Quiz Contest Project

SUBMITTED IN PARTIAL FULFILLMENT OF DEGREE

OF

BACHELOR OF TECHNOLOGY (COMPUTER SCIENCE ENGINEERING)



Submitted By:

Nishtha

1706482

Submitted To:

Prof. Kapil Sharma

Prof. Inderjit Singh

Prof. Priyanka Arora

Training Coordinator

CSE Department

Department of Computer Science and Engineering Guru Nanak Dev Engineering College Ludhiana,141006

Quiz project

Acknowledgement

The author is highly is highly grateful **Mr. Sehajpal Singh**, Principal of Guru Nanak Dev Engineering College(GNDEC), Ludhiana for providing this opportunity to carry out the six weeks industrial training at Skill Training Centre(STC GNDPC).

The constant guidance and encouragement received from **Miss Aashima mam** T&P,GNDEC Ludhiana has been of great help in carrying out the project work and is acknowledged with reverential thanks.

The author would like to express a deep sense of gratitude and thanks profusely to **Miss Aashima** tutor of training. Without the wise counsel and able guidance, it would have been impossible to complete the report in this manner. The author extend its gratitude to Training Coordinators – **Prof. Kapil Sharma**, **Prof. Inderjit Singh** and **Prof. Priyanka Arora**, who assisted us in compiling the project. The author also express gratitude to other faculty members of Computer Science department of GNDEC for their intellectual support throughout the course of this work.

Nishtha

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CHAPTER[1]:-Introduction to organisation

Skill Training Centre

Guru Nanak Dev Polytechnic College, was established by Nankana Sahib Education Trust in 1953 and then Guru Nanak Dev Engineering College in 1956. Both the colleges are spread over in an area of 88 acres in an ideal surroundings on Ludhaina-Makerkotla Road at a distance of 10 kms from railway station and 5 kms from main bus stand.

Ludhiana is thickly populated industrial city. There is a vast scope of employment. With the result Nankana Sahib Education Trust established **Skill Training Centre** in 1985-1986. This Campus is also laid out beautifully with planned lawns, play grounds and solar systems etc. The urge to coherse with the latest technology places it into best technology institution of the area. The foremost building resource of the institution are well versed with latest technology and competitive educational skills.



Fig 1 Organisation

[CHAPTER_2]:-INTRODUCTION TO PROJECT

2.1 Overview

"Quiz Contest" is an android application that has general Questions related to current affairs and

Computer. It has multiple choice Questions with time limit and it also cal--culate score of each

correct answer.It is good for students of every age group it he

-lps in increasing general knowledge about world, sports and computer etc. Registration is

simple giving username and password. It will saved automatically in DataBase and you can

login again with the same username and password you don't have to worry about the past score.

The application helps the user to increase his/her knowledge. Since smartphone mobiles are

being widely used by general population and students, the Quiz Contest application can provide

on the student's mobile.

2. Existing System: In the past days quiz is conducted manually which is paper based and

teacher have to check the test of every student and give marks. So, it is very time consuming and

but in further resolution of the technology we are able to create quiz game so that any student

can play and marks will be stored automatically in the database.

3. User Requirement Analysis:

Software Requirements:

The Software used for Developing the project is:

1)Operating System: Window.

2) **Programming Language:** Java.

3) **IDE:**NetBeans.

4) **Database:** OracleDatabase 10&11g.

5)**Toolkit:** Software Development Toolkit(SDK)

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Hardware Requirements:

The Hardware used for Development is:

1)Processor :-Intel Corel5.

2) RAM:-2GB.

3)Monitor:-15 inches Color.

4)Keyboard:-Optical.

5)Mouse:-Optical.

2.4 FEASIBILTY STUDY

The objective of feasibility study is to determine whether or not the proposed system is feasible.

The feasibility is determined in terms of four aspects. These are:-

1. Technical Feasibilty

In this, one has to test whether the system can be developed using existing technology or not. It

is evident that necessary hardware and software are available for development and

implementation of proposed system. We acquired the technical knowledge of working in

languages, and then only we have started designing our project.

