CHAPTER 1

INTRODUCTION

In the modern world of technology, the use of Internet and World Wide Web revolutionized the provision of information and the facility for the user to take action on the information obtained. And also computers are affecting our lives in more ways. Maintaining information of a test results helps faculty to get subject clarity about the students. It is difficult to do the manual work to store the information about the test that happens more frequently in any educational institutions and to hire candidates in companies.

1.1 PROJECT OVERVIEW

Smart Quiz system is proposed conducting online exams with advanced custom settings such as time limits, public & private test access, randomize questions, multiple choices. The objective is that both educational organizations and corporate companies can able to employ this Quiz.

The entire hosting and infrastructure is taken care by the system. The quiz can accept any skills MCQs and support any number of users. With easy user interface and few simple clicks, quiz can be created. It supports public and private contests including secured quizzes. Hassle free process which saves efforts and time for the organizers.

This system supports many concurrent participants with cool leader board features and customizations and quality support to manage the events end-to-end.

1.2 APPLICATION STUDY

- Automation of selecting questions from question bank that has been uploaded by the admin.
- Flexible, scalable, available and high performance database support makes the application more reliable.
- Report generation based on individual and based on the test can be generated in means of graph.
- Admin who hosts the test will have the full control of test as they can edit the question and disable the test.

1.3 DEVELOPMENT ENVIRONMENT

The project entitled “Smart Quiz Website” has been developed with the following hardware and software specifications.

1.3.1 SOFTWARE SPECIFICATION:

Operating System	:	Windows 7
Language	:	PHP
Database	:	MongoDB

1.3.2 HARDWARE SPECIFICATION:

Processor	:	Intel i3 and Above
RAM	:	2GB
HDD	:	300GB

1.4 PROJECT GOALS

The main goals of the project are:

- The objective is that both educational organizations and corporate companies can able to employ this Quiz.
- To create a custom tests online.

1.5 TOOLS AND TECHNOLOGIES

The tools and technologies used in the development of the website are explained in this section.

1.5.1 PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP code is interpreted by a webserver with a PHP processor module which generates the resulting webpage.

PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications.

PHP is free software released under the PHP License, which is incompatible with the GNU General Public License (GPL) due to restrictions on the usage of the term PHP. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

1.5.2 MONGODB

MongoDB is an open-source document database and leading NoSQL database. It is a cross-platform, document oriented database that provides, high performance, high availability, and easy scalability. MongoDB works on concept of collection and document.

MongoDB stores data in flexible, JSON-like documents, meaning fields can vary from document to document and data structure can be changed over time. The document model maps to the objects in your application code, making data easy to work with.

Ad hoc queries, indexing and real time aggregation provide powerful ways to access and analyse your data. MongoDB is a distributed database at its core, so high availability, horizontal scaling, and geographic distribution are built in and easy to use.

MongoDB uses the concept of sharding to scale horizontally by splitting data across multiple MongoDB instances. MongoDB can run over multiple servers, balancing the load and/or duplicating data to keep the system up and running in case of hardware failure.

1.5.3 JQUERY

JQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript. There are lots of other JavaScript frameworks out there, but jQuery seems to be the most popular, and also the most extendable.

There are two ways to use jQuery. They are:

- **Local Installation** − downloading jQuery library on local machine and include it in your HTML code.
- **CDN Based Version** − Include jQuery library into HTML code directly from Content Delivery Network (CDN).

1.5.4 AJAX

AJAX stands for Asynchronous JavaScript and XML. AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and Java Script. Ajax uses XHTML for content, CSS for presentation, along with Document Object Model and JavaScript for dynamic content display.

Conventional web applications transmit information to and from the sever using synchronous requests. It means you fill out a form, hit submit, and get directed to a new page with new information from the server. With AJAX, when you hit submit, JavaScript will make a request to the server, interpret the results, and update the current screen. In the purest sense, the user would never know that anything was even transmitted to the server. XML is commonly used as the format for receiving server data, although any format, including plain text, can be used.

AJAX is a web browser technology independent of web server software. A user can continue to use the application while the client program requests information from the server in the background. Intuitive and natural user interaction. Clicking is not required, mouse movement is a sufficient event trigger. Data-driven as opposed to page-driven.

CHAPTER 2

SYSTEM ANALYSIS

This chapter describes the analysis of the system. Analysis is detailed study of the various operations performed by the system and their relationship within and outside the system. The analysis has been done taking into consideration the exact requirements of the user. This chapter deals in details about the objectives of the system and then gives a detailed description about the system.

2.1 FEASIBILITY STUDY

Feasibility study is the study conducted to find out whether the proposed system can be built with the given technology resources. It gives the time and cost constraints of the organisation and checks whether the technology used is acceptable by the system.

There are 3 aspects in the feasibility study:

- Technical feasibility
- Economic feasibility
- Social feasibility

2.1.1 TECHINCAL FEASIBILITY

Here it is checked whether the developer of the system has sufficient benefits in using the required technologies for development. It is ensured that the system will not cause any overhead to the users. The proposed system is tested for technical feasibility.

2.1.2 ECONOMICAL FEASIBILITY

This project is economically feasible for the following reasons:

- The organization or institution doesn't need any environment to specially deploy this project.
- This project can be available at free of cost as the software can be provided in means of software as service.

2.1.3 SOCIAL FEASIBILITY

This project is also socially feasible because it has great impact on conducting the test by the organization or institution.

2.2 EXISTING SYSTEM

Existing system has the following limitations:

- Handling large number of data is tedious process.
- There is no resuming of test available.
- More expensive in maintaining the data.
- There is no automation of selecting a question from question bank.
- No dynamic schema is used which deals with reliability of the software.

2.3 PROPOSED SYSTEM

To overcome the existing system we give user friendly website which facilitates the user with rich environment. Automation of selecting question from question bank is possible. The test admin will upload a question bank from which the questions are selected for test dynamically. The automation system uses optimised algorithmic method as the user no need to wait for the long time to start the test.

Flexibility in adding, removing, deleting the data makes the application more reliable. User does not need to scroll the page while taking the test as the interface is made in a manner that all the questions are displayed in a tabs. This makes the application more scalable. This application uses high performance database system, so data manipulation takes very less time.

Reports can be viewed in different types of graphs such as bar graph, pie chart and box plot. It is possible to enable or disable the test by the admin at any point of time. The complete control of the test will be handled by the test admin.

CHAPTER 3

SYSTEM DESIGN

The design phase begins with the requirement specification document for the system to be made available. While the requirement activity is entirely a problem domain, design is the first step in moving from the problem domain towards the solution domain. Design is essentially the bridge between requirements specification and the final solution for satisfying the requirements.

