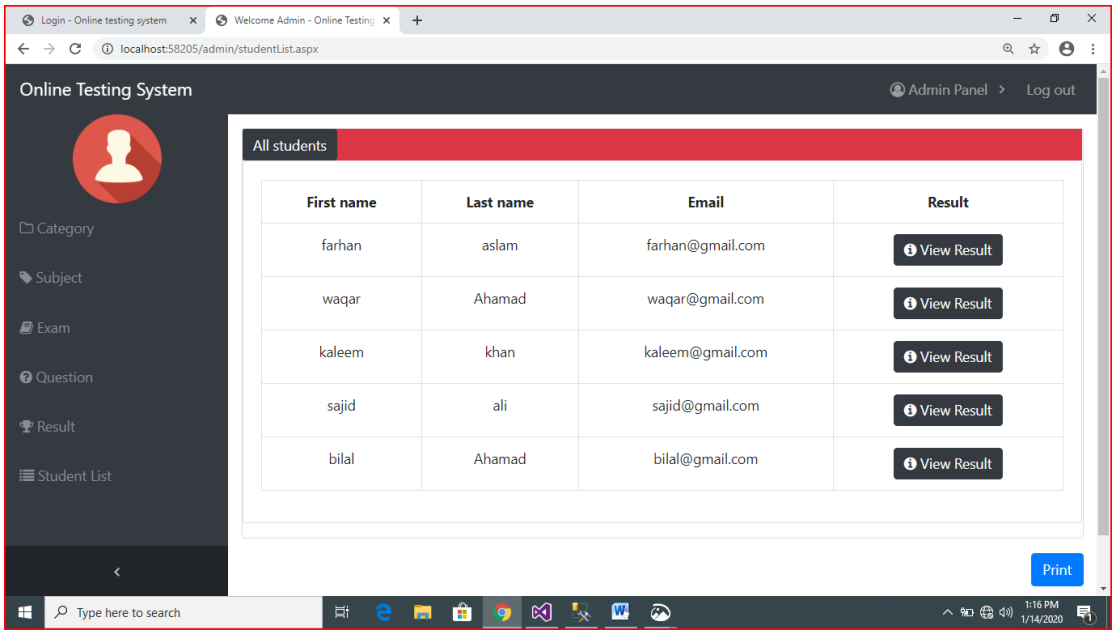


Figure 5.29 all student

5.2.21 View Result:

In this panel the admin can view all the resut of particular student and can also print the result.