2. Behavioral Feasibility

The customers are using different types of peripherals devices. Our system is capable of

providing user friendly interface for all devices (Like laptops, mobile phone).

3. Economical Feasibility

As a part of this, the costs and benefits associated with the proposed system are compared and

the project is economically feasible only if tangible and intangible benefits outweigh the cost.

The cost for proposed online shopping system is outweighing the cost and efforts involved in

maintaining the registers, books, files and generation of various reports. The system also reduces

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the administrative and technical staff to do various jobs that single software can do. So, this system is economically feasible.

4.Legal feasibility

Legal feasibility determines whether the proposed system conflicts with legal requirements, e.g. the Data Protection Act. It will be done by some legal advisors.

2.5 Objective

- The main objective of "Quiz Contest" is to record the details of various activities of user.
- To facilitate a user friendly environment for all users and reduces the manual effort.
- It will simplifies the task and reduce the paper work.
- Generate report with score for each User.

[CHAPTER_3]:- Architecture and Project Design

3.1 User Requirements:

Prior to the software development efforts in any type of system it is very essential to understand the requirements of system and users. A complete specification of the software is the first step is the analysis of system. Requirements analysis provides the designer with representations of functions and procedures that can be translated into data, architectural and procedural designs. The goal of requirement is to find out the current system is working and if there are any areas where improvement is necessary and possible. This may result in using alternative ways to data capturing and processing. Users should be able to use the application for any compatible version of windows.

Efficient result should be provided with less time complexity. The performance of the application should not degrade with an increase in the number of customers or services offered.

3.2 DFD's and Flow Chart:

Data Flow Diagram (DFD):

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its *process* aspects. A DFD is often used as a preliminary step to create an overview of the system. DFDs can also be used for the visualization of data processing. A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of process or information about whether processes will operate in sequence or in parallel.

Level 0 DFD:

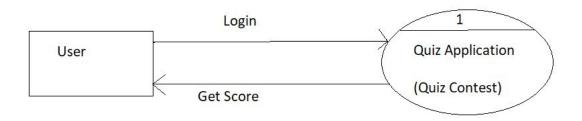


Fig 3.1 Level 0 DFD

User Case Diagram:Components:Quiz Contest-|
|-->Login & Signup.
|->Quiz.
|->Score Logout.
->User.
->Application.

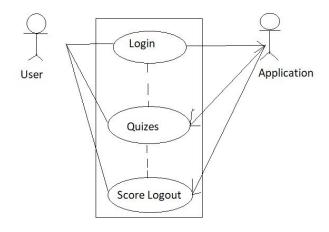


Fig 3.2 User Case Diagram

3.3 Entity-Relationship Diagram:

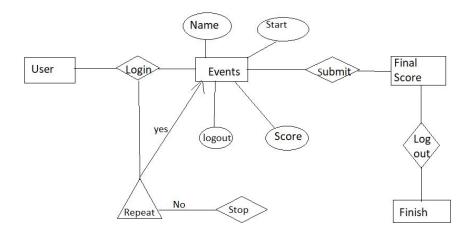


Fig 3.3 Entity-Relationship Diagram

3.4 Table Structure:

Design of database table which is named as Events is given below --- Attribute Name Attribute type

Attribute Name	Attribute type
Id	Int
Name	Text
Info	Text
Period	Text
Period_unit	Text
Start_time	Text

