Visvesvaraya Technological University

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A
PROJECT REPORT
ON
"ONLINE EXAMINATION SYSTEM"

*Submitted in partial fulfilment of the requirements for the **DBMS Laboratory with Mini Project(18CSL58)** course of the 5th semester.*

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING

Submitted by,

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CERTIFICATE

This is to certify that the project work entitled "**ONLINE EXAMINATION SYSTEM**" is a bonafide work carried out by **Mr. NIRANJANA.K (1JS18CS096)**, **Mr. P.DIPEN REDDY(1JS18CS098)** and **Mr. PAVAN.P(1JS18CS101)** in partial fulfilment for the DBMS Laboratory with Mini Project(18CSL58) of 5th semester **Bachelor of Engineering** in **Computer Science and Engineering** of the **Visvesvaraya Technological University**, **Belgaum** during the academic year 2020-2021. It is certified that all corrections and suggestions indicated for Internal Assessment have been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

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We express my humble pranamas to His Holiness **Jagadguru Sri Sri Sri Shivarathri Deshikendra Mahaswamiji** who has showered their blessings on us for framing our career successfully.

The completion of any project involves the efforts of many people. We have been lucky enough to have received a lot of help and support from all quarters during the making of this project, so with gratitude, we take this opportunity to acknowledge all those whose guidance and encouragement helped us emerge successful.

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ABSTRACT:

Assessment is one of the critical constituents of classroom instruction. Using the traditional procedure of examination often results in human errors during the grading process and can be time consuming. Nowadays, with the technology advancement and the evolution of users' needs, web-based examination system is made to deal with these challenges for an academic solution to conduct fast examinations and accurate results.

In this study, we developed an effective web application, named "ONLINE EXAMINATION SYSTEM" composed of three primary roles, including teachers, students and administrators by using a combination of programing language tools such as HTML, CSS, PHP, MYSQL, and JavaScript.

This system aims to reduce proportion of workload on examination, grading and reviewing on the part of instructors and students. Hence, it enables the release of examination results in record time and without error.

The purpose of Online Examination System is to take test in an efficient manner and no time wasting for checking the paper. The main objective of system is to efficiently evaluate the candidate thoroughly through a fully automated system that not only saves lot of time but also gives fast results. For students they give papers according to their convenience and time and there is no need of using extra thing like paper, pen etc.

It is suitable for both Academic and Non-Academic examinations. Different features of the online examination system are discussed in this project. The features include user's registration, examination instruction, time reminder, submission of the answer script, and release of the examination results. The system enables the teacher or admin to create a test that comprises different subject areas.

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1.1INTRODUCTION:

With the proliferation of the internet technology, online examination system has become an effective component to traditional test in many developed countries. This is a web based, efficient, flexible and adaptable, which can provide a new and open mode of examination meeting the needs of various Academic and Non-Academic organizations. The examination consists of different types of multiple choice questions. The answers are evaluated and the marks obtained are stored in the database while the examiner can get the results immediately from the system in various forms such as general mark list, and ranking of participants. The main features of an examination system include instructions for the participants, accessibility of examination content, valid time allocation, submission ways and result release

This project assesses student by conduction online tests. The test will be highly customizable .The project will enable educational institutes to conduct test and have automated checking of answers based on the responses by the students.

The project allows the faculties to create their own tests. It would enable educational institutes to perform test, quiz. It asks the faculty to create his/her set of questions .The student can take up the respective test by clicking on the test code. The result of the response would be available to the faculty for grading and some of the tests can be auto graded .the results would be displayed in the result field. This project would help for creating practice tests say for educational institutes .

Database Management System (DBMS)

Following the technology progress in the areas of processors, computer memory, computer storage, and computer networks, the sizes, capabilities, and performance of databases and their respective DBMSs have grown in orders of magnitude. The development of database technology can be divided into three eras based on data model or structure: navigational, SQL/relational, and post-relational. The two main early navigational data models were the hierarchical model, epitomized by IBM's IMS system, and the CODASYL model (network model), implemented in a number of products such as IDMS [2].

The relational model employs sets of ledger-style tables, each used for a different type of entity. Only in the mid-1980s did computing hardware become powerful enough to allow the wide deployment of relational systems (DBMSs plus applications). By the early 1990s, however, relational systems dominated in all large-scale data processing applications, and as of 2015 they remain dominant: IBM DB2, Oracle, MySQL, and Microsoft SQL Server are the top DBMS. The dominant database language, standardized SQL for the relational model, has influenced database languages for other data models [3].

1.2 HISTORY OF DBMS

In 1959, the TX-2 computer was developed at MIT's Lincoln Laboratory. The TX-2 integrated a number of new man-machine interfaces. A light pen could be used to draw sketches on the computer using Ivan Sutherland's revolutionary Sketchpad software. Using a light pen, Sketchpad allowed one to draw simple shapes on the computer screen, save them and even recall them later. The light pen itself had a small photoelectric cell in its tip. This cell emitted an electronic pulse whenever it was placed in front of a computer screen and the screen's electron gun fired directly at it. By simply timing the electronic pulse with the current location of the electron gun, it was easy to pinpoint exactly where the pen was on the screen at any given moment. Once that was determined, the computer could then draw a cursor at that location. Also, in 1961 another student at MIT, Steve Russell, created the first video game, E. E. Zajac, a scientist at Bell Telephone Laboratory (BTL), created a film called "Simulation of a two-gravity attitude control system" in 1963. During 1970s, the first major advance in 3D computer graphics was created at UU by these early pioneers, the hidden-surface algorithm. In order to draw a representation of a 3D object on the screen, the computer must determine which surfaces are "behind" the object from the viewer's perspective, and thus should be "hidden" when the computer creates (or renders) the image. In the 1980s, artists and graphic designers began to see the personal computer, particularly the Commodore Amiga and Macintosh, as a serious design tool, one that could save time and draw more accurately than other methods. In the late 1980s, SGI computers were used to create some of the first fully computer-generated short films at Pixar. The Macintosh remains a highly popular tool for computer graphics among graphic design studios and businesses. Modern computers, dating from the 1980s often use graphical user interfaces (GUI) to present data and information

with symbols, icons and pictures, rather than text. Graphics are one of the five key elements of multimedia technology. 3D graphics became more popular in the 1990s in gaming, multimedia and animation. In 1996, Quake, one of the first fully 3D games, was released. In 1995, Toy Story, the first full-length computer-generated animation film, was released in cinemas worldwide. Since then, computer graphics have only become more detailed and realistic, due to more powerful graphics hardware and 3D modeling software.

1.3 APPLICATIONS OF DBMS

Applications where we use Database Management Systems are:

Telecom: There is a database to keeps track of the information regarding calls made, network usage, customer details etc. Without the database systems it is hard to maintain that huge amount of data that keeps updating every millisecond.

Industry: Where it is a manufacturing unit, warehouse or distribution Centre, each one needs a database to keep the records of ins and outs. For example, distribution Centre should keep a track of the product units that supplied into the Centre as well as the products that got delivered out from the distribution Centre on each day; this is where DBMS comes into picture.

Banking System: For storing customer info, tracking day to day credit and debit transactions, generating bank statements etc. All this work has been done with the help of Database management systems.

Education sector: Database systems are frequently used in schools and colleges to store and retrieve the data regarding student details, staff details, course details, exam details, payroll data, attendance details, fees detail etc. There is a hell lot amount of inter-related data that needs to be stored and retrieved in an efficient manner.

Online shopping: You must be aware of the online shopping websites such as Amazon, Flipkart etc. These sites store the product information, your addresses and preferences, credit details and provide you the relevant list of products based on your query. All this involves a Database management system.

1.4 OVERVIEW OF THE PROJECT

ONLINE EXAMINATION SYSTEM is a user-friendly Application which is based on HTML and CSS which helps teachers to schedule and manage various online quiz and also allows us to manage the records of various students. The application uses HTML and CSS as a front end for interacting with the user and PHP for connection. At backend we used MySQL for database

1.5 THEORY AND CONCEPTS

Inheritance: In object-oriented programming, inheritance is when an object or class is based on another object or class, using the same implementation (inheriting from an object or class) or specifying a new implementation to maintain the same behavior (realizing an interface). Such an inherited class is called a subclass of its parent class or super class.

Encapsulation: In object-oriented programming, encapsulation is a mechanism of binding the data, and the functions together in a class and use them by creating an object of that class.

Data Abstraction: Data abstraction refers to, providing only essential information to the outside world and hiding their background details, i.e., to represent the needed information in program without presenting the implementation details. Data abstraction is a programming (and design) technique that relies on the separation of interface and implementation.

