ABSTRACT

This is a project report on "**QUIZAPP**". During the development of this project we explored new ideas and functionalities behind the working of Software.

This project is the output of our planning, schedule, programming skill and the hard work and this report reflects our steps taken at various levels of programming skill, planning and schedule.

We have learnt a lot during this project and liked the improvement in our testing skills and deep concept related to these kinds of projects.

It is a fun-based application that offers the user to play the quiz of his/her own choice from a list of categories provided. It tests the user of his/her knowledge .After the test is completed the score of the user is displayed.This project maintains the records of the questions attempted, their corresponding answers and the date on which the test is conducted. History details is also maintained of the attempted questions.

INTRODUCTION TO PROJECT

“QUIZAPP” is a fun-based application that offers the user to play the quiz of his/her own choice from a list of categories provided. It tests the user of his/her knowledge.

When a user opens QUIZAPP, he must register himself/herself on the application to proceed to the game. Once this is done, the user can play the quiz of whichever category he/she chooses. Each category consists of 10 questions to answer. When user plays quiz for particular category,10 questions appear, which user is supposed to attempt.

Once the answers are submitted, this application provides the user with the result, telling him/her the no. of correct answers, and providing explanations for questions wherever required.

Other features that this application provides are:

- Changing the password of your account
- View history of all the tests played by the user of all categories

This application uses Java programming language for GUI & SQL for managing database.

Softwares used for developing this application are:

- NetBeans IDE 7.3
- Microsoft SQL Server 2008

OBJECTIVES

The main objective of QUIZAPP is to conduct and prepare the students for quiz at appropriate level to develop their skills.Thus, QUIZAPP is an app with the following objectives:

1. To Record all the student's conducted test details.
2. Providing students with the list of questions in different categories.
3. Developing their skills in different fields
4. Tracking status of individual students (History)

Hardware Requirement:

PC	PC (Windows), Apple, Linux
Processor	Intel Pentium Processor, 233 MHz or equivalent.
RAM	512 MB RAM
HDD	2GB of free HDD space for Internet Cache

Software Requirement:

Operating System	Windows
Other software	MS SQL Server 2008 or higher, JDK1.6 or higher NetBeans IDE 7.3 or higher
Web Server	Glassfish 3.1.2

Feasibility Study

Feasibility is the measure of how beneficial or practical the development of the system will be to the organization. It is a preliminary survey for the systems investigation. It aims to provide information to facilitate a later in-depth investigation.

The report produced at the end of the feasibility study contains suggestions and reasoned arguments to help management decide whether to commit further resources to the proposed project.

Within the scheduled duration we were assigned to study both the positive and negative aspects of the current manual system, in which we have come up with a number of drawbacks that prevent the progress of the clinic if it is continued to function manually. Having gone through all measures of feasibility we report to the management to figure out if the objectives of the new system are met.

TYPES OF FEASIBILITY

There are various measures of feasibility that helps to decide whether a particular project is feasible or not. These measures include:

- Technical Feasibility
- Operational Feasibility
- Economical Feasibility

Each of these types will be explained in detail throughout the project report.

TECHNICAL FEASIBILITY

Based on the outline design of system requirements in terms of inputs, outputs, files, procedures and staff, the technical issues raised during technical feasibility include:

- Does the necessary technology exist to do what is proposed?
- Adequate responses provided by the proposed system?
- Is the system flexible enough to facilitate expansion?
- Is there any technical guarantee of accuracy, reliability, ease of access and data security?

Our Technology Used in our Project is easy available i.e Java,SQL Server. The System should have following requirements to run the project:

PC	PC (Windows), Apple, Linux
Processor	Intel Pentium Processor, 233 MHz or equivalent.
RAM	512 MB RAM
HDD	2GB HDD space for Internet Cache

OPERATIONAL FEASIBILITY

A system often fails if it does not fit within existing operations and if users resist the change. Important issues a systems developer must look into are:

- Will the new system be used if implemented in an organization?
- Are there major barriers to implementation or is proposed system accepted without destructive resistance?