System design is an iterative process through which requirements are translated into a "blueprint" or a representation of software that can be accessed for quality before code generation starts. Fundamental software design concepts provide the necessary framework for getting the right information.

The data design transform the domain model created during analysis into the data structures that will be required to implement the software. The data objects and relationships defined will provide the basis for the data design activity. Part of data design may occur in conjunction with the design of the software architecture.

The interface design describes how the software communicates within itself and with systems that interoperate with it. An interface implies a flow of information and a specific type of behaviour.

The design system of the smart quiz system has been implemented in a way such that the user can able to interact with the system easily. The smart quiz system has been designed in way such that the flow of data and the dynamic content generation of the system can be handled with no error.

3.1 CONTEXT ANALYSIS DIAGRAM

A Context Analysis Diagram in a software engineering and systems engineering is a diagram that defines the boundary between the system, or part of a system, and its environment, showing the entities that interact with it. This diagram is high level view of a system. It is similar to a block diagram. The CAD diagram of Smart Quiz Website is shown in the fig3.1.

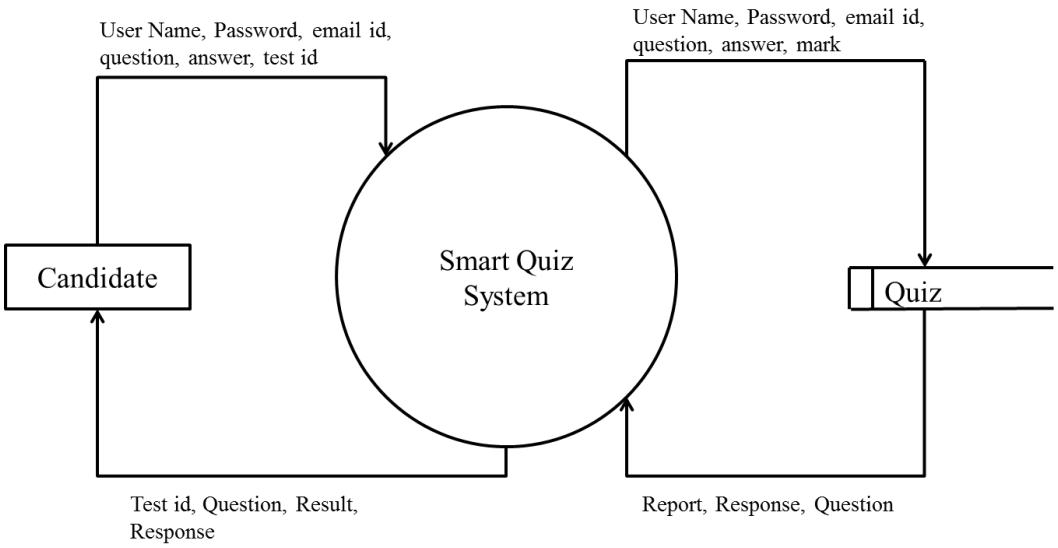

Fig 3.1 Context Analysis Diagram

3.2 DATA FLOW DIAGRAM

Data flow diagrams are used to graphically represent the flow of data in a business information system. DFD describes the processes that are involved in a system to transfer data from the input to the file storage and reports generation.

DFD graphically representing the functions, or processes, which capture, manipulate, store, and distribute data between a system and its environment and between components of a system. The visual representation makes it a good communication tool between User and System designer. Structure of DFD allows starting from a broad overview and expand it to a hierarchy of detailed diagrams.

DFD has often been used due to know logical information flow of the system, determination of physical system construction requirements, simplicity of notation and establishment of manual and automated systems requirements.

The DFD diagram of Smart Quiz Website is shown in the fig3.2.

