QUIZ GAME USING C++

A Project Work

Submitted in the partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE (IoT)

Submitted by:

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DECLARATION

I, **'ANANYA SINGH'**, student of **'Bachelor of Engineering in Internet of Things'**, **session: 2020-2024**, Department of Computer Science and Engineering, Apex Institute of Technology, Chandigarh University, Punjab, hereby declare that the work presented in this Project Work entitled '**Quiz Game using C++'** is the outcome of our own bona fide work and is correct to the best of our knowledge and this work has been undertaken taking care of Engineering Ethics. It contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

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Date: 27th July, 2021

Place: Mohali, Punjab

ABSTRACT

Earlier Quiz Game was conducted manually in which there used to be a Quiz Master asking questions with a book which was neither flexible nor friendly.

So an automated Quiz Game is designed to play quiz game in a more interactive and fun way which is flexible and more reliable. The proposed system is highly error free and mistake proof as no information has to be entered manually thus reducing the human prone errors. Database of the user is stored in a record file. In comparison to the previous system, the proposed system will be less time consuming and is more efficient

Here, in the quiz game, the user is given a set of questions as designed by the administrator. The user is supposed to answer the questions in the specified time frame. As soon as the quiz ends, the user is provided with a detailed description of his/her performance in the quiz. The same result is stored in the form of Result records which describes each user's R.no, Name, Points, Percentage and Grades, hence, helping to keep the records preserved and handy.

The quiz game is designed to increase learning of players by playing a multiple choice quiz contest on various topics which is interactive, user friendly and fun to play.

ACKNOWLEDGEMENT

Firstly, I would like to thank my Vice Chancellor Prof. (Dr.) R.S. Bawa, HOD Mr. Vikas Wasson for their enormous support and encouragement.

I would also like to thank my Faculty In charge Mr. Rohit Katyal who helped clear any doubt what so ever I had to encounter while making this project.

It is a matter of great pleasure for me to express my deep sense of gratitude and respect to all who were there on every step to guide me in and helped me make the Project better.

Lastly, I would like to thank my Family for the tremendous amount of support they offered me while making this Project. I also had the invaluable support of my friends and colleagues which helped me in completing this Project.

Yours sincerely

Ananya Singh

(20BCS4585)

LIST OF FIGURES

-

TIMELINE CHART

TASK NAME	WEEK 01	WEEK 02	WEEK 03	WEEK 04
PLANNING	🟩	🟩		
RESEARCH	🟩	🟩		
DESIGN		🟩	🟩	
IMPLEMENTATION		🟩	🟩	🟩
FOLLOW UP			🟩	🟩

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1.INTRODUCTION

1.1 PROBLEM DEFINATION

Earlier Quiz Game was conducted manually in which there used to be a Quiz Master asking questions with a book which was neither flexible nor friendly.

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1.2 PROJECT OVERVIEW

1. The main objective of the Quiz application is to overcome all the drawbacks of the old Quiz Game.

2. The application has been designed keeping user interaction and friendliness the top priority. He simply needs to open the application and test, enhance his abilities.

FEATURES

1. The game designed is interactive and user friendly.

2. Preserved and handy records

3. Time management

4. There is a score card and a percentage calculator.

5. Knowledge Enhancement

1.3 SYSTEM SPECIFICATIONS

1.3.1 INTRODUCTION TO C++

C++ (pronounced "see plus plus") is a statically typed, free-form, multi- paradigm, compiled, general-purpose programming language. It is regarded as an intermediate-level language, as it comprises both high-level and low-level language features. Developed by Bjarne Stroustrup starting in 1979 at Bell Labs, C++ was originally named C with Classes, adding object oriented features, such as classes, and other enhancements to the C programming language The language was renamed C++ in 1983,as a pun involving the increment operator

C++ is one of the most popular programming languages and is implemented on a wide variety of hardware and operating system platforms. As an efficient compiler to native code, its application domains include systems software, application software, device drivers, embedded software, high-performance server and client applications, and entertainment software such as video games. Several groups provide both free and proprietary C++ compiler software, including the GNU Project, LLVM, Microsoft Intel and Embarcadero Technologies. C++ has greatly influenced many other popular programming languages, most notably C# and Java.

C++ is also used for hardware design, where the design is initially described in C++, then analyzed, architecturally constrained, and sheduled to create a register-transfer level hardware description language via high-level synthesis.

The language began as enhancements to C, first adding classes, then virtual functions, operator overloading, multiple inheritance, templates and exception handling among other features. After years of development, the C++ programming language standard was ratified in 1998 as ISO/IEC 14882:1998. The standard was amended by the 2003 technical corrigendum, ISO/IEC 14882:2003. The current standard extending C++ with new features was ratified and published by ISO in September 2011 as ISO/IEC 14882:2011.

HISTORY

Bjarne Stroustrup, a Danish and British trained computer scientist, began his work on "C with Classes" in 1979.The idea of creating a new language originated from Stroustrup's experience in programming for his Ph.D. thesis. Stroustrup found that Simula had features that were very helpful for large software development, but the language was too slow for practical use, while BCPL was fast but too low-level to be suitable for large software development. When Stroustrup started working in AT&T Bell Labs, he had the problem of analyzing the UNIX kernel with respect to distributed computing. Remembering his Ph.D. experience, Stroustrup set out to enhance the C language with Simula-like features. C was chosen because it was general-purpose, fast, portable and widely used. Besides C and Simula, some