If we are considering the performance and response time for each task, it is very much faster since there is less paper work to be completed. When entering data

into the system to relieve the user from additional work and typing incorrect data, the system provides options such as combo boxes, check boxes, option buttons and etc. if the users type in incorrect data they would be informed immediately about the error by the error detection control.

Another important fact to be regarded is the security control, which is handled by the system. Since data regarding each user is confidential, security is a key issue. Here, in this system, data regarding users is stored in database which can only be accessed by the authorized administrator. The new system is more user-friendly, which enables the end-user to complete his/her work efficiently and accurately with interest. After taking the above fact into consideration we can state the operating of the proposed system within the organization is feasible.

ECONOMICAL FEASIBILITY

The proposed system must be justifiable in terms of cost and benefit, to ensure that the investment in a new/changed system provide a reasonable return.

Even though finding out the costs of the proposed project is difficult we assume and estimate the costs and benefits as follows.

According to the computerized system we propose, the costs can be broken down to two categories:

1. Costs associated with the development of the system.
2. Costs associated with operating the system.

SYSTEM ANALYSIS & DESIGN

Requirement Specification

System Analysis is the study of sets of interacting analysis including computer systems analysis. It is also an explicit formal inquiry carried out to help someone identify a better course of action and make a better decision than he might

otherwise have made. Analysis is defined as the procedure by which we break down an intellectual or substantial whole into parts. Synthesis is defined as the procedure by which we combine separate elements or components in order to form a coherent whole. System analysis is used in every field where there is a work of developing something. Analysis can also be defined as a series of components that perform organic function together.

What is System Design?

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. One could see it as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering If the broader topic of product development "blends the perspective of marketing, design, and manufacturing into a single approach to product development," then design is the act of taking the marketing information and creating the design of the product to be manufactured.

Characteristics of A Well-defined System

In a design efficient and effective system is of great importance to consider the human factors and equipment that these will require to use. System analyst must evaluate the capabilities and limitations of personal and corresponding factors of equipment itself.

The Characteristics associated with effective system operations are: -

Accessibility

Decision Making Ability

Flexibility

Economy

Reliability

Investigation Phase

The Investigation phase is also known as the fact finding stage or the analysis of the current system. This is detailed study conducted with the purpose of wanting to fully understand the existing system and to identify the basic information requirements. Various techniques may be used in fact finding.

Investigation

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As it was essential for us to find out more about the present system, we used the following methods to gather the information:-

1. **Observation: -** Necessary to see the way the system works first hand.
2. **Document sampling: -** These all are documents that are used in the system. They are necessary to check all data that center and leaves the system.
3. **Questionnaires: -** These are conducted to get views of the others employees who are currently employed in system.

Analysis of the Investigation

Strengths of the system

1. **No Complex equipment: -** The equipment that is used very simple and no specials skills have to be mastered to be able to operate the System. Therefore no training system for employees.
2. **Low Cost: -** There a little money spent in maintaining the present system other than buying necessary office equipment and the ledgers.

The most important activity at the implementation stage is the system testing with the objective of validating the system against the designed criteria. During the development cycle, user was involved in all the phases that are analysis, design and coding.

After each phase the user was asked whether he was satisfied with the output and the desired rectification was done at the moment. During coding, generally bottom up technique is used. Firstly the lower level modules are coded and then they are integrated together.

Thus before implementation, it involves the testing of the system. The testing phase involves testing first of separate parts of the system and then finally of the system as a whole. Each independent module is tested first and then the complete system is tested.

This is the most important phase of the system development. The user carries out this testing and test data is also prepared by the user to check for all possible combinations of correct data as well as the wrong data that is trapped by the system. So the testing phase consists of the following steps:

1.Unit testing:

In the bottom of coding technique, each module is tested individually. Firstly the module is tested with some test data that covers all the possible paths and then the actual data was fed to check for results.