LEVEL 1

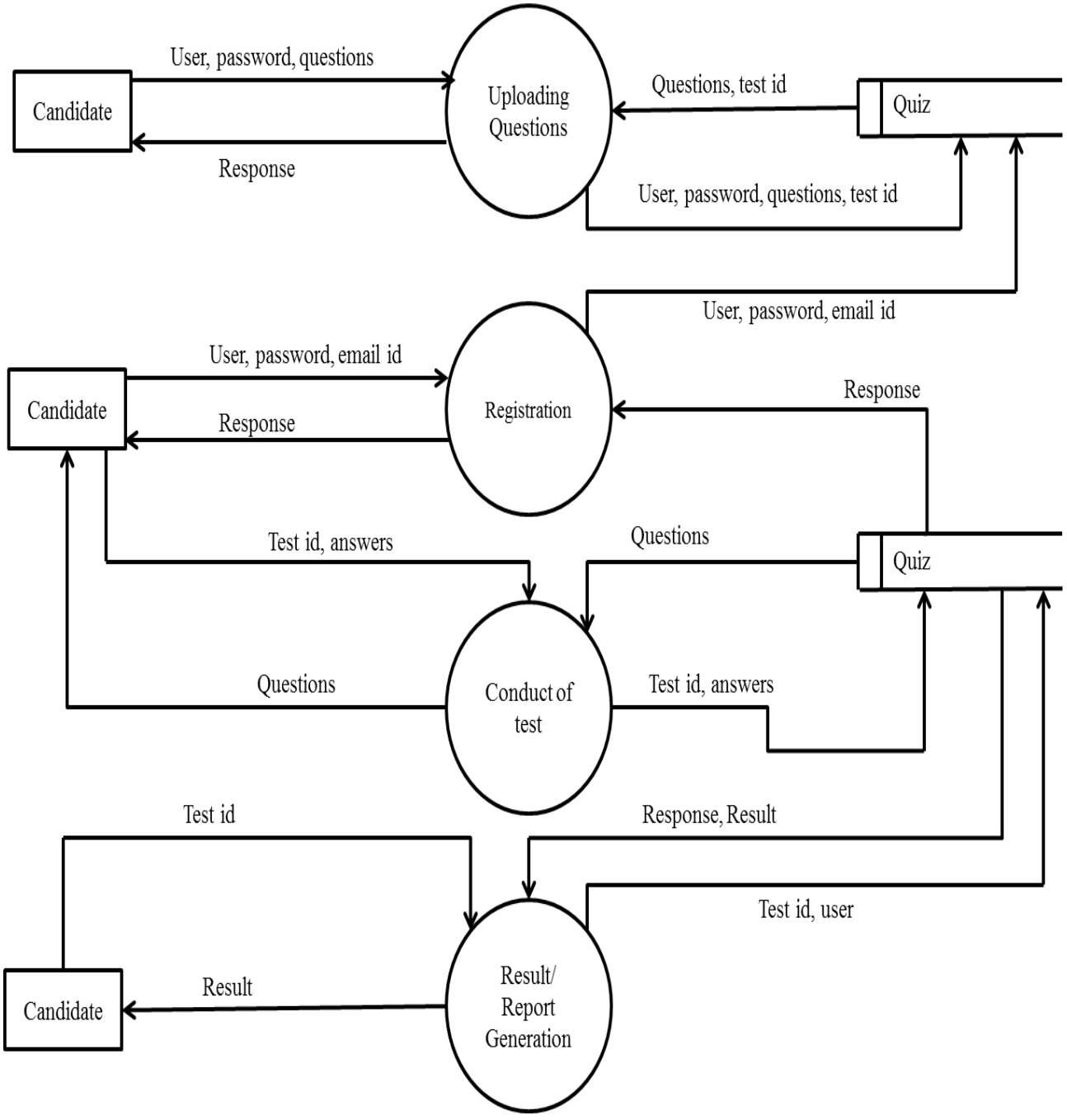

Fig 3.2 Data Flow Diagram

3.3 DATABASE DESIGN

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters needed to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity. The term database design can be used to describe many different parts of the design of an overall database system. The following are the database collections used in the proposed system.

Collection Name: USER

Primary Key: email

Description:

This table has been used to store the user details for user authentication and authorisation.

Field	**Data Type**
Email	Varchar(100)
Name	Varchar(50)
Password	Varchar(20)

Table 3.1 User

Collection Name: TESTS

Primary Key: testid

Foreign Key: email

Description:

This table has been used to store the tests that have been created by each user which contains all the basic detail about the tests.

Field	**Data Type**
Testid	Int(4)
email	Varchar(50)
Title	Varchar(50)
Questions	Int(3)
time	Int(3)
max	Int(3)
Negative	Double(4,3)
Status	Boolean
People	Int(3)

Table 3.2 Tests

Collection Name: QUESTIONS

Foreign Key: testid

Description:

This table has been used to store the questions, options and the score assigned for each question.

Field	**Data Type**
Testid	Int(4)
Question	Text
Questionimage	Blob
Optiona	Text
Optionaimage	Blob
Optionb	Text
Optionbimage	Blob
Optionc	Text
Optioncimage	Blob
Optiond	Text
Optiondimage	Blob
Answer	Varchar(5)
Score	Int(2)

Table 3.3 Questions

Collection Name: RESULTS

Foreign Key: email, testid

Description:

This table has been used to store the results of each test taken by each user.

Field	**Data Type**
Testid	Int(4)
Email	Varchar(50)
Questions	Int(3)
Correct	Int(3)
Wrong	Int(3)
Attended	Int(3)
Notattended	Int(3)
Score	Double(4,3)

Table 3.4 Results

Collection Name: STATUS

Foreign Key: email, testid

Description:

This table has been used to store the status of each test taken by each user.

Field	**Data Type**
Testid	Int(4)
Email	Varchar(50)
Test_taken	Boolean

Table 3.5 Status

CHAPTER 4

SYSTEM IMPLEMENTATION

This chapter discusses the implementation of the modules and snapshots of the system implemented.

4.1 SCREEN SHOTS

This section includes the screen shots of each page and module implemented in the system.

The fig 4.1 shows the user registration and login page of Smart Quiz Website. The user can register their account and login their account here.

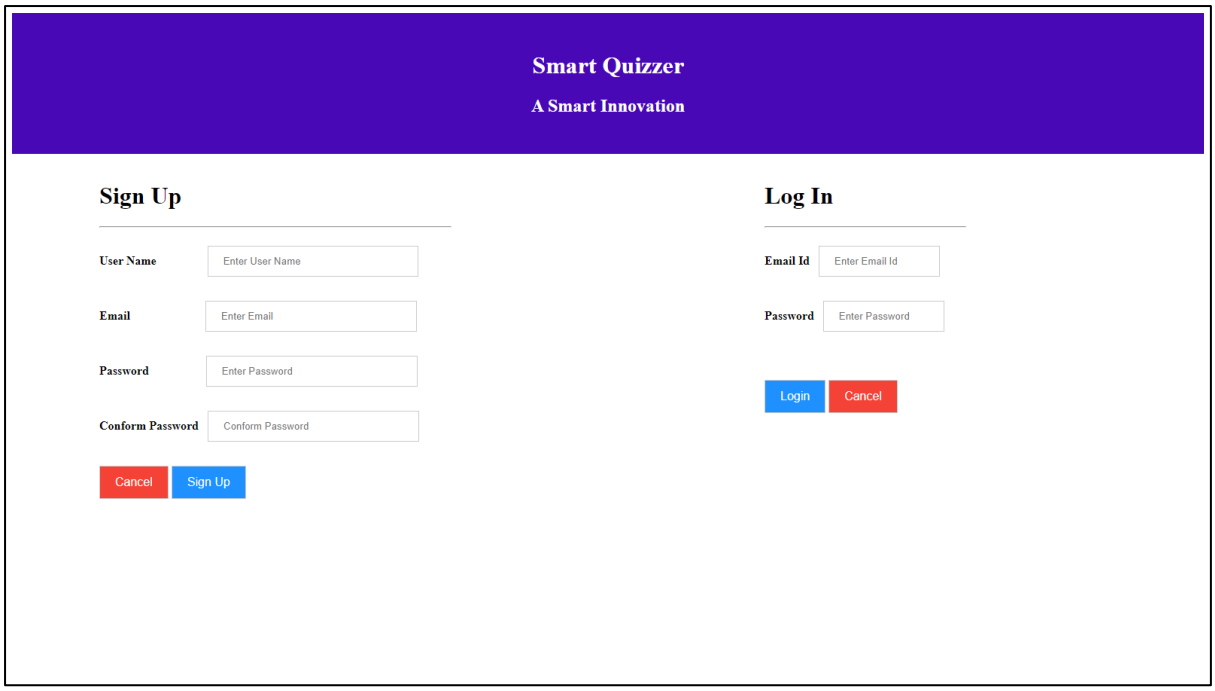

Fig 4.1 Login and Registration Page

The fig 4.2 shows the home page of the smart quizzer after signing in the website. Here the menus will be displayed.