Table 1 attribute table

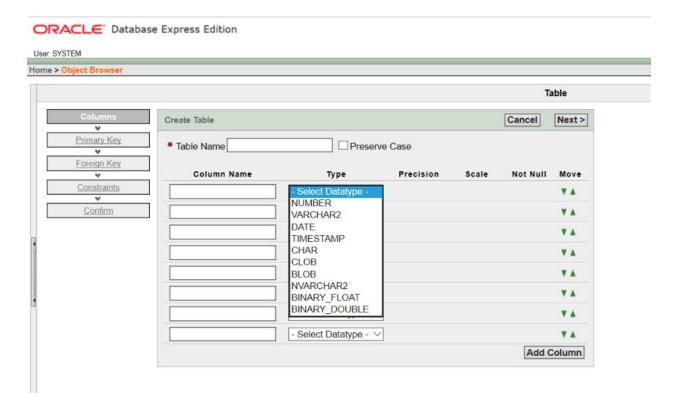


Table 2 DataTypes

A

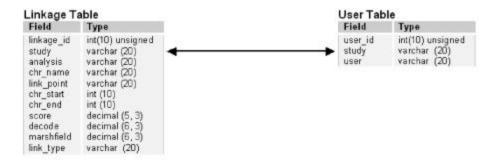


Table 3 Link table.



Table 4 Registeration and login table

3.5 ASSUMPTIONS AND DEPENDENCIES

The product does require back-end database server for storing the username, password, and other required information for different types of user and administrator of the system as well as various databases regarding various valuable information. User must be trained for basic computer functionalities. User must have the basic knowledge of English. The system must be able to respond to database software within reasonable time. The System must always be connected to the internet.

3.6 SPECIFIC REQIUREMENTS

Some of the requirements for project are

- Security
- Relaibility
- Maintainability
- Portability
- Extensibility
- Reusability
- Compatibility
- Resource utilization

[CHAPTER_4]:-Deployment and Implementation

4.1.1 Introduction to java:

Java is a programming language created by James Gosling from Sun Microsystems (Sun) in 1991. The first publicly available version of java (java 1.0) was released in 1995. Sun Microsystems was acquired by the Oracle Corporation in 2010. Over time new enhanced versions of java have been released. The current version of java is java 1.7 which is also known as Java 7. From the java programming language the Java platform evolved. The javaplatorm allows software developers to write program code in other languages than the java programming language and still runs on the java virtual machine. The Java platform is usually associated with the Java virtual machine and the Java core libraries.



Fig 4.1Java Logo

Java Virtual Machine:

The java virtual machine (JVM) is a software implementation of a computer that executes programs like a real machine. The java virtual machine is written specifically for a specific operating system, e.g. for linux a special implementation is required as well as for Windows.

Java RunTime Environment Vs Java Development Kit:

A java distribution comes typically in two flavours, the Java Runtime Environment (JRE) and the Java Development Kit (JDK). The java runtime environment (JRE) consists of the JVM and the java class libraries and contains the necessary functionality to start java programs. The JDK contains in addition the development tools necessary to create java programs. The JDK consists therefore of a java compiler, the java virtual machine, and the java class libraries.

Characteristics Of Java:

The target of java is to write a program once and then run this program on multiple operating systems.

Java has the following Features:

Platform Independent

Java is platform independent because it is different from other languages like_C, C++, etc. which are compiled into platform specific machines while Java is a write once, run anywhere language. A platform is the hardware or software environment in which a program runs.

There are two types of platforms software-based and hardware-based. Java provides a software-based platform.

The Java platform differs from most other platforms in the sense that it is a software-based platform that runs on the top of other hardware-based platforms. It has two components:

1. Runtime Environment

2. API(Application Programming Interface)

Java code can be run on multiple platforms, for example, Windows, Linux, Sun Solaris, Mac/OS, etc. Java code is compiled by the compiler and converted into bytecode. This bytecode is a platform-independent code because it can be run on multiple platforms, i.e., Write Once and Run Anywhere(WORA).

Secured

Java is best known for its security. With Java, we can develop virus-free systems. Java is secured because:

- No explicit pointer
- Java Programs run inside a virtual machine sandbox

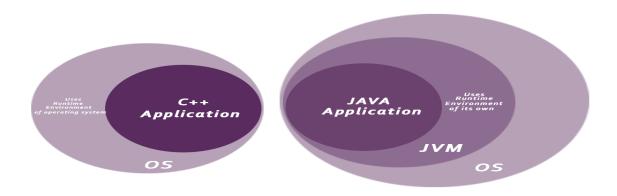


Fig 4.2 C++ and Java Application Diagram

- Classloader: Classloader in Java is a part of the Java Runtime
- Environment(JRE) which is used to load Java classes into the Java Virtual Machine dynamically. It adds security by separating the package for the classes of the local file
- system from those that are imported from network sources.