2.Integration testing:

After all the modules are ready and duly tested, these have to be integrated into the application. This integrated application was again tested first with the test data and then with the actual data.

3.Parallel testing:

The third in the series of tests before handling over the system to the user is the parallel processing of the old and the new system. At this stage, complete and thorough testing is done and supports out the event that goes wrong. This provides the better practical support to the persons using the system for the first time who may be uncertain or even nervous using it.

The testing will be performed considering the following points:

1. Clerical procedure for collection and disposal of results
2. Flow of data within the organization
3. Accuracy of report output
4. Software testing which involves testing of all the programs together. This involves the testing of system software utilities being used and specifically develops application software.
5. Incomplete data formats
6. Halts due to various reasons and the restart procedures.
7. Range of items and incorrect formats
8. Invalid combination of data records.
9. Access control mechanism used to prevent unauthorized access to the system.

TECHNOLOGY USED

INTRODUCTION TO JAVA :

The entire component has been developed using Java technology. Java has been chosen as the platform because of its feature rich nature. The Java Platform provides robust end-to-end solutions for networked applications as well as a trusted standard for embedded applications. So Java was a natural choice for development process.

Characteristics of Java: The characteristics of java are given below:

Object Oriented:

Java is object oriented to the truest sense of the word. Everything in Java is represented as objects. Variables and methods both are encapsulated in objects. Java is the purest object-oriented language.

Robust:

- Java is a very robust language owing to the following features.
- Excellent exception handling facilities.
- Strict compile-time and runtime checks for data types.

Portable and Architecture-neutral (Platform Independent):

Java is portable and platform independent so much that they satisfy “write once; run anywhere, anytime, forever”. This feature is implemented in the following ways:

• Compiler generates machine independent byte-code instructions which can be run on any machine supporting Java Virtual Machine.

• Size of primitive data type is machine independent.

Distributed:

• Open access to remote objects by the use of RMI (Remote Method Invocation).

• Brings a level of abstraction to client/server programming.

Secure:

• Security is achieved by confining a java program to the java execution environment and not allowing access to other parts of user's computer

• Absence of pointers provides memory related security as encroachment of memory is

avoided. Proper measure for prevention of viral infection and malicious intent.

High Performance:

Just-In-Time (JIT) compilers are used to convert byte-code into native machine code resulting in very high performance. These JIT compilers can be used on a real time, piece by piece demand basis to perform on-the-fly compilation of byte-code into native-code.

Compilation and Interpretation:

Java programs are implemented as a two-stage system.

Compilation: Source code to byte-code and not machine instructions.

Interpretation: Byte-code to machine code (for any system that supports using JVM)

Thus cross-platform programs can be written.

Why is JAVA better?

- Architecture Independent.
- OOP based language, relation to the real world.
- Built in API's.
- More Secured.
- Available for all the platforms and devices like: Desktops, Web, Micro Devices…
- Uses threads (multi tasking) to execute the programs.
- Lighter Language as compared to others.

The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Distributed
- Object Oriented
- Portable
- High Performance
- Interpreted
- Multithreaded
- Robust
- Dynamic
- Secure

With most programming languages, you either compile or interpret a program so that you can run it on your computer. The Java programming language is unusual in that a program is both compiled and interpreted. With the compiler, first you translate a program into an intermediate language called Java byte codes —the platform-independent codes interpreted by the interpreter on the Java platform.

The interpreter parses and runs each Java byte code instruction on the computer. Compilation happens just once; interpretation occurs each time the program is executed. The following figure illustrates how this works.