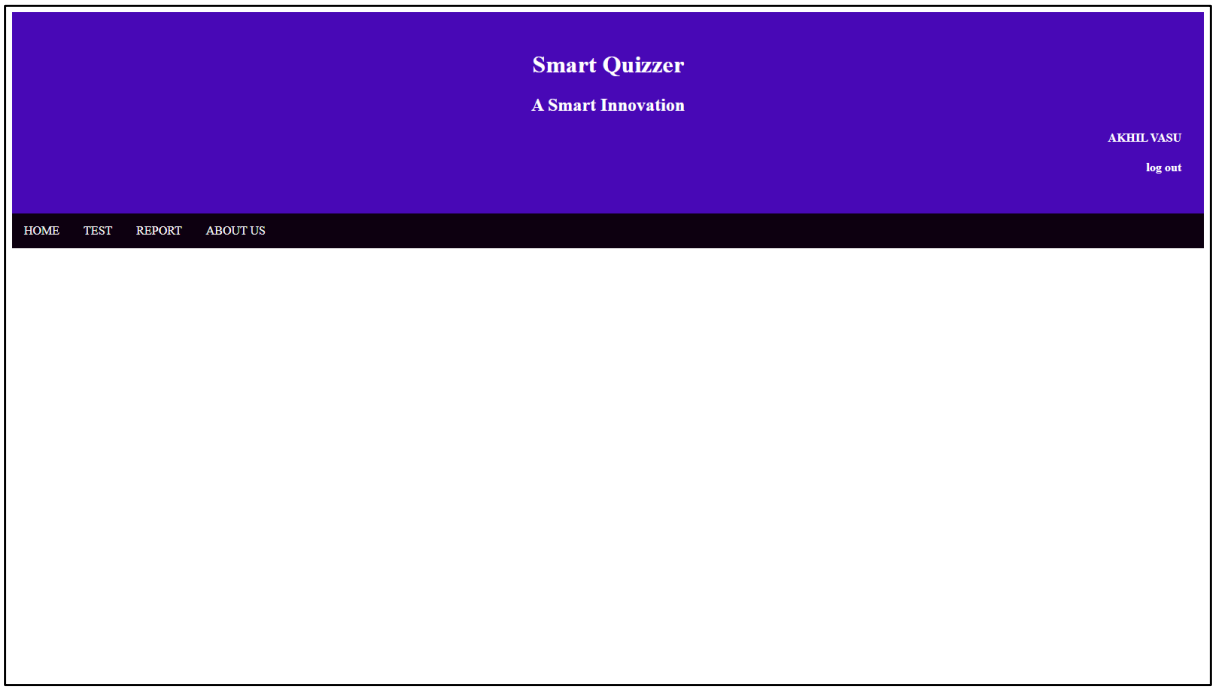

Fig 4.2 Home Page

The fig 4.3 shows the create test page where the user have to provide the basic details about the test and the test has been created.

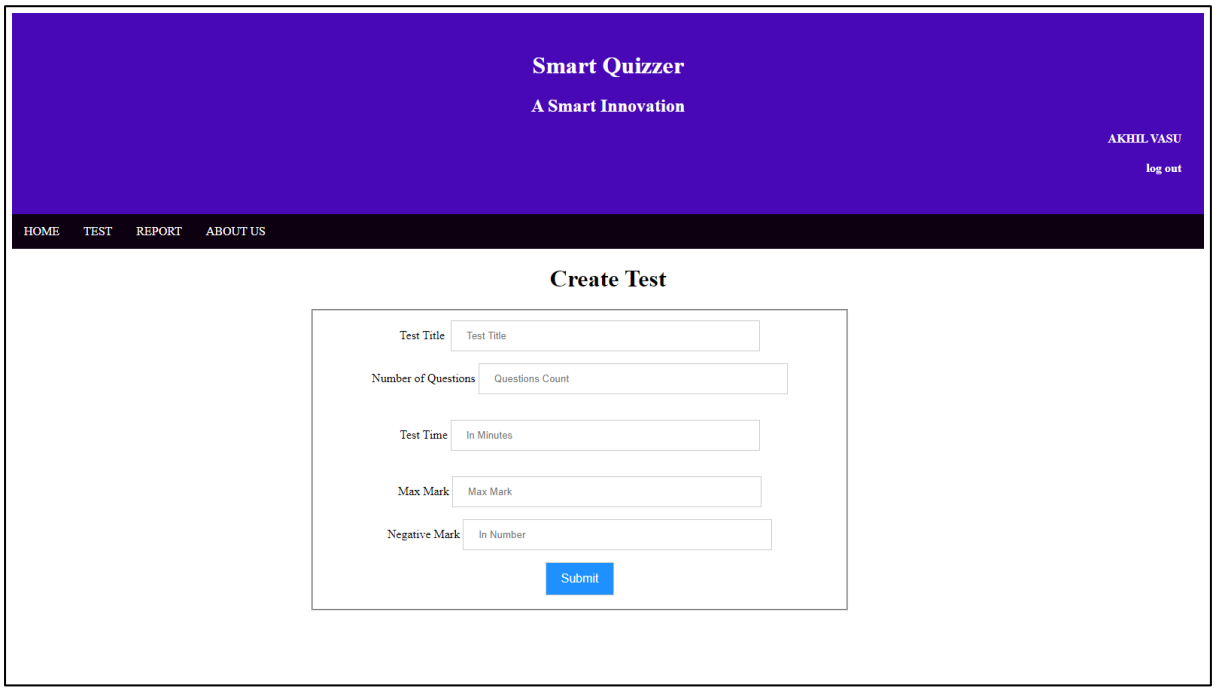

Fig 4.3 Create Test Page

The fig 4.4 shows the control panel of the test that has been created where we can enable or disable the test, upload the questions and edit the uploaded questions.