1.6 XAMPP SERVER

XAMPP is a free and open source cross platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, Maria DB database, and interpreters for scripts written in the PHP and Perl programming languages. XAMPP stands for Cross-Platform, Apache, Maria DB, PHP and Perl. It is a simple, lightweight Apache distribution that makes it extremely easy for developers to create a local web server for testing and deployment purposes. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server extremely easy as well

CHAPTER 2

REQUIREMENTS SPECIFICATION

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2.1 SPECIFIC REQUIREMENTS

The specific requirements of the ONLINE EXAMINATION SYSTEM are stated as follows:

2.1.1 HARDWARE REQUIREMENT

The section of hardware configuration is an important task related to the software development insufficient random-access memory may affect adversely on the speed and efficiency of the entire system. The process should be powerful to handle the entire operations. The hard disk should have sufficient capacity to store the file and application

Processor	:	Intel PentiumT4200/ Intel Core Duo 2.0 GHz / more
RAM	:	Minimum 1 GB RAM capacity
Hard disk	:	Minimum 40 GB ROM capacity
Cache Memory	:	L2-1 MB
GPU	:	Intel HD Graphics

2.1.2 SOFTWARE REQUIREMENT

A major element in building a system is the section of compatible software since the software in the market is experiencing in geometric progression. Selected software should be acceptable by the firm and one user as well as it should be feasible for the system.

This document gives a detailed description of the software requirement specification. The study of requirement specification is focused specially on the functioning of the system. It allows the developer or analyst to understand the system, function to be carried out the performance level to be obtained and corresponding interfaces to be established.

Front End	:	PHP (Hypertext preprocessor)
Back End	:	XAMPP server, My SQL
Operation System	:	Windows 7 Or Windows 8.1 Or Windows 10
Client side	:	CSS (cascading Style sheet)

2.2 ABOUT TECHNOLOGIES USED

- **HTML** is integrated in **PHP**. It provides a means to structure text-based information in a document. It allows users to produce web pages that include text, graphics and hyperlinks.
- **CSS (**Cascading Style Sheets) is a style sheet language used for describing the presentation of a document written in a mark-up language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document.
- **MYSQL** is the language used to manipulate relational databases. It is tied closely with the relational model. It is issued for the purpose of data definition and data manipulation. Program runs as a server providing multi-user access to a number of databases. MySQL is a multithreaded, multi-user SQL database management system (DBMS). It includes facilities to add, modify or delete data from the database, ask questions (or queries) about the data stored in the database and produce reports summarizing selected contents.
- **PHP** is a scripting language originally designed for producing dynamic web pages. It has evolved to include a command line interface capability and can be used in standalone graphical applications. PHP is a general-purpose scripting language that is especially suited for web development. PHP generally runs on a web server, taking PHP code as its input and creating web pages as output. It can also be used for command-line scripting and client-side GUI applications. PHP can be deployed on most web servers, many operating systems and platforms, and can be used with many relational database management systems. It is available free of charge, and the PHP Group provides the complete source code for users to build, customize and extend for their own use. PHP stores whole numbers in a platform-dependent range. This range is typically that of 32-bit signed integers. PHP has hundreds of base functions and thousands more from extensions. These functions are well documented on the PHP site. It requires MySQL connection between the front end and back end components to write to the database and fetch required data.

CHAPTER 3

SYSTEM DESIGN

3.1 INPUT DESIGN

The Home page contains three buttons Admin , login and submit section.

3.1.1 ADMIN

The Admin can do different functions with help of two navigation bars one at top and one at bottom

- can view the all the user.
- can Add and Delete quiz.
- can check the score of a particular student.
- can also search for player information.
- can delete the user.
- can fetch the quiz in search bar.
- can check the overall rank of the student

.

3.1.2 USER INFORMATION

After admin logins into the database and adds quiz, user can fetch that it is as follow. It contains one navigation bar that contains

- can also search for quiz in the search button.
- can view history of the own user
- can attend the quiz by pressing the start button.
- Can edit the personal info by clicking the edit button.

3.2 DATABASE DESIGN

The data in the system has to be stored and retrieved from database. Designing the database is part of system design.

Data elements and data structures to be stored have been identified at analysis stage. They are structured and put together to design the data storage and retrieval system. A database is a collection of interrelated data stored with minimum redundancy to serve many users quickly and efficiently. The general objective is to make database access easy, quick, inexpensive and flexible for the user. Relationships are established between the data items and unnecessary data items are removed. Normalization is done to get an internal consistency of data and to have minimum redundancy and maximum stability. This ensures minimizing data storage required, minimizing chances of data inconsistencies and optimizing for updates. The MS Access database has been chosen for developing the relevant databases.

3.3 RELATIONAL SCHEMA

The term "schema" refers to the organization of data as a blueprint of how the database is constructed (divided into database tables in the case of relational databases). The formal definition of a database schema is a set of formulas (sentences) called integrity constraints imposed on a database. A relational schema shows references among fields in the database. When a primary key is referenced in another table in the database, it is called a foreign key. This is denoted by an arrow with the head pointing at the referenced key attribute. A schema diagram helps organize values in the database. It also gives an idea of what order the tables should be created in. The following diagram shows the schema diagram for the database.

Figure 1 schema

3.4 ER DIAGRAM

An entity–relationship model is usually the result of systematic analysis to define and describe what is important to processes in an area of a business. An E-R model does not define the business processes; it only presents a business data schema in graphical form. It is usually drawn in a graphical form as boxes (entities) that are connected by lines (relationships) which express the associations and dependencies between entities. An ER model can also be expressed in a verbal form, for example: one building may be divided into zero or more apartments, but one apartment can only be located in one building. Entities may be characterized not only by relationships, but also by additional properties (attributes), which include identifiers called "primary keys". Diagrams created to represent attributes as well as entities and relationships may be called entity-attribute-relationship diagrams, rather than entity-relationship models.

An ER model is typically implemented as a database. In a simple relational database implementation, each row of a table represents one instance of an entity type, and each field in a table represents an attribute type. In a relational database a relationship between entities is implemented by storing the primary key of one entity as a pointer or "foreign key" in the table of

another entity. There is a tradition for ER/data models to be built at two or three levels of abstraction. Note that the conceptual-logical-physical hierarchy below is used in other kinds of specification, and is different from the three-schema approach to software engineering.

While useful for organizing data that can be represented by a relational structure, an entity-relationship diagram can't sufficiently represent semi-structured or unstructured data, and an ER Diagram is unlikely to be helpful on its own in integrating data into a pre-existing information system. Three main components of an ERD are the entities the relationship between those entities, and the cardinality, which defines that relationship in terms of numbers. Cardinality notations define the attributes of the relationship between the entities. Cardinalities can denote that an entity is optional (for example, an employee rep could have no customers or could have many) or mandatory (for example, there must be at least one product listed in an order.

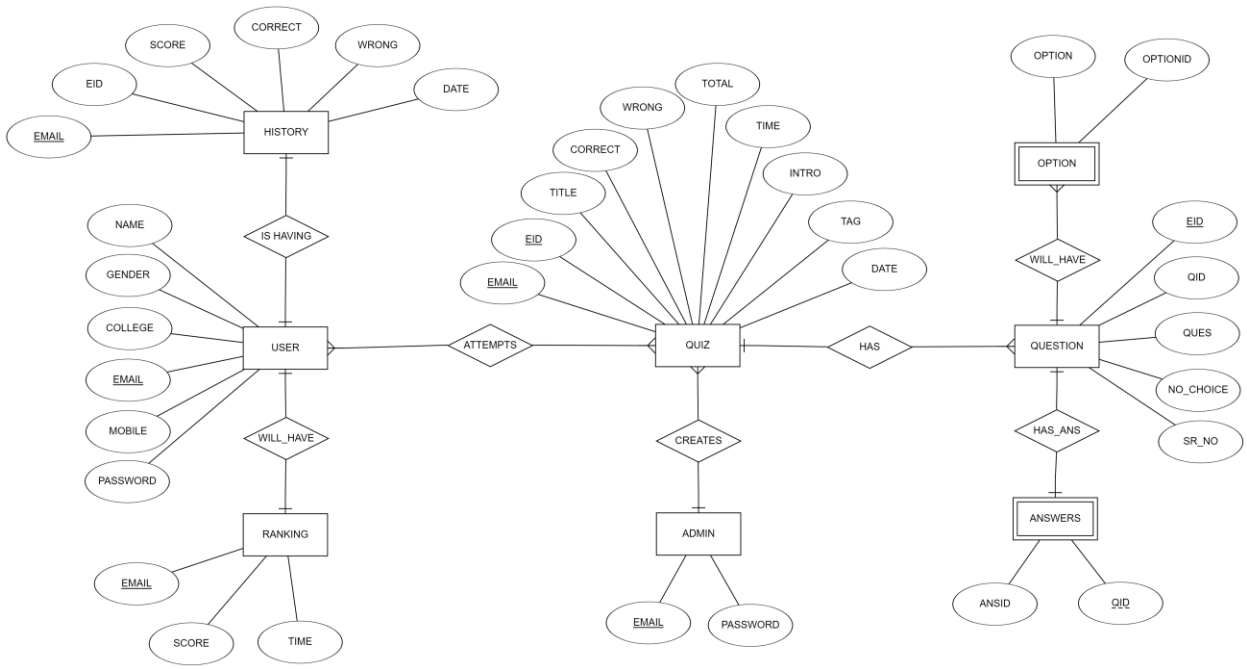

Figure 2 er diagram

The four main cardinal relationships are:

- One-to-one (1:1) - For example, each customer in a database is associated with one mailing address.
- One-to-many (1: N) - For example, a single customer might place an order for multiple products. The customer is associated with multiple entities, but all those entities have a single connection back to the same customer.
- Many-to-one (N: 1) – For example, many employees will have only one manager above them but one manager can have many employees below him.
- Many-to-many (M: N)- For example, at a company where all call center agents work with multiple customers, each agent is associated with multiple customers, and multiple customers might also be associated with multiple agents.

3.5 OUTPUT DESIGN

Designing computer output should proceed in an organized, well throughout manner; the right output element is designed so that people will find the system whether or executed. When we design an output, we must identify the specific output that is needed to meet the system. The usefulness of the new system is evaluated on the basis of their output. Once the output requirements are determined, the system designer can decide what to include in the system and how to structure it so that require output can be produced. For the proposed software, it is necessary that the output reports be compatible in format with the existing reports. The output must be concerned to the overall performance and the system's working, as it should. It consists of developing specifications and procedures for data preparation, those steps necessary to put the inputs and the desired output, i.e. maximum user friendly. Proper messages and appropriate directions can control errors committed by users. The output design is the key to the success of any system. Output is the key between the user and the sensor. The output must be concerned to the system's working, as it should. Output design consists of displaying specifications and procedures as data presentation. User never left with the confusion as to what is happening without appropriate error and acknowledges message being received. Even an unknown person can operate the system without knowing anything about the system

CHAPTER 4

SYSTEM IMPLEMENTATION

4.1 IMPLEMENTATION

Implementation is the stage in the project where the theoretical design is turned into a working system and is giving confidence on the new system for the users that it will work efficiently and effectively. It involves careful planning, investigation of the current system and its constraints on implementation, design of methods to achieve the changeover, an evaluation of change over methods. Implementation is the most important phase. The most critical stage in achieving a successful new system is giving the users confidence that the new system will work and be effective. Any system developed should be secured and protected against possible hazards. Security measures are provided to prevent unauthorized access of the database at various levels. Password protection and simple procedures to prevent the unauthorized access are provided to the users. The system allows the user to enter the system only through proper user name and password.

4.2 CREATE A CONNECTION TO A DATABASE

Before you can access data in a database, you must create a connection to the database. In PHP, this is done with the getConnection() function.

```
<?php

        $con=mysqli_connect("localhost","root","","project");

?>
```

4.3 CLOSING A CONNECTION

The connection will be closed automatically when the script ends. To close the connection before, use the close() function:

```
<?php

mysqli_close($con);

?>
```

4.4RESULT

The resulting system is able to:

- Authenticate user credentials during login.
- Allows user to quickly and easily look for details of particular quiz .
- The user can see the details history.
- Gives accurate information of the score and rankings.

CHAPTER 5 SNAPSHOTS [ADMIN SIDE]

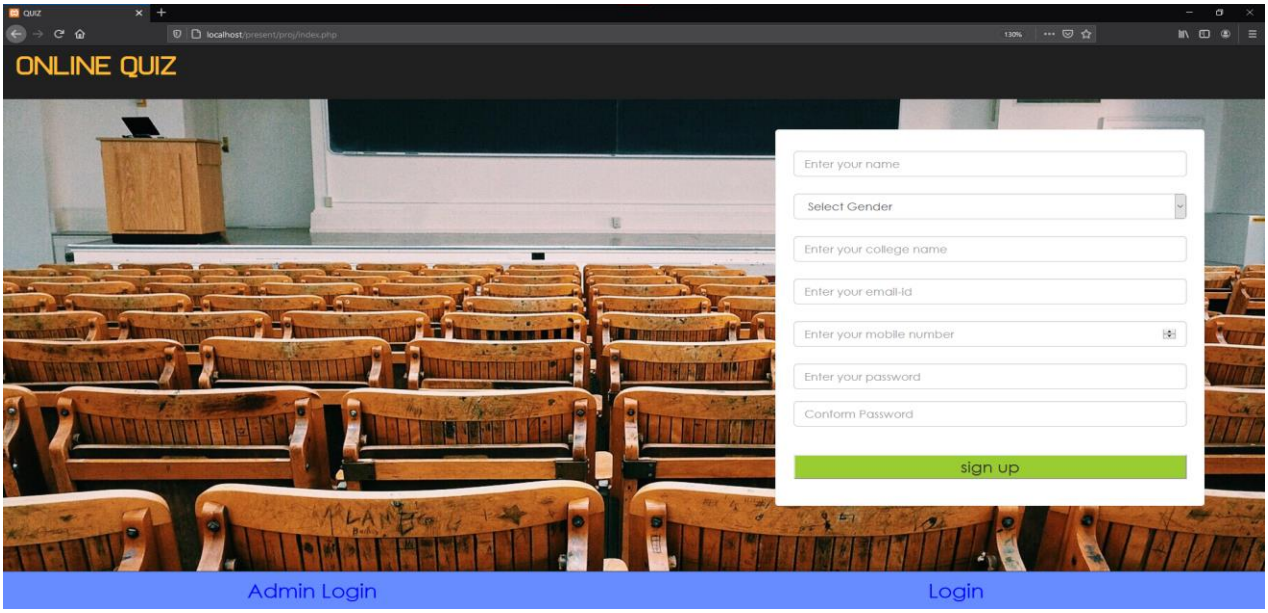

Figure 3 index page

In the above Figure 1, It shows Index Page which allows to login as admin , existing users can login otherwise they can register in the signup form .