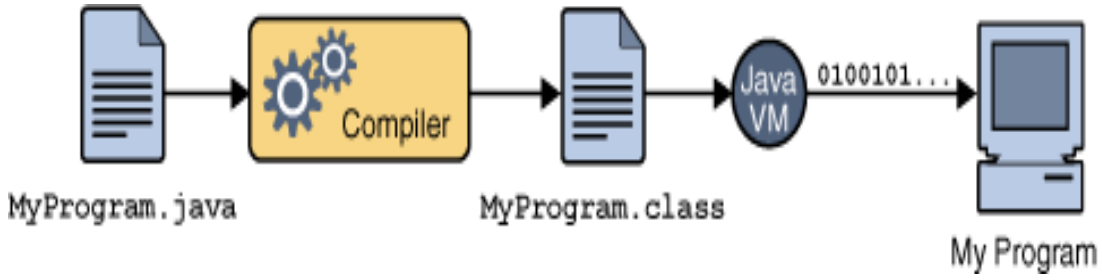


Figure 1.1

You can think of Java byte codes as the machine code instructions for the Java Virtual Machine (JVM). Every Java interpreter, whether it's a development tool or a Web browser that can run applets, is an implementation of the Java VM.

Java byte codes help make "write once, run anywhere" possible. You can compile your program into byte codes on any platform that has a Java compiler. The byte codes can then be run on any implementation of the Java VM.

The Java Platform

A platform is the hardware3 or software environment in which a program runs. We've already mentioned some of the most popular platforms like Windows 2000, Linux, Solaris, and Mac-OS. Most platforms can be described as a combination of the operating system and hardware. The Java platform differs from most other

platforms in that it's a software-only platform that runs on top of other hardware-based platforms. The Java platform has two components:

- The Java Virtual Machine (Java VM)
- The Java Application Programming Interface (Java API)

Java VM is the base for the Java platform and is ported onto various hardware-based platforms.

The Java API is a large collection of ready-made software components that provide many useful capabilities, such as graphical user interface (GUI) widgets. The Java API is grouped into libraries of related classes and interfaces; these libraries are known as packages. The next section highlights what functionality some of the packages in the Java API provide.

The following figure depicts a program that's running on the Java platform. As the figure shows, the Java API and the virtual machine insulate the program from the hardware.

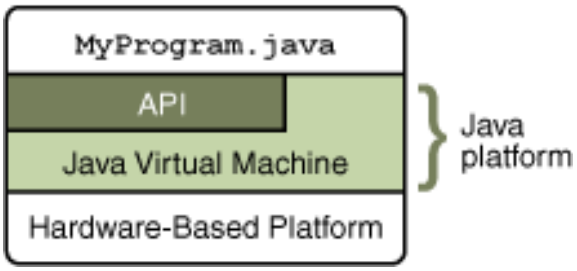


Figure 1.2

Native code is code that after you compile it, the compiled code runs on a specific hardware platform. As a platform-independent environment, the Java platform can be a bit slower than native code. However, smart compilers, well-tuned interpreters, and just-in-time byte code compilers can bring performance close to

that of native code without threatening portability. Every full implementation of the Java platform gives you the following features:

- **The essentials:** Objects, strings, threads, numbers, input and output, data structures, system properties, date and time, and so on.
- **Applets:** The set of conventions used by applets.
- **Networking:** URLs, TCP (Transmission Control Protocol), UDP (User Datagram Protocol) sockets, and IP (Internet Protocol) addresses.
- **Internationalization:** Help for writing programs that can be localized for users worldwide. Programs can automatically adapt to specific locales and be displayed in the appropriate language.

Security: Both low level and high level, including electronic signatures, public and private key management, access control, and certificates.

- **Software components:** Known as JavaBeans, can plug into existing component architectures.
- **Object serialization:** Allows lightweight persistence and communication via Remote Method Invocation (RMI).
- **Java Database Connectivity (JDBC):** Provides uniform access to a wide range of relational databases.

Packages

- Java provides a mechanism for partitioning the class name space into more manageable chunks. This mechanism is the package.
- A Package is a collection of classes.
- The package is both a naming and a visibility control mechanism.
- You can define classes inside a package that are not accessible by code outside that package.

•You can also define class members that are only exposed to other members of the same package. Built-In Packages are: java.lang, java.io, java.util, java.applet, java.awt, javax.swing, java.awt.event, java.sql, java.net.