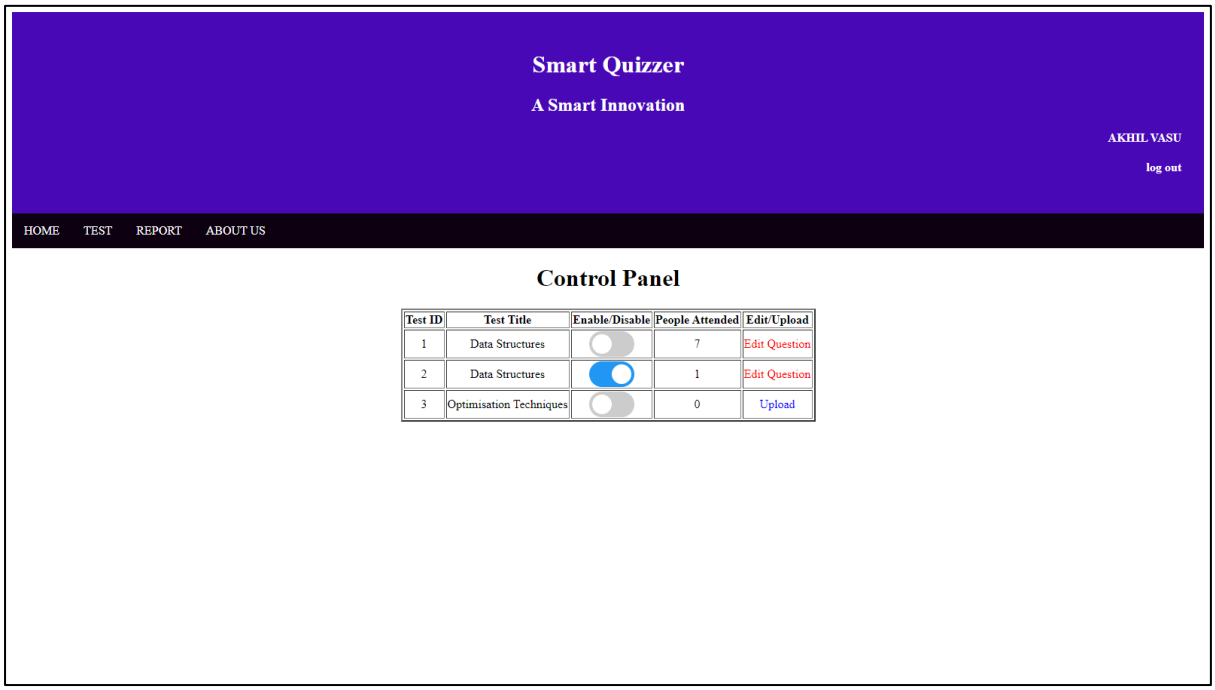

Fig 4.4 Control Panel Page

The fig 4.5 shows the upload questions page where the test admin will upload the questions and their respective score.

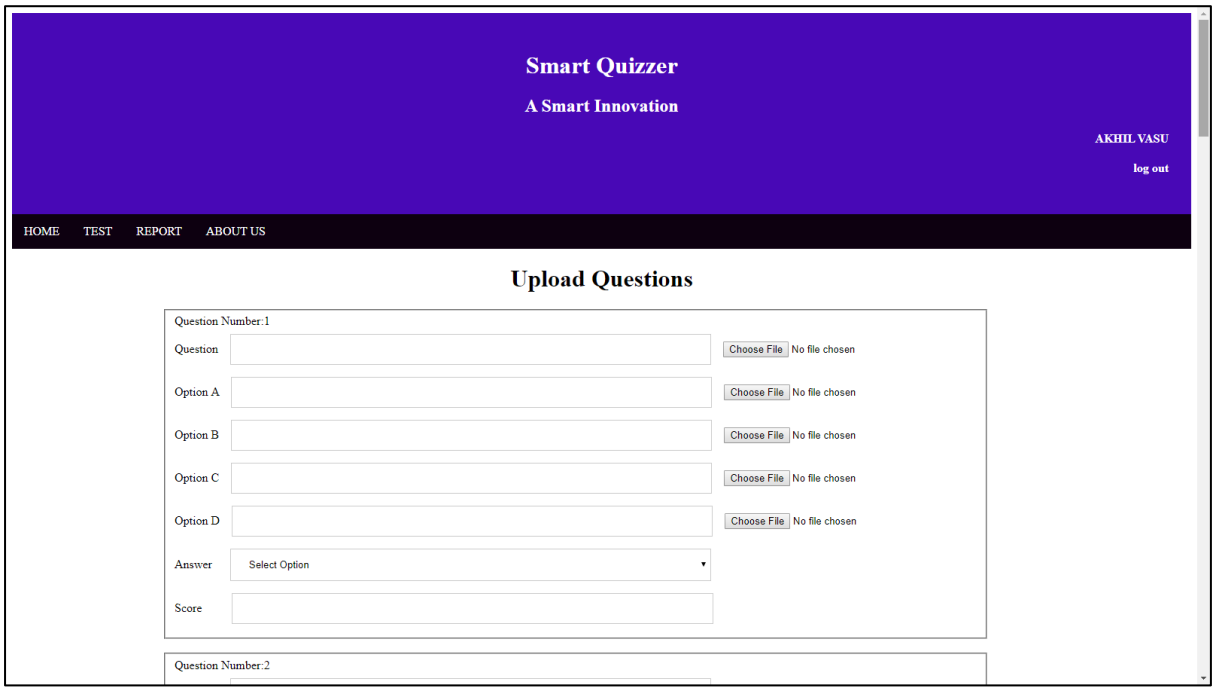

Fig 4.5 Upload Questions Page

The fig 4.6 shows the edit questions page where the uploaded questions can be edited here.

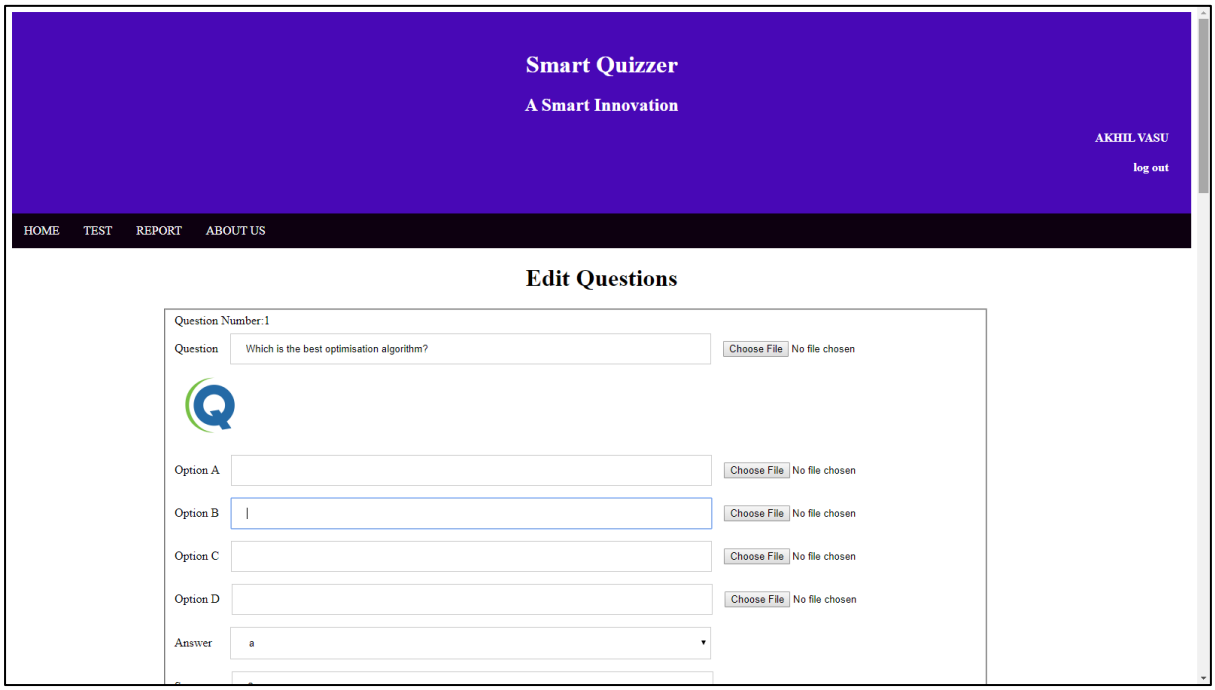

Fig 4.6 Edit Questions Page

The fig 4.7 shows the search test page where by using the test id, tests can be found.