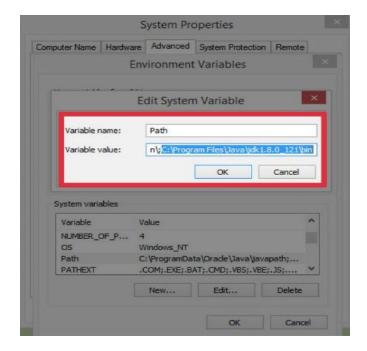


Fig 4.3 Install JDK

- **Bytecode Verifier:** It checks the code fragments for illegal code that can violate access right to objects.
- Security Manager: It determines what resources a class can access such as reading and writing to the local disk.

Java language provides these securities by default.

Some security can also be

provided by an application developer explicitly through SSL, JAAS, Cryptography, etc.

Object-oriented

Java is an <u>object-oriented</u> programming language. Everything in Java is an object.

Object-oriented means we organize our software as a combination of different types of objects that incorporates both data and behavior.

Object-oriented programming (OOPs) is a methodology that simplifies software development and maintenance by providing some rules.

Basic concepts of OOPs are:

- 1. Object
- 2. Class
- 3. <u>Inheritance</u>
- 4. Polymorphism
- 5. Abstraction
- 6. Encapsulation

Simple

Java is very easy to learn, and its syntax is simple, clean and easy to understand. According to Sun, Java language is a simple programming language because:

- Java syntax is based on C++ (so easier for programmers to learn it after C++).
- Java has removed many complicated and rarely-used features, for example, explicit pointers, operator overloading, etc.
- There is no need to remove unreferenced objects because there is an Automatic Garbage Collection in Java.

Portable

Java is portable because it facilitates you to carry the Java bytecode to any platform. It doesn't require any implementation.

High-performance: Java is faster than other traditional interpreted programming languages because Java bytecode is "close" to native code. It is still a little bit slower than a compiled language (e.g., C++). Java is an interpreted language that is why it is slower than compiled languages, e.g., C, C++, etc.

Distributed

Java is distributed because it facilitates users to create distributed applications in Java. RMI and EJB are used for creating distributed applications. This feature of Java makes us able to access files by calling the methods from any machine on the internet.

4.1.2 Installation to java

Downloading the java Software Development kit

- Navigate to http://www.oracle.com/technetwork/java/javase/downloads/index.html. You can download a simple Java Software Development Kit (JDK) installer for Windows, macOS, or Linux directly from Oracle.
- Click the "Download" button beneath "JDK." This will open a new page containing several download options.
- Scroll to the latest version of Java SE Development Kit.
- Click the download link next to your operating system. Once you click the link, follow the prompts to select a save location on your computer and start the download.

Install the JDK on your Computer

- **Double-click the JDK installer file.** Once you've downloaded the Java Software Development Kit installer, navigate to the download location you chose earlier to launch the installer.
- Allow the app to make changes to your computer.
- Click "Next" to continue. Now you'll move through a series of screens that will guide you through the JDK installation.
- Click "Next" to accept the default installation settings.
- Click "Close" when the installation is complete. This button will not appear until the installer has finished.
- Click "System." A screen with your system specs will appear.
- Click the "Advanced System Settings" link. Now you'll see the System Properties panel.
- Click the "Environment Variables" button. This new dialog box displays two separate areas—one for User Variables (settings specific to your user account) and another for system-wide settings (System Variables).
- Double-click the "Path" variable under "System Variables." Now you'll add a new variable. Follow these instructions exactly, as there is no "undo" option

Click "New" if you're using Windows 10. This step only applies to Windows 10:

Type c:\Program Files\Java\jdk1.8.0_xx\bin (but replace the "8.0_xx" part with the version number you installed).

- Click the "Move Up" button until the path you typed appears as the top of the list.
- Click "OK."