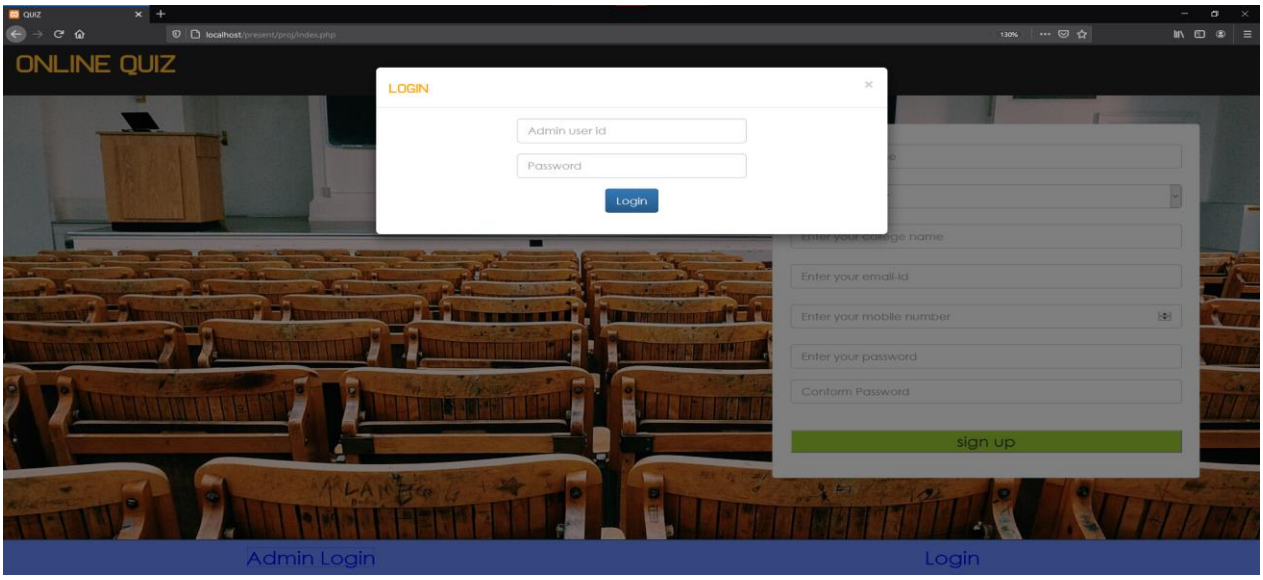

Figure 4 admin login

The figure 2 shows the admin login which authenticates us to the dash web page

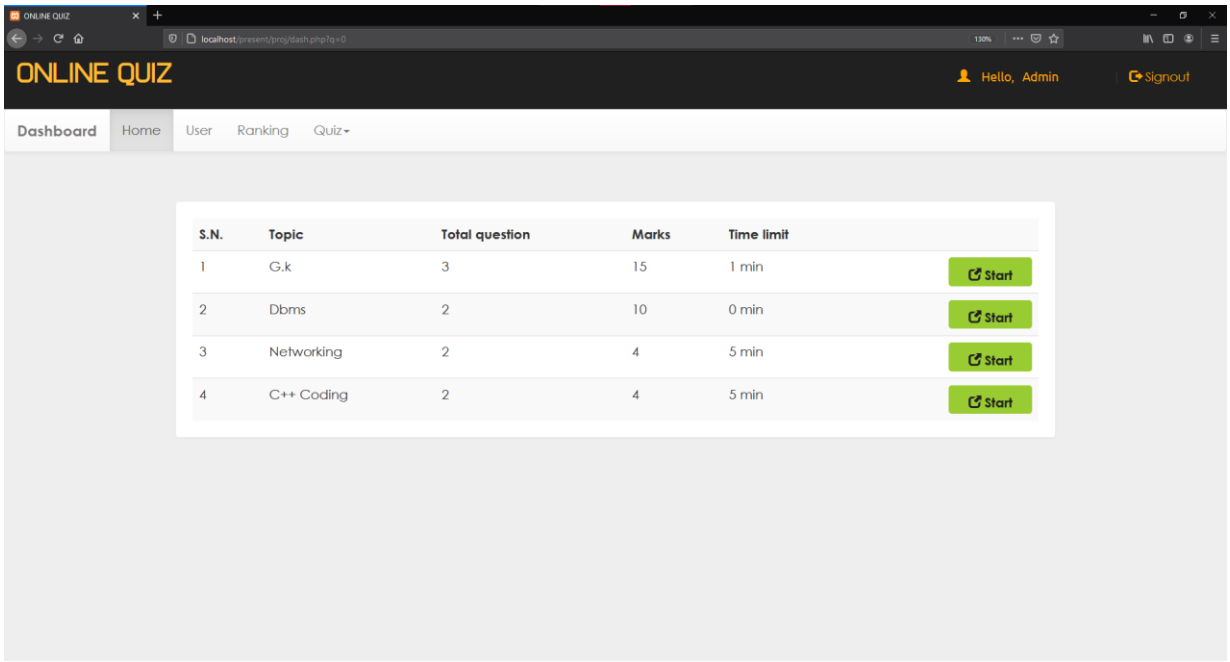

Figure 5 dash page of admin

The above figure 3 shows the dash page of admin where he /she can check the user, ranking and add/delete quiz

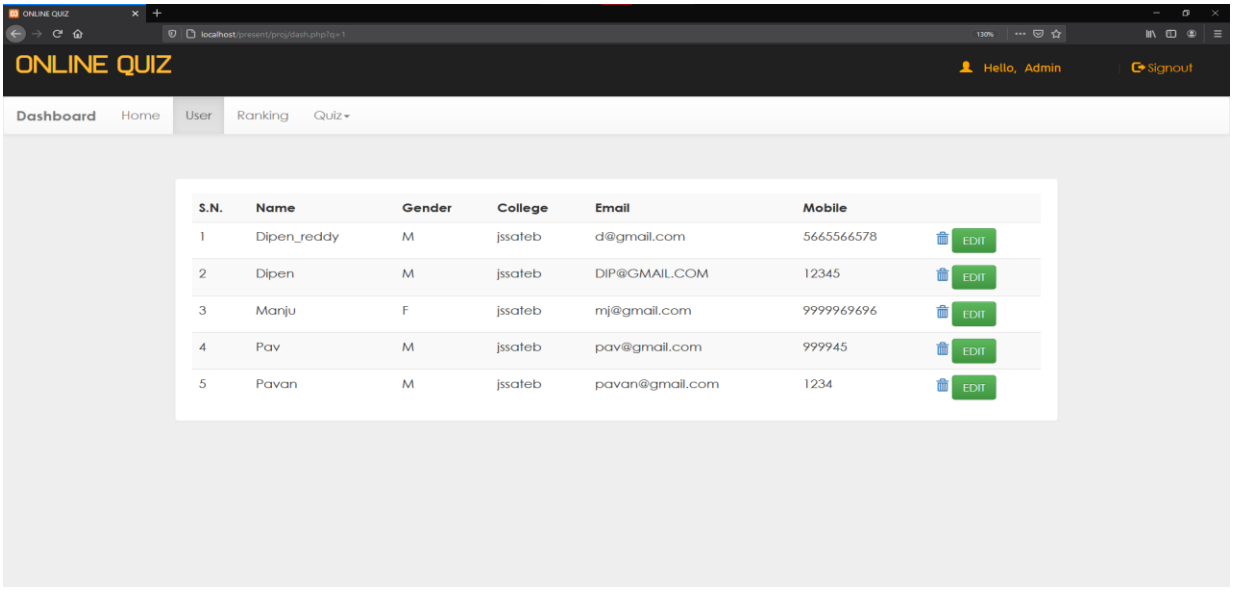

Figure 6 user detais in admin

In figure 4 the admin can delete user by clicking on the edit button

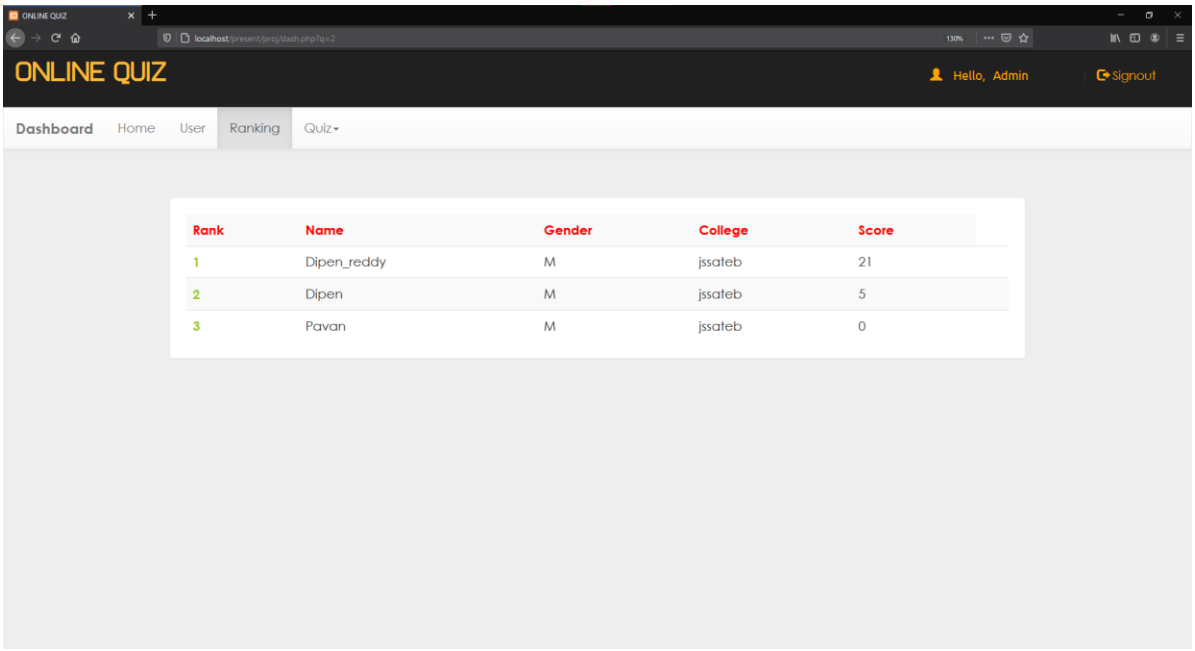

Figure 7 ranking page in admin

In figure 5 the admin can see the rankings of all the students who has taken the test