NETBEANS IDE

Netbeans IDE is a free, open-source Integrated Development Environment for software developers. One can get all the tools you need to create professional desktop, enterprise, web, and mobile applications with the Java language, C/C++, and even dynamic languages such as PHP, JavaScript, Groovy, and Ruby.

NetBeans IDE is easy to install and use straight out of the box and runs on many platforms including Windows, Linux, Mac OS X and Solaris.

NetBeans IDE is an integrated development environment (IDE) for writing, compiling, testing, and debugging desktop applications and web applications for the Java platform.

NetBeans IDE includes a full-featured text editor with syntax highlighting and error checking, visual design tools, Ant support, version control system support, and many other features.

The NetBeans IDE provides several new features and enhancements, such as rich PHP, JavaScript and Ajax editing features, improved support for using the Hibernate web framework and the Java Persistence API, and tighter GlassFish v3 and MySQL integration.

SQL SERVER 2008

Microsoft SQL Server 2008:

Microsoft SQL Server 2008 is a family of products that meet the data storage requirements of the largest data processing systems and commercial Web sites, yet at the same time can provide easy-to-use data storage services to an individual or small business.

The data storage needs of a modern corporation or government organization are very complex. Online Transaction Processing (OLTP) systems must be capable of handling thousands of orders placed at the same time. Increasing numbers of corporations are implementing large Web sites as a mechanism for their customers to enter orders, contact the service department, get information about products, and for many other tasks that previously required contact with employees. These sites require data storage that is secure, yet tightly integrated with the Web. Organizations are implementing off-the-shelf software packages for critical services such as human resources planning, manufacturing resources planning, and inventory control. These systems require databases capable of storing large amounts of data and supporting large numbers of users.

Organizations have many users who must continue working when they do not have access to the network. Examples are mobile disconnected users, such as traveling sales representatives or regional inspectors. These users must synchronize the data on a notebook or laptop with the current data in the corporate system, disconnect from the network, record the results of their work while in the field, and then finally reconnect with the corporate network and merge the results of their fieldwork into the corporate data store.

Database Design

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database, it is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on the same computer or those running on another computer across a network (including the Internet). There are at least a dozen different editions of Microsoft SQL Server aimed at different audiences and for different workloads **.**

SQL SERVER DESCRIPTION:

SQL server is a powerful program to create and manage database. It has many built in features to assist in constructing and viewing your information.
First of all we need to understand how SQL server breaks down a database. Some keywords involved in this process are Database File, Table, Records, Field and Datatype. Here is the Hierarchy that Microsoft Access uses in breaking down a database.

1. Database File: It is your main file that encompasses the entire database and that is saved to your hard drive or floppy.

Example: ABC, MSMDB

2. Table: A table is a collection of data specific topic. There can be mulitiple tables in database.

Example: Staff, Departments.

3. Field: Fields are the different categories within a Table. Tables usually contains multiple fields.

Example: Name, Address, Contact No.

4. Query: It allow the user to describe data, leaving the database management system responsible for planning, optimizing and performance the physical operations necessary to produce that result as it chooses.

5. Generally we follow the following steps:

- Create Database databasename;
- Use databasename;
- Create Table tablename(fieldtypedatatype(size), fieldname datatype(size));
- Select * From tablename;
- Drop table tablename

DATABASE DESIGN

Table:QUIZ

Fieldname	Data Type	Length	Constraints
RegistrationID	Integer	_	Primarykey,Identity
Name	Varchar	40	_
Gender	Varchar	10	_
UserID	Varchar	90	_
Pwd	Varchar	40	_
SecurityQuestion	Varchar	90	_
Answer	Varchar	50	_

Table : CATEGORY

Fieldname	Data Type	Length	Constraints
CategoryID	Integer	_	PrimaryKey,Identity
CategoryName	Varchar	40	Not Null