4.2 NetBeans

4.2.1 Introduction to NetBeans

NetBeans IDE is a free, open source, integrated development environment (IDE) that enables you to develop desktop, mobile and web applications. The IDE supports application development in various languages, including Java, HTML5, PHP and C++. The IDE provides integrated support for the complete development cycle, from project creation through debugging, profiling and deployment. The IDE runs on Windows, Linux, Mac OS X, and other UNIX-based systems.

The IDE provides comprehensive support for JDK 8 technologies and the most recent Java enhancements. It is the first IDE that provides support for JDK 8, Java EE 7, and JavaFX 2. The IDE fully supports Java EE using the latest standards for Java, XML, Web services, and SQL and fully supports the GlassFish Server, the reference implementation of Java EE.

4.2.2 Installation of NetBeans on Windows

Step 0: Install JDK

To use NetBeans for Java programming, you need to first install Java Development Kit (JDK). See "Above".

Step 1: Download

Download "NetBeans IDE" installer from http://netbeans.org/downloads/index.html. There are many "bundles" available. For beginners, choose the 1st entry "Java SE" (e.g., "netbeans-8.2-javase-windows.exe" 95MB).

Step 2: Run the Installer :Run the downloaded installer.

4.3 Oracle Database

4.3.1 Introduction to Oracle Database

A database is a separate application that stores a collection of data. Each database has one or more distinct APIs for creating, accessing, managing, searching, and replicating the data it holds. Other kinds of data stores can be used, such as files on the file system or large hash tables in

memory but data fetching and writing would not be so fast and easy with those type of systems. So now a day we use relational database management systems (RDBMS) to store and manage huge volume of data. This is called relational database because all the data is stored into different tables and relations are established using primary keys or other keys known as foreign keys.

A Relational Database Management System (RDBMS) is a software that:

- Enables you to implement a database with tables, columns, and indexes.
- Guarantees the Referential Integrity between rows of various tables.
- Updates the indexes automatically.
- Interprets an SQL query and combines information from various tables.

RDBMS Terminology:

Before I proceed to explain Oracle Database system, let's revise few definitions related to database.

- **Database** A database is a collection of tables, with related data.
- Table A table is a matrix with data. A table in a database looks like a simple spreadsheet.
- Column One column (data element) contains data of one and the same kind, for example the column postcode.
- **Row** A row (= tuple, entry or record) is a group of related data, for example the data of one subscription.
- **Redundancy** Storing data twice, redundantly to make the system faster.
- **Primary Key** A primary key is unique. A key value cannot occur twice in one table. With a key you can find at most one row.
- Foreign Key A foreign key is the linking pin between two tables.

4.3.2 Installing Oracle Database

~To install Oracle database on your computer, you need to download the installer from the https://www.oracle.com/database/technologies/oracle-database-software-downloads.html of Oracle website.

~After having the installation files which are in ZIP format, you need to extract them into a specific folder on your computer.

The following picture shows the structure of the folder of the Oracle installation files after extraction.



Now you need to double-click the setup.exe file to start the installation process. There will be 9 steps which mostly automatically execute.

Fig 4.4 Setup

- ~Step 1. The installer asks you to provide your email address to get the latest security issues and updates. You can ignore it by clicking the Next button Because I didn't provide the email address, the Oracle database installer confirm it, you just need to click the No button to continue.
- ~Step 2. In step 2, Oracle installer ask you to whether you want to create and configure a database, install database software only or just upgrade an existing database. Because you install the Oracle database at the first time, choose the option 1 and click the Next button.
- ~Step 3. The installer allows you to choose the system class. Because you install Oracle on your computer, not a server, therefore, you choose the first option: desktop class and click the Next button.
- ~Step 4. This step allows you to specify the Windows user account to install and configure Oracle Home for enhanced security. Choose the third option: "Use Windows Built-in Account".
- ~Step 5. in this step you can (1) choose the folder on which Oracle database will be installed, (2) Global database name and password, (3) pluggable database name.
- ~Step 6. The installer performs the prerequisite check.