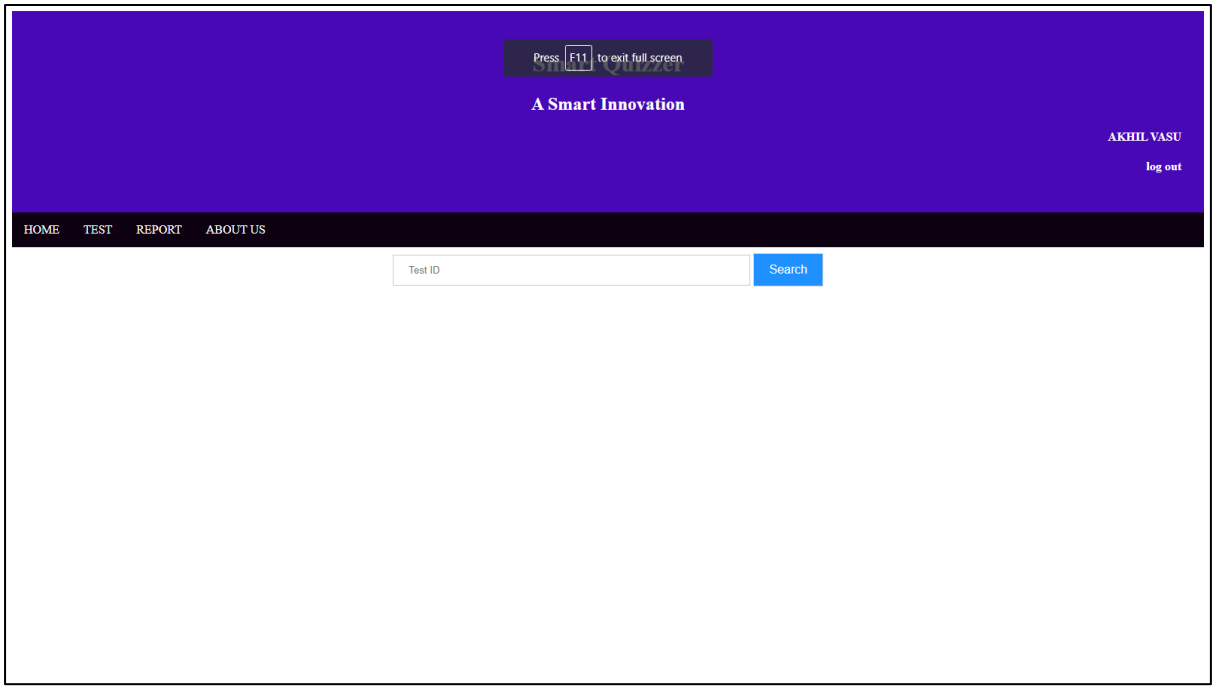

Fig 4.7 Search Test Page

The fig 4.8 shows the instruction for the searched test which will be changed dynamically based on the test type.

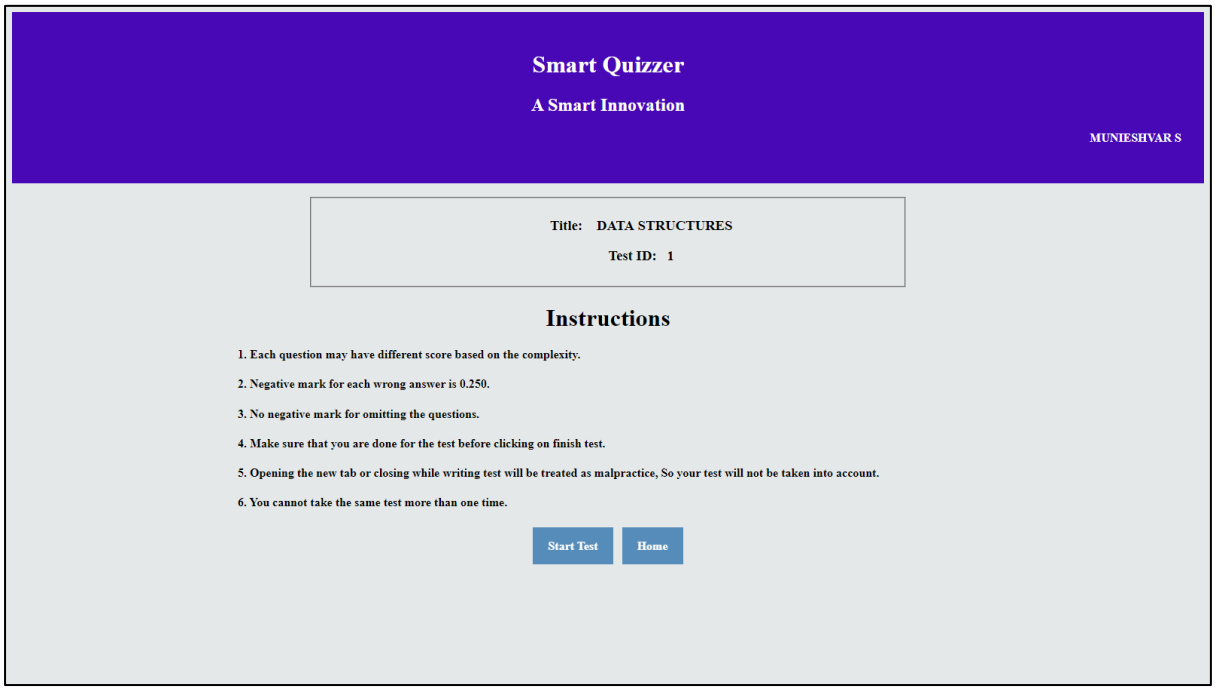

Fig 4.8 Test Instruction Page

The fig 4.9 shows the test page where the user will take the test.