Table: QUESTIONS

Fieldname	Data Type	Length	Constraints
QuestionID	Integer	_	PrimaryKey,Identity
Question	Varchar	90	Not Null
CategoryID	Integer	_	_

TABLE: OPTIONS

Fieldname	**Data Type**	**Length**	**Constraints**
OptionId	Integer	_	Primary Key,Identity
OptionText	Varchar	50	_
IsAnswer	Integer	10	_
QuestionID	Integer	10	_

Table:CONDUCTEDTEST

FieldName	**Data Type**	**Length**	**Constraints**
ConductedtestID	Integer	_	Primary Key,Identity
Dat	DateTime	_	
RegistrationID	Integer	_	Foreign Key
CategoryID	Integer	_	Foreign Key

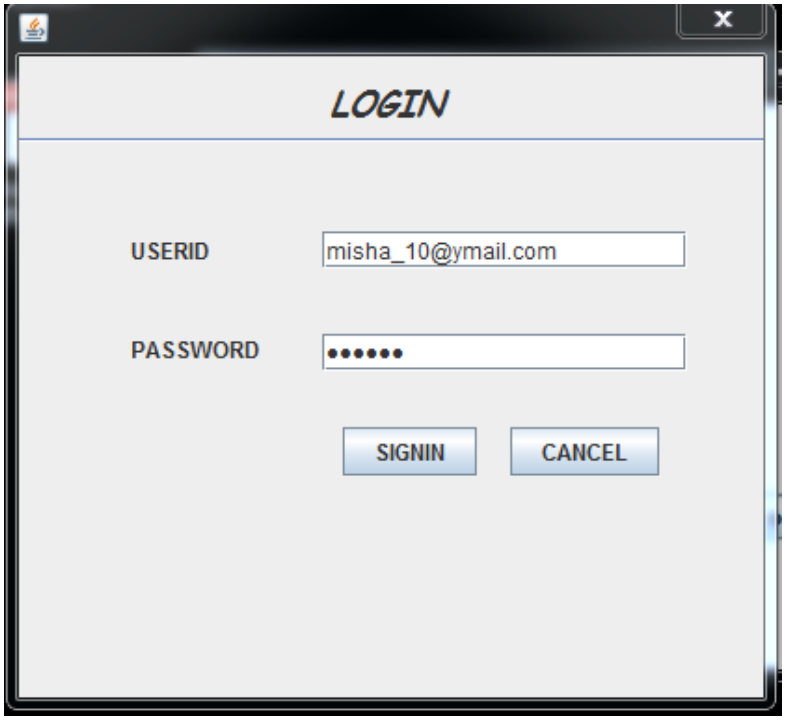
Tabel:ATTEMPTEDQUESTIONS

FieldName	**Data Type**	**Length**	**Constraints**
SerialNo	Integer	_	PrimaryKey,Identity
QuestionID	Integer	_	Foreign Key
OptionID	Integer	_	Foreign Key
ConductedtestID	Integer	_	Foreign Key