~Step 7. The installer shows you the summary of the information such as global settings, database information, etc. You need to review the information and click the install button if everything is fine.

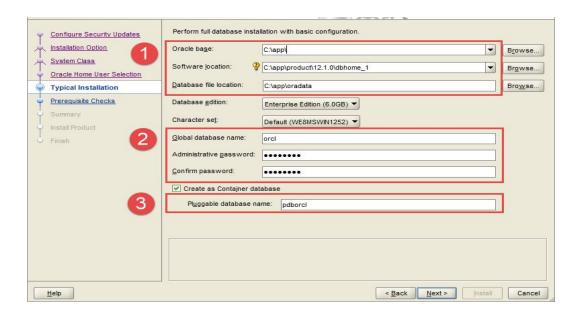


Fig 4.5 Database installation

~Step 8. The installer starts installing Oracle database. It will take a few minutes to complete, depending on your computer

You will see the Database Configuration Assistant window. Click the *Password management*... button to enter the password for Oracle database accounts.

Enter the password for SYS and SYSTEM accounts and then click OK button.

~Step 9. Once installation completes successfully, the installer will inform you as shown in the following screenshot. Click the Close button to close the window.

Connecting to Oracle Database

First, launch the SQL developer application provided by the Oracle Database. Second, right-click the connections node and choose **New Connection** ... menu item to create a new connection.

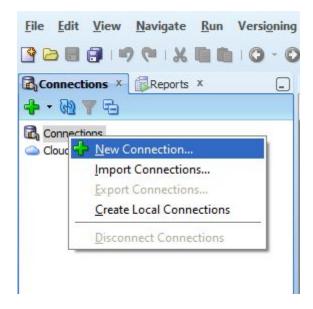


Fig 4.6 Make new connection

Third, enter the information that you provided during the installation process as shown in the following screenshot. Click the Connect button to connect to the Oracle Datababase

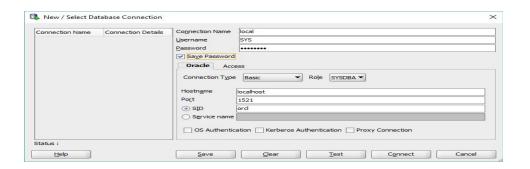


Fig 4.7 Connect to Oracle Database

SQL developer will display all objects as shown below.

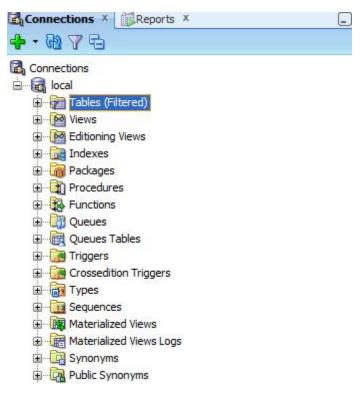


Fig 4.8 Objects of sql

Congratulation! you have installed Oracle Database.

Screenshorts:

Login form :- Here is the first page of the Quiz Game. User should have to enter his details to play the game. New users have to create an account by giving simple details like name, username and Password see fig 4.9

If the user is already registered on this Quiz Game then no need to create an account . User will simply login with the valid details in the login form and start the game see fig 4.10



Fig 4.9 Login Form



Fig 4.10 Creating an account

Select Category and play: The user will have to select the category in which he wants to play the quiz to check his Knowledge. See fig 4.11

Then Questions will appear one by one from database which is connected to that frame user have to select one option out of four see fig 4.12

Result page: Then in the end result page is shown to the user. Here is the result of the user. For each correct question 1 marks is given to the user and there is negative marking for any incorrect answer. See fig 4. 13

Check Answers: After checking the result if the user wishes to see the answer to each question he can see easily by simply pressing the Click to view Answers button if not then user may simply logout by pressing the LOGOUT Button. See fig 4.4