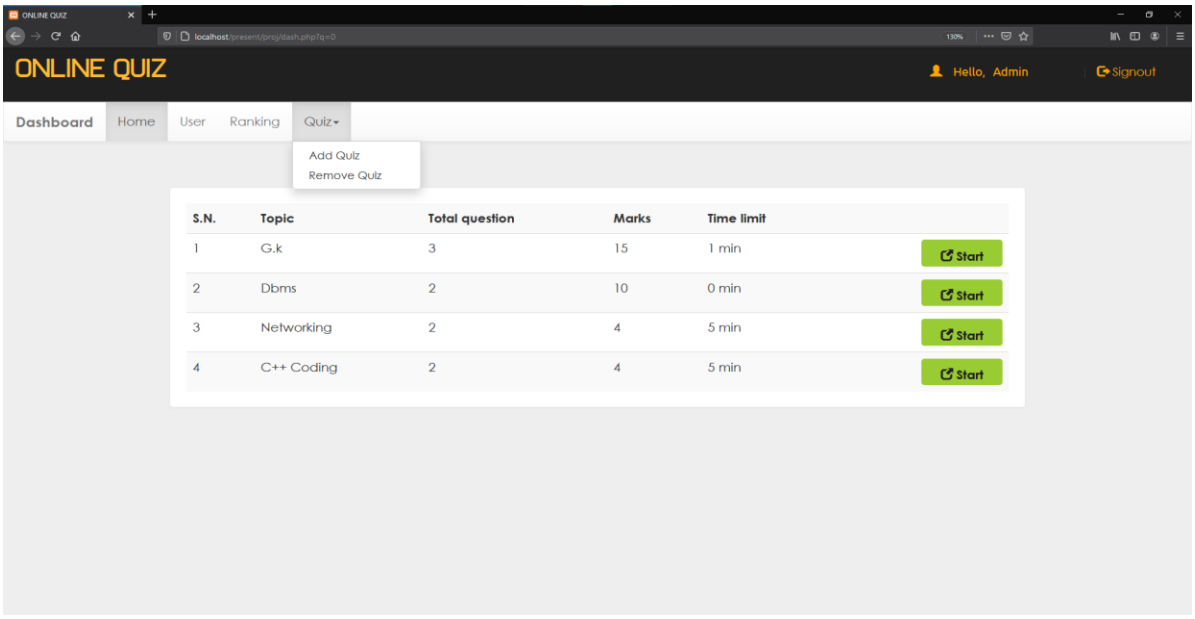

Figure 8 in quiz section add or delete quiz

The admin can either add or remove the quiz as shown in the above figure 6

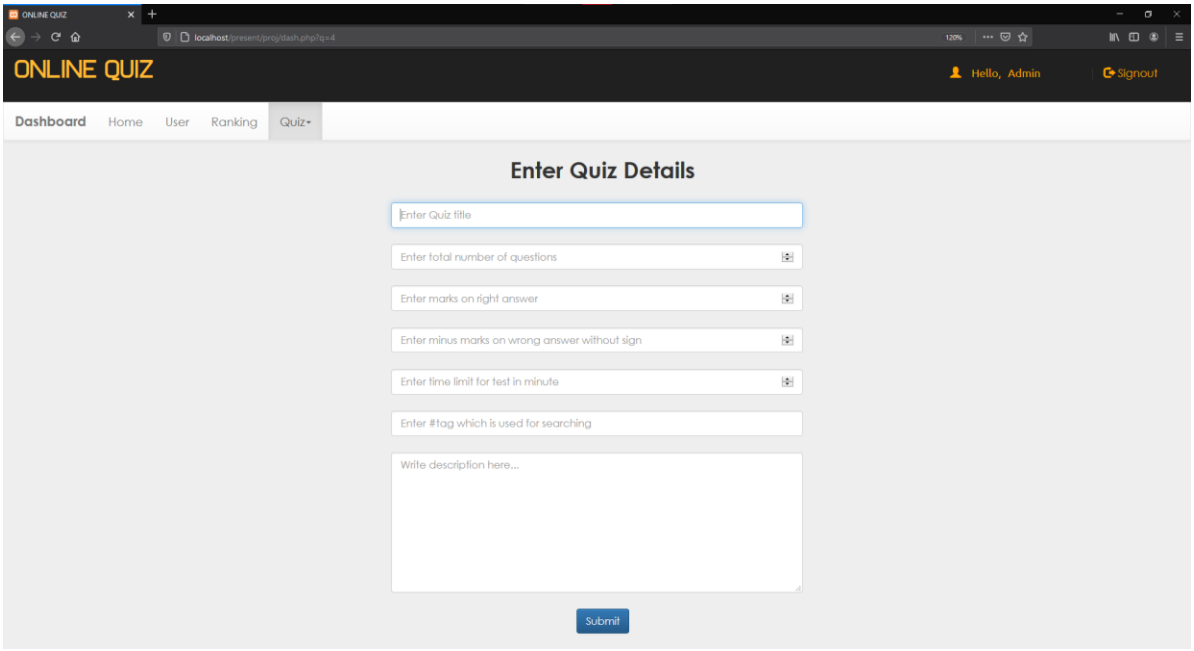

Figure 9 add new quiz

The figure 7 show that we can add the quiz details and submit , next we can add questions

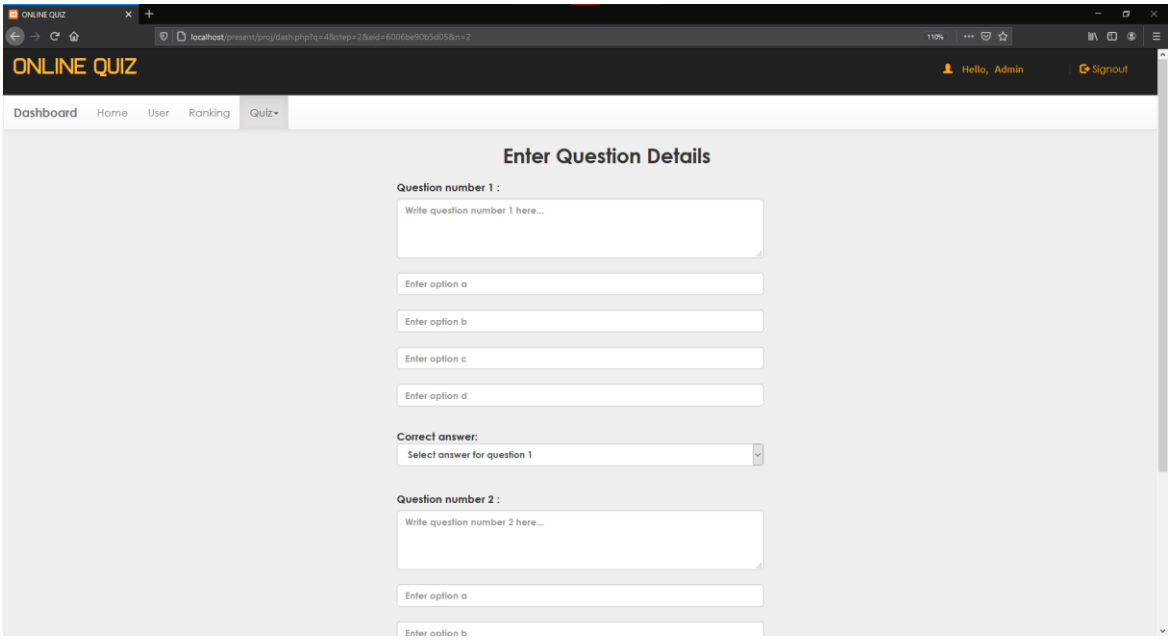

Figure 10 fill out the questions with options and answers

The figure 8 show to fill the questions with the options and the correct option is also stored in correct answer

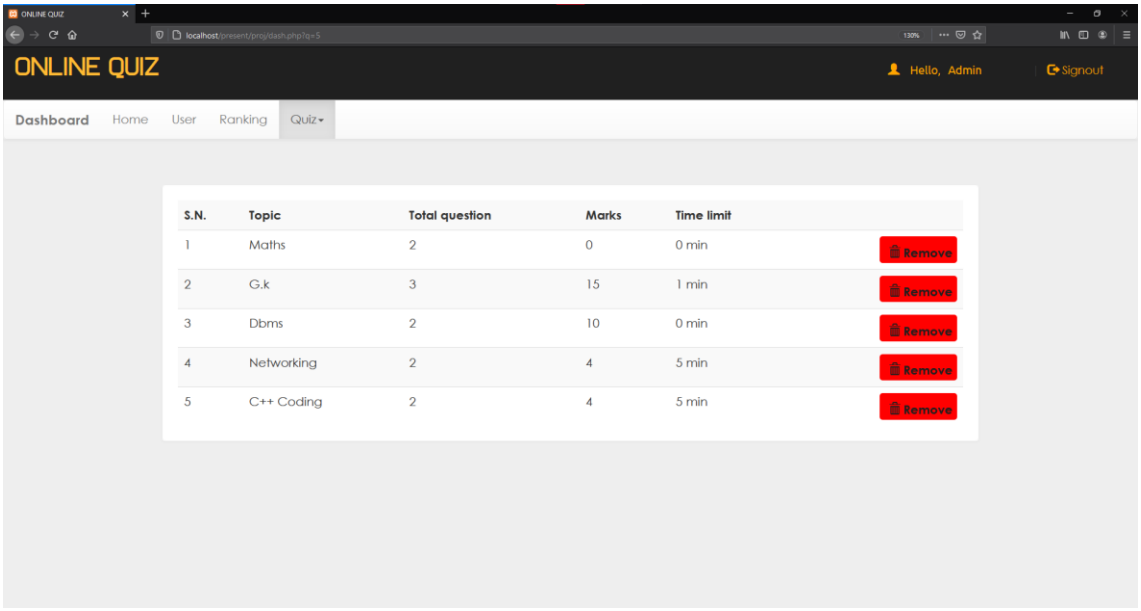

Figure 11 delete quiz

In figure 9 we can delete the quiz by clicking on the remove button and we can logout by clicking on signout button