Fig 4.9 Test Page

The fig 4.10 shows the result after completing the test.

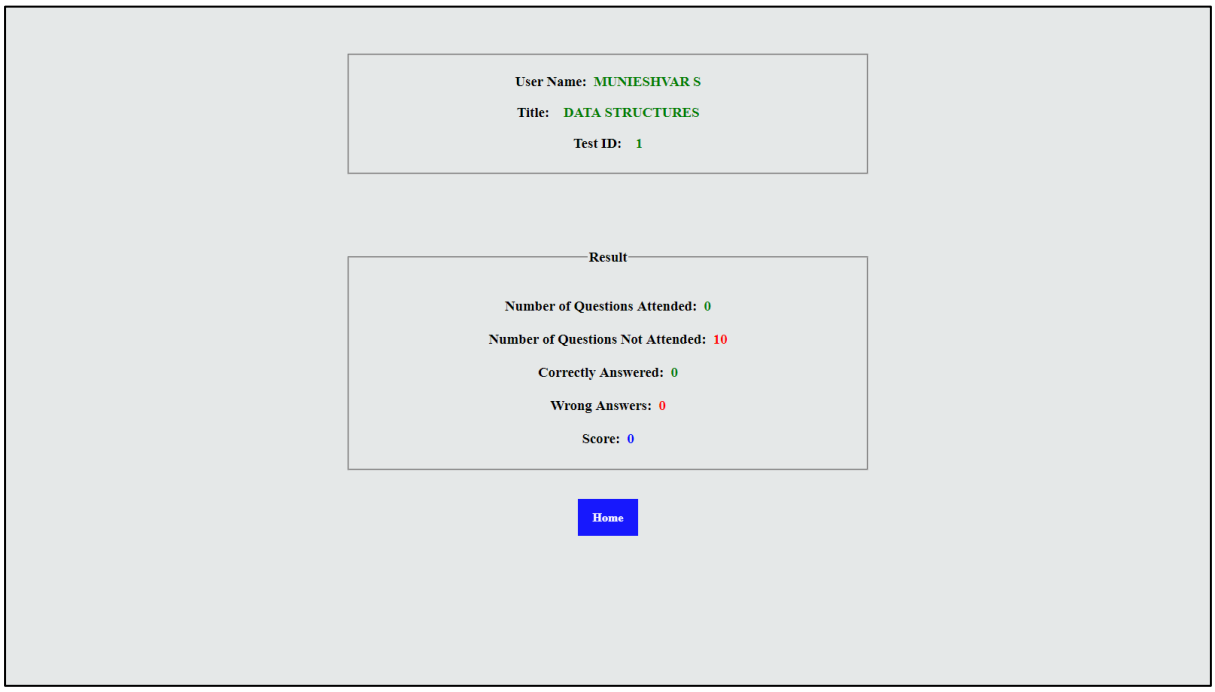

Fig 4.10 Result Page

The fig 4.11 shows the graph reports for the test in which the percentage scored by each user in the particular test.

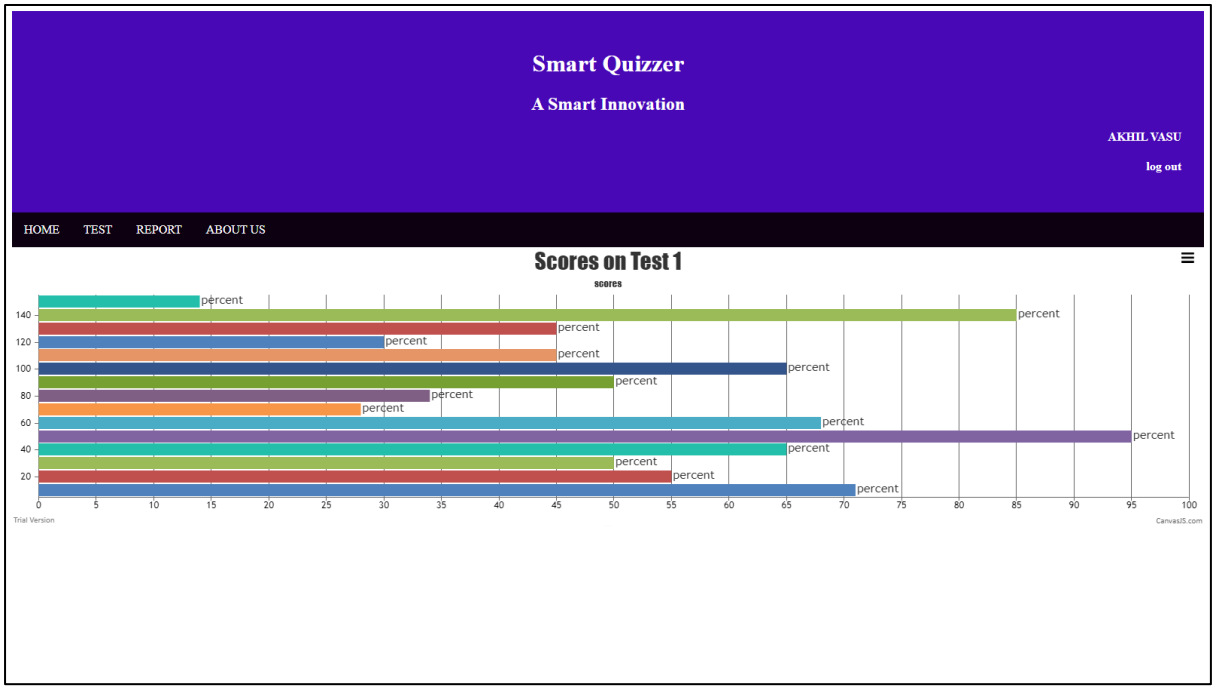

Fig 4.11 Reports Page

The fig 4.12 shows the result of tests taken by the user.