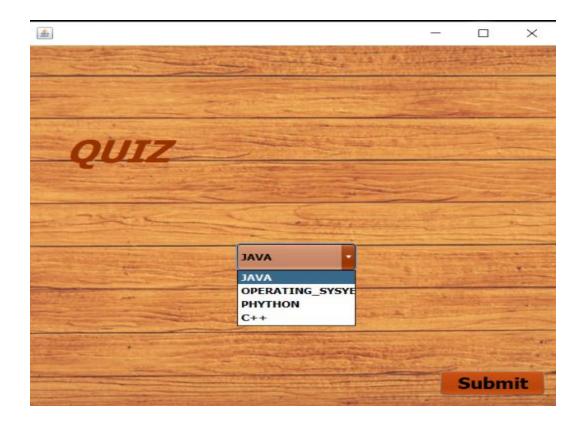


Fig 4.11 Select Category to play

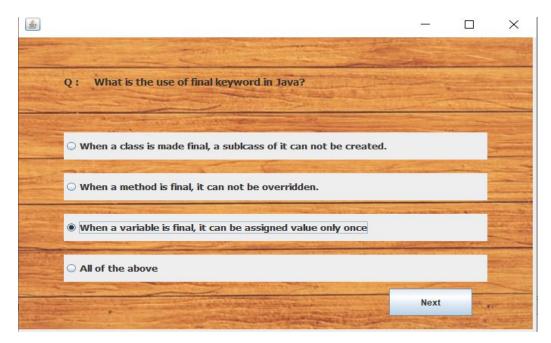


Fig 4.12 Questions Display page



Fig 4.13 Result page

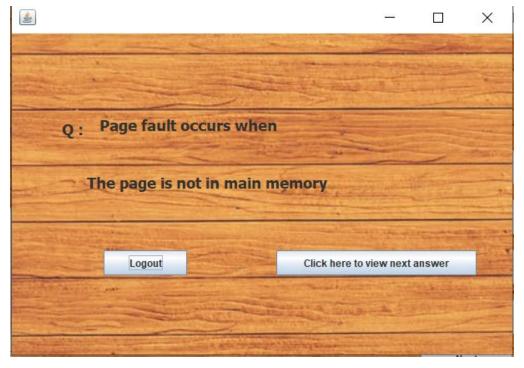


Fig 4.14 Answers Page

4.3 TESTING

Software testing is a process of running with intent of finding errors in software. Software testing assures the quality of software and represents final review of other phases of software like specification, design, code generation etc.

Unit Testing

Unit testing emphasizes the verification effort on the smallest unit of software design i.e.; a software component or module. Unit testing is a dynamic method for verification, where program is actually compiled and executed. Unit testing is performed in parallel with the coding phase. Unit testing tests units or modules not the whole software.

The functionality of the modules was also tested as separate units. Each of the modules was tested as separate units. In each module all the functionalities were tested in isolation.

In the login module if the Student details are invalid which is already stored in the database then it has been made sure that if the details does not exists in the record then dialog box of message wrong details appear.

Validation Testing

I have used a number of test cases for testing the product. There were different cases for which different inputs were used to check whether desired output is produced or not.

- 1. Addition of a new Student to the database should create a new row in the database table.
- 2. Validation must be done for an existing student in the login form.
- 3. Any changes to Questions in the database have to update the data correctly.

[CHAPTER_5]:-CONCLUSION AND FUTURE SCOPE OF PROJECT

5.1 CONCLUSION

The system has been developed with much care and is free of errors and at the same time is efficient and not time consuming. The purpose of the project was to develop a window based application from which a user can Play Quiz.

The project helped us in gaining valuable information and practical knowledge on topics like backend, integrating back end with front end, and lot more things. The entire system is secured. Also the project helped us in understanding of development phases of project and software development life cycle. We also learnt how to test different features of project.

This project has given us immense satisfaction in having designed an application which can useful to play Quiz.

5.2 FUTURE SCOPE

We can also implement timer in this quiz game in which student have to answer each any every question in the specified time limit otherwise next question will come.

We can add some more Categories in this quiz so that every type of user can play the quiz of his interest.

We can also add the feature that question will come randomly so that No two students sitting behind each other in a class can cheat .

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 $\underline{https://stackoverflow.com/questions/43326576/program-for-password-validation}$