RESULTS / OUTPUTS

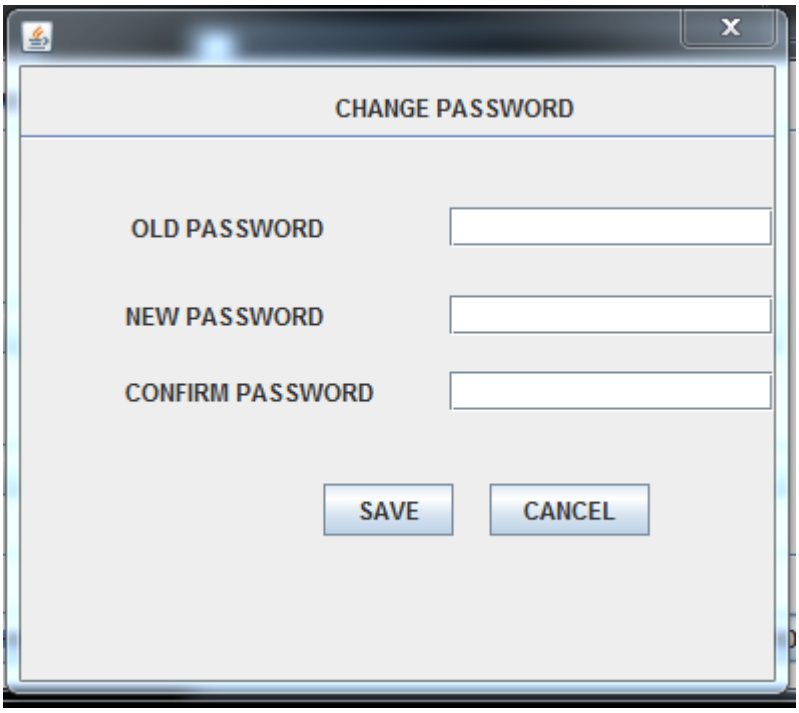
1) To Register New User

2) To Login

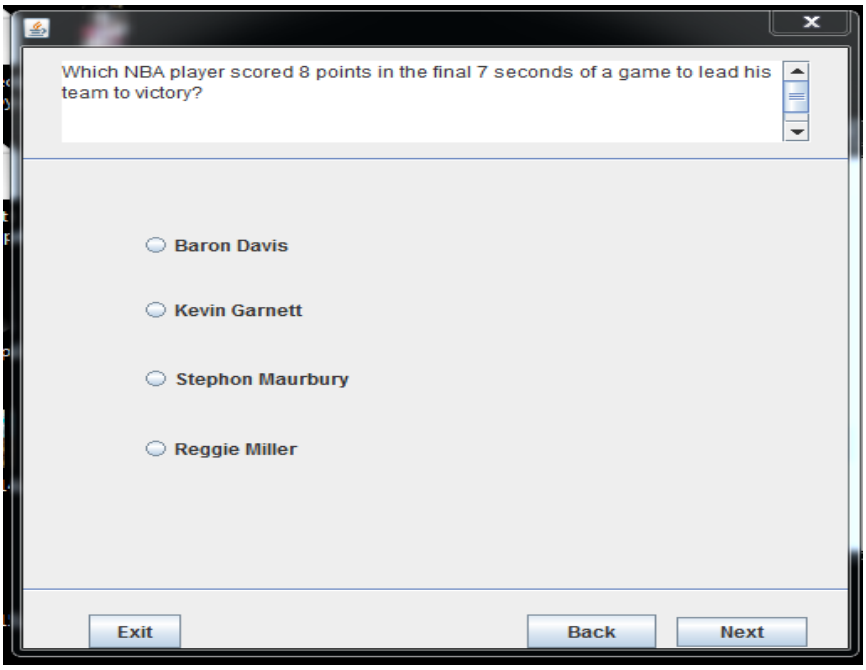


3) To Get The List Of Categories

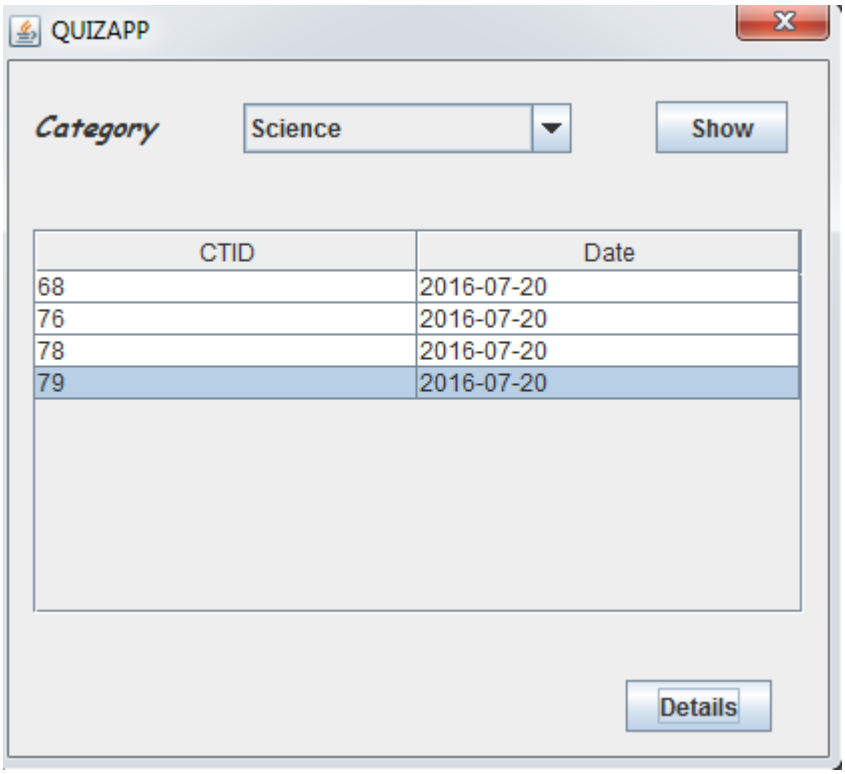
4) To Change The Password

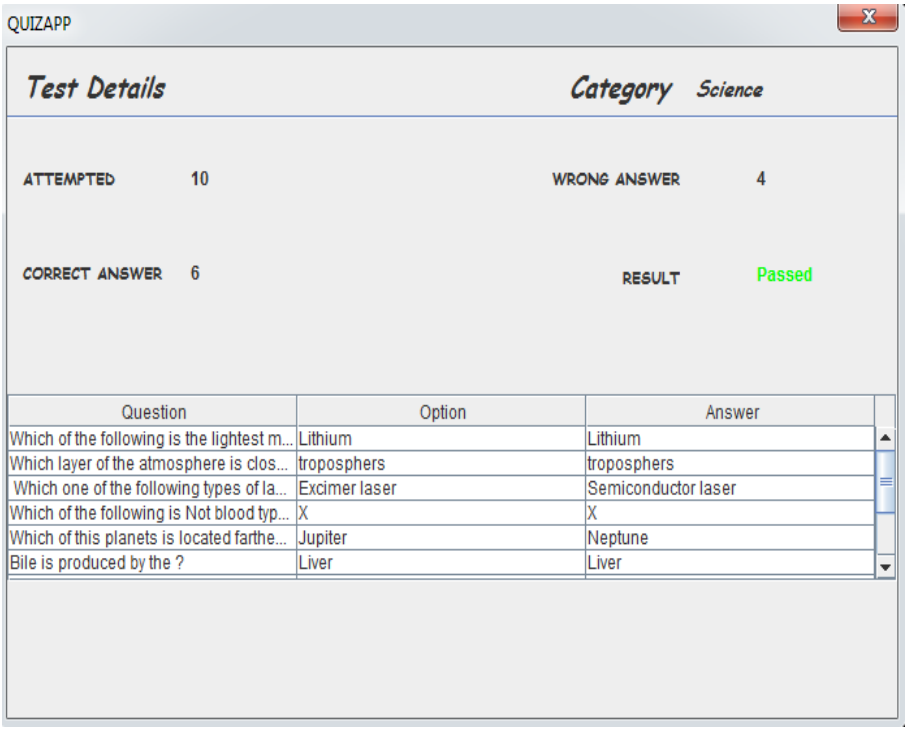


5) To Start The Test



6) To View History and HistoryDetails





CONCLUSIONS / RECOMMENDATIONS

It is a fun-based application that offers the user to play the quiz of his/her own choice from a list of categories provided. It tests the user of his/her knowledge .After the test is completed the score of the user is displayed.This project maintains the records of the questions attempted ,their corresponding answers and the date on which the test is conducted. History details is also maintained of the attempted questions.

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Web Links

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- http://en.wikipedia.org/wiki/NetBeans
- http://www.sql-server-performance.com/
- http://www.sqlservercentral.com/
- http://databases.about.com/