[USER SIDE]

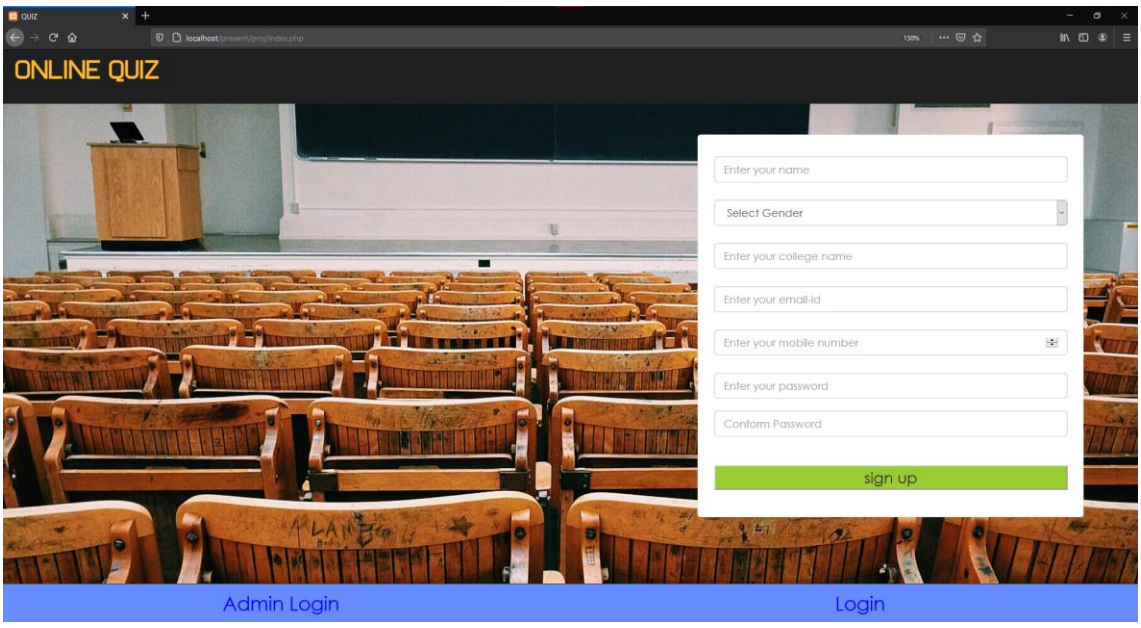

Figure 12 new user signup

In figure 10 we can see if a user is new he/she can sign up in our index page by filling up the details

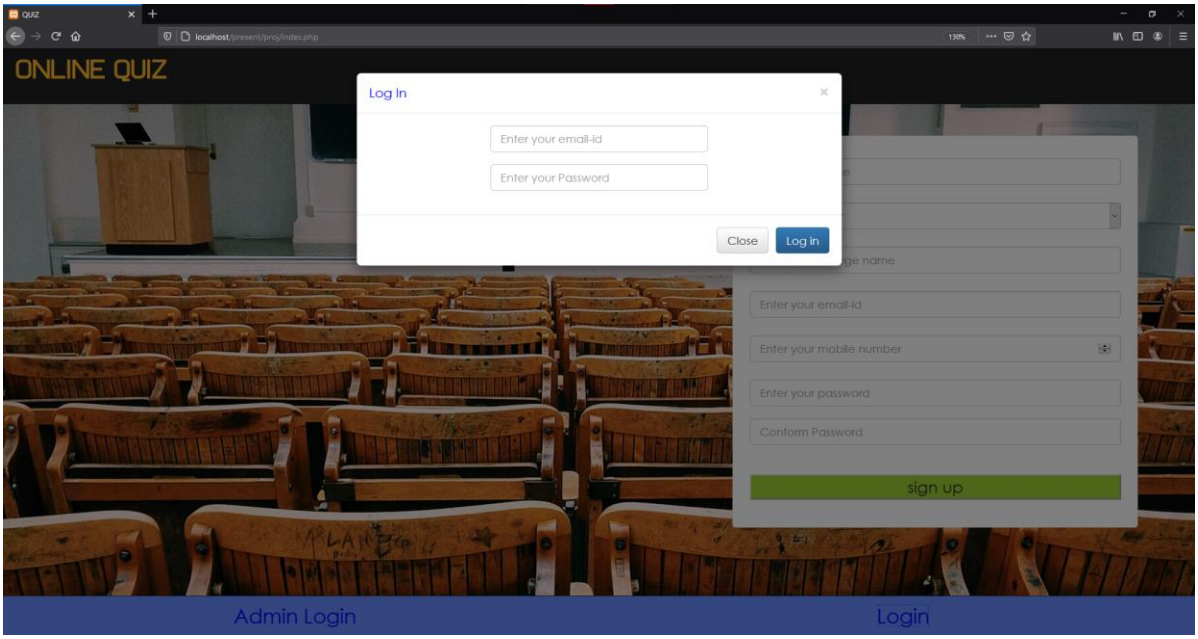

Figure 13 user login

The existing user can login in the above page by using the valid credentials

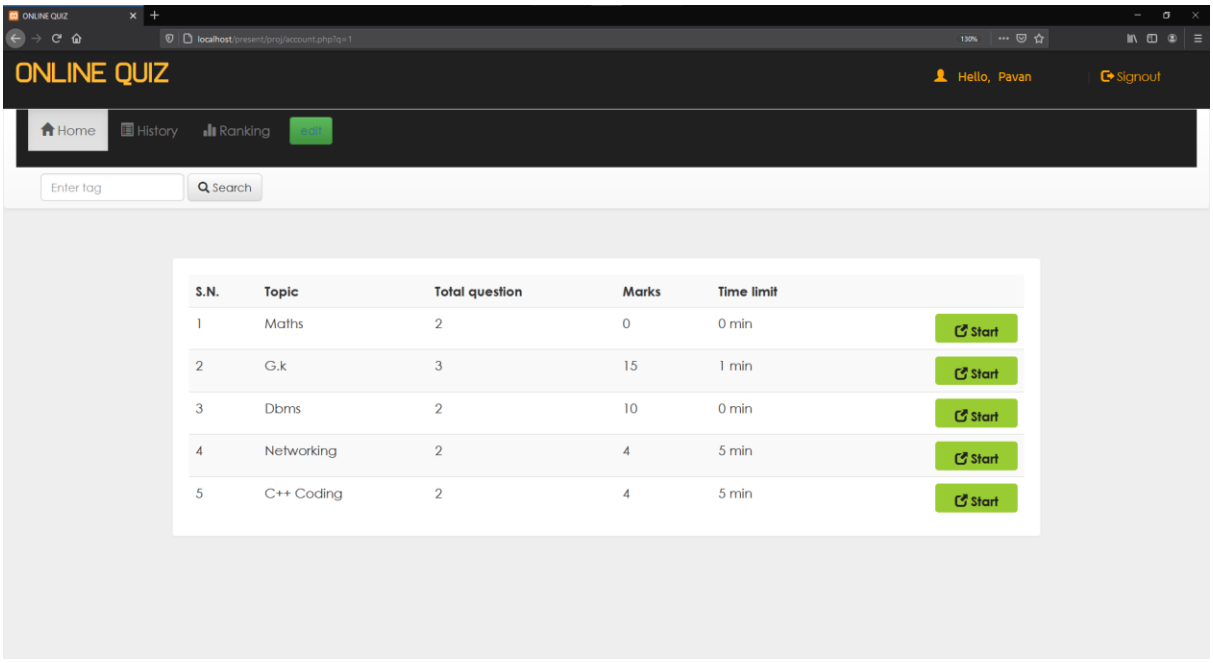

Figure 14 account page of user

When the user logins with the correct credentials they are directed to account page ,they can find three fields history ,ranking and edit