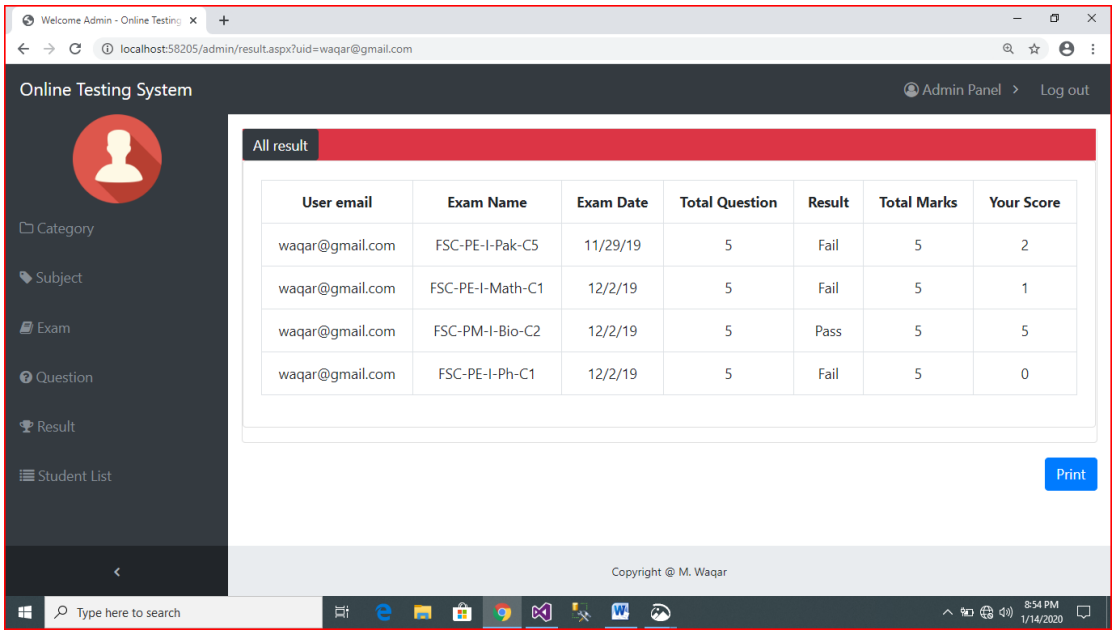


Figure 5.30 view result

5.2.22 View Result Print:

In this panel the admin can view all the resut of particular student and can also print the result

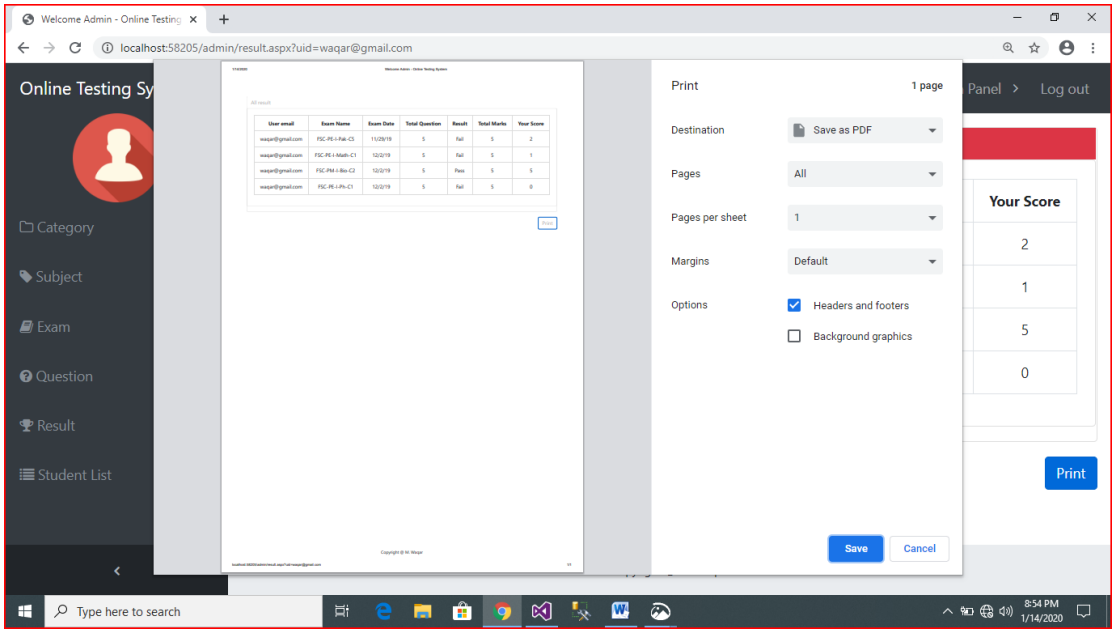


Figure 5.31 view result print

Conclusion:

Online examination system is a user friendly system, which is very easy and convenient to use. The system is complete in the sense that it is operational and it is tested by entering data and getting the reports in proper order. But there is always a scope for improvement and enhancement. During the development of this, coding standards are followed for easy maintainability and extensibility.

References

1. IEEE Std 830: IEEE Recommended Practice for Software Requirements Specifications
2. http://www.w3.org.com
3. https://getbootstrap.com/docs/4.0/getting-started/introduction/
4. https://docs.microsoft.com/en-us/sql/getting-started/getting-started-sql-server-2014?view=sql-server-2014
5. https://docs.microsoft.com/en-us/previous-versions/visualstudio/