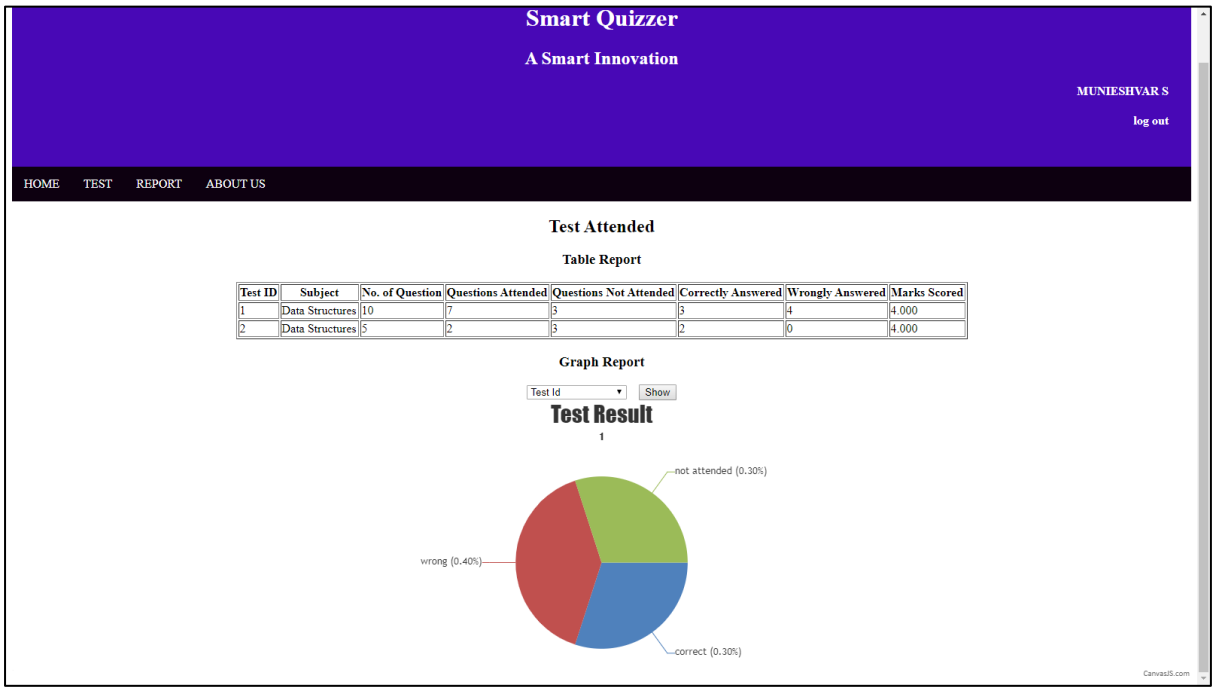

Fig 4.12 User Result Page

The fig 4.13 shows the description about the website.

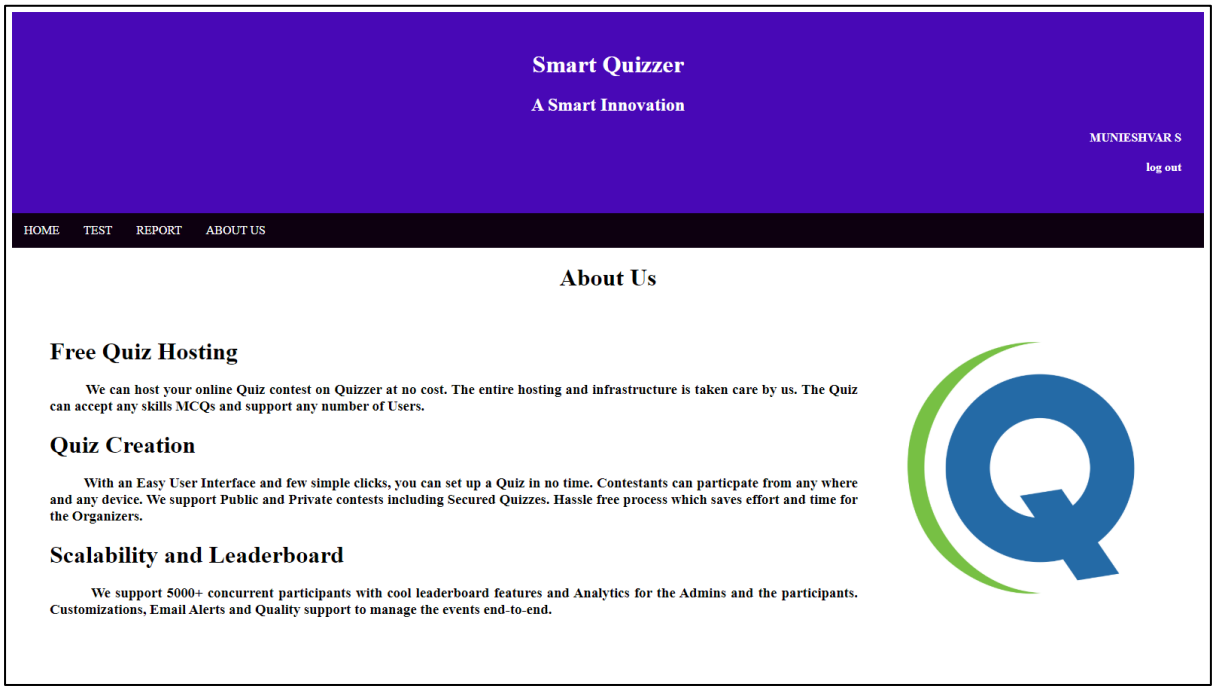

Fig 4.13 About Us Page

CHAPTER 5

SYSTEM TESTING

This chapter is to describe about the system testing and to illustrate about the different types of testing methodologies.

The system was tested at various stages of the development process to fix bugs at the earliest stage and produce a bug-free deliverables. The major quality objective was to provide correct indicators to the users.

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small scale systems.

The following are the testing methodologies implemented for this project development.

- Unit testing
- Integration testing

5.1 UNIT TESTING

Unit testing is a procedure used to validate that a particular module of source code is working properly. This procedure is to write test cases for all functions and methods so that whenever there is an issue, it can be quickly identified and fixed. It is used in this project to test each and every module. So that user of this application can use it without facing any issues.

The following are the testing report:

- Creating the test is working with the entire positive and negative test cases.
- Uploading of the questions has been working with question and options having both image and text.
- Editing the uploaded questions has been working with all possible test cases.
- Control panel for the test is working with enabling and disabling the test and supports real time control.
- The test module is working on randomising the questions.

5.2 INTEGRATION TESTING

Integration testing is a logical extension of unit testing. In its simplest form, two units that have already been tested are combined into a component and the interface between them is tested. Integration testing technique is also applied in this project to test whether all the masters combined are working correctly.

The following are the testing report:

- Once the test is created in test module, the questions can be uploaded.
- Only if the questions are uploaded then the questions can be edited.
- The questions were randomly selected from the question bank for the given test id.

CHAPTER 6

CONCLUSION

Smart Quiz system has been used for conducting online exams with advanced custom settings such as time limits, public & private test access, randomize questions, multiple choices. This system can be used both by any organisations and educational institutions for conducting online tests. This system gives the complete control of the test to the user who creates the test. This system can handle a large number of data and helps in analysing the test results using graphs.

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