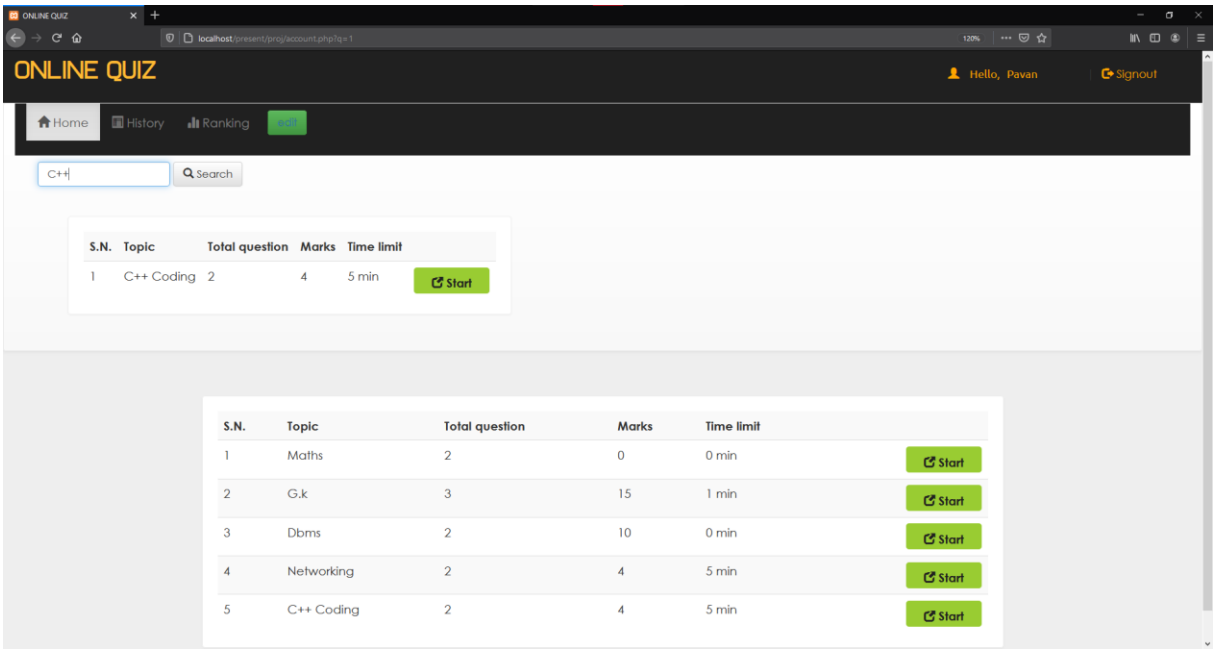

Figure 15 search option

The users can search the respective quiz by entering the text in the search bar the result will be displayed at the top

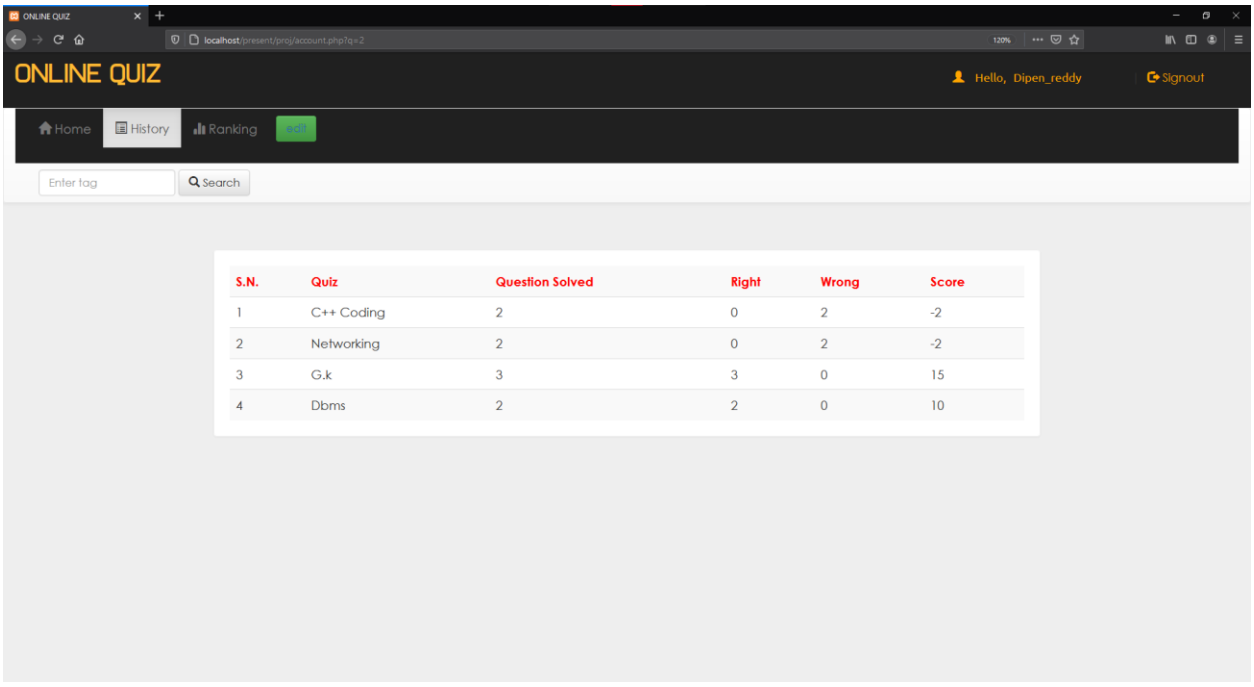

Figure 16 history page of user

The user can see their own results in the history page

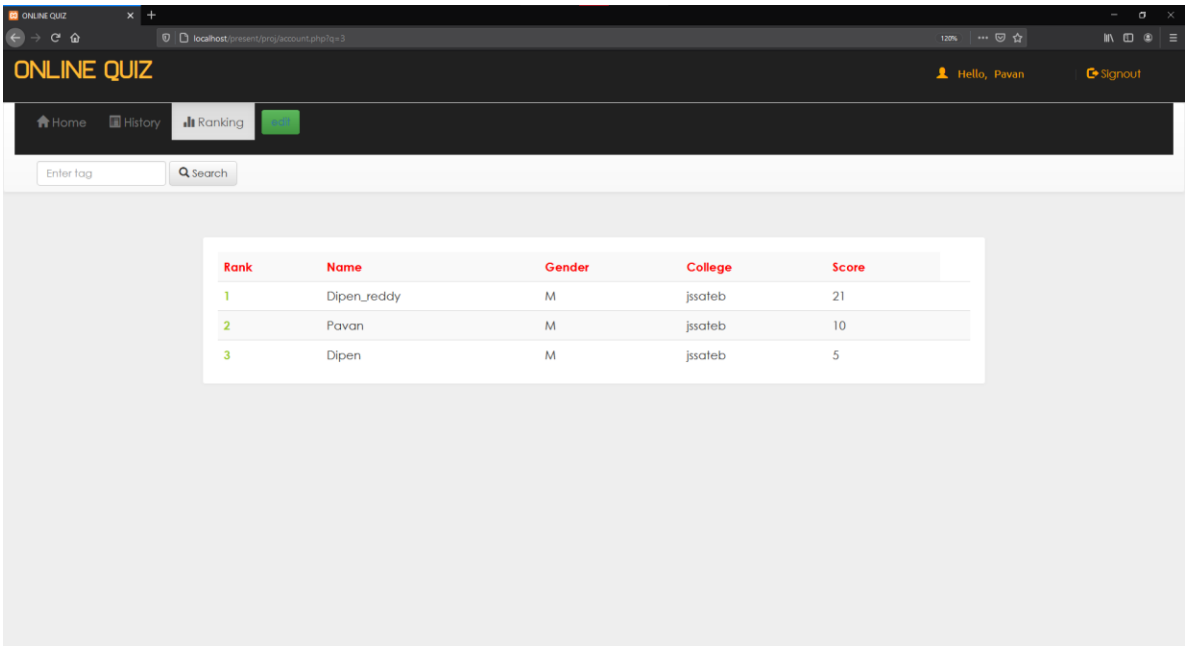

Figure 17 rankings page in user

The users can check their rank in the ranking page as show in figure 15

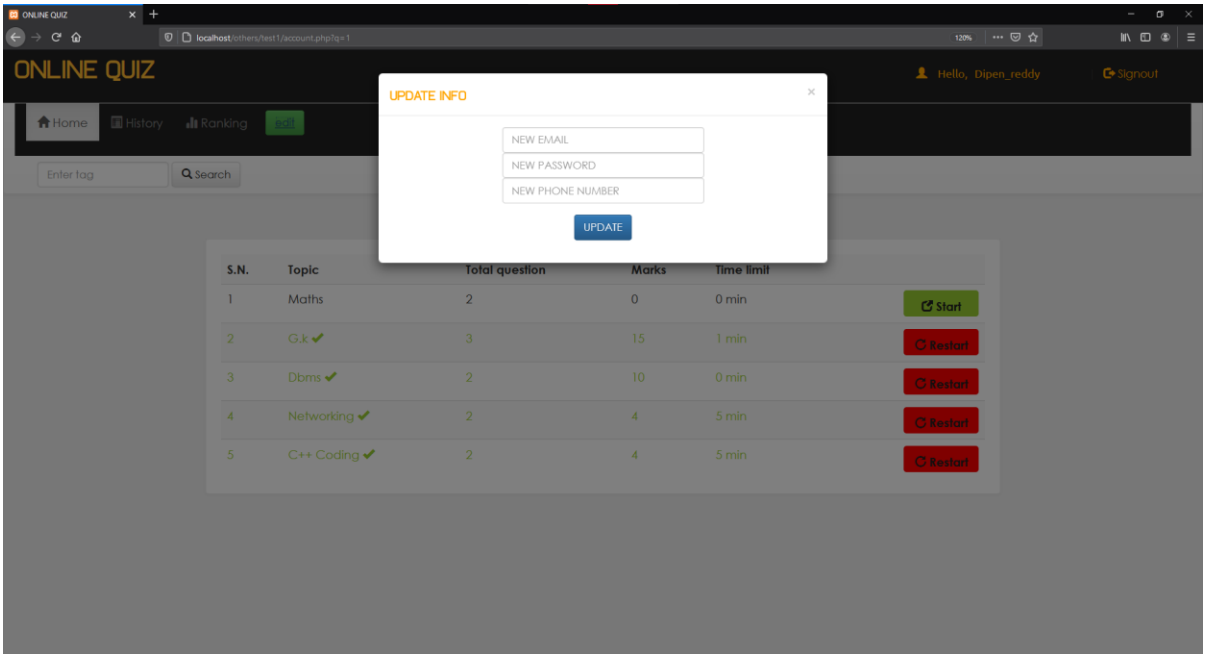

Figure 18 edit option

In the edit option we can change the email,password and phone

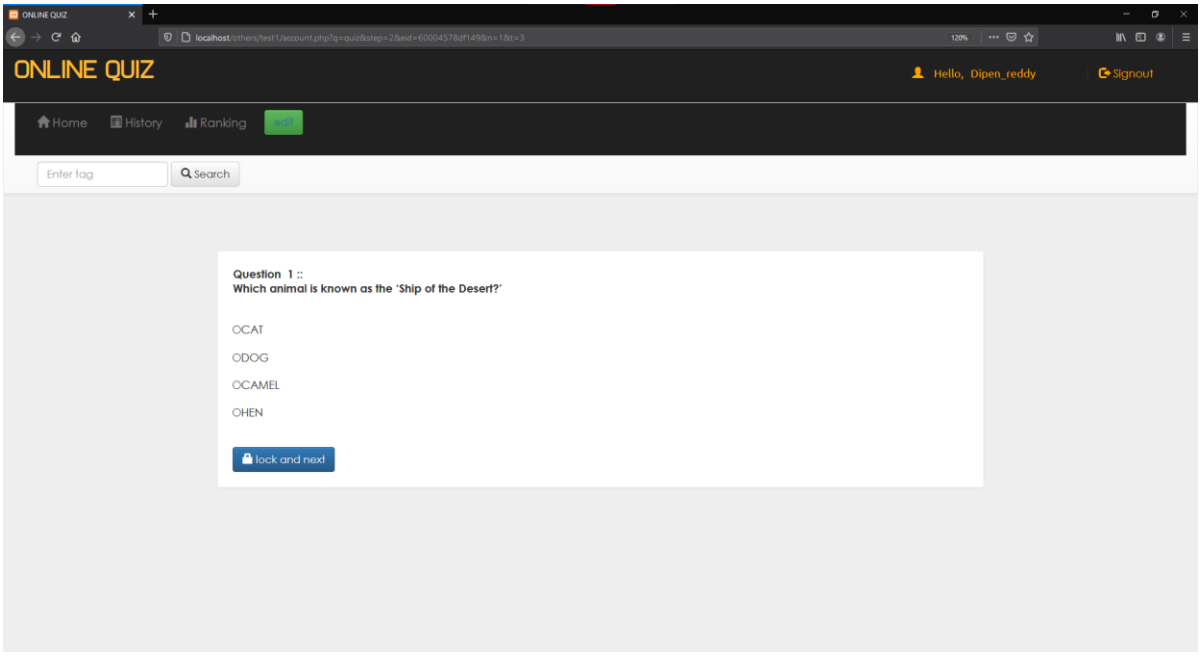

Figure 19 quiz when started

The fig 17 shows when a quiz is started , there will be 4 options we have to select an option and press lock and submit button

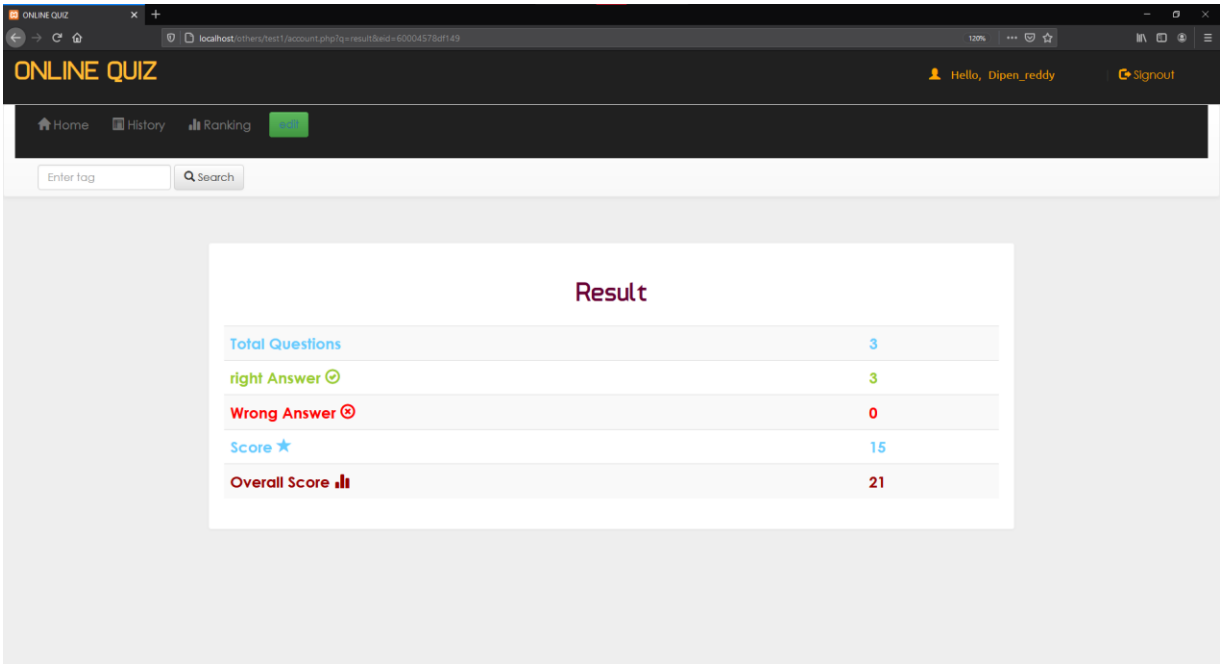

Figure 20 result page

The result page is show in figure 18 and it is stored in history page

CONCLUSION

The project, developed using PHP and MySQL is based on the requirement specification of the user and the analysis of the existing system, with flexibility for future enhancement. The expanded functionality of today's software requires an appropriate approach towards software development. Using an open source language gives us more flexibility, but at the same time it required more time to be programmed .The proposed Online Examination System can be easily adopted by universities and institutions in order to make the exam more secure and more flexible .The system is subdivided into two main subsystems (student and admin) that are designed to give the system maximum benefit by demonstrating carefully each subsystem service .The administrator's functions are clearly identified to be able to manipulate user's information such as add (register), delete users and managing the exam materials and content such as add, delete quiz, Thus the proposed system is easy and flexible because for future maintenance and development because each subsystem can be handled separately without influence on other system

FUTURE ENHANCEMENTS

The current project is just based on taking the information and storing in respective data tables and representing the information in the different required forms and has the ability to search using the attribute. There are some enhancements which can be implemented further. They are as follows:

- The result will be automatically sent into the email of the respective student who as attended the marks
- We can generate online result certificate to students which can be valid all over the city
- Can create module such that the parents can gain information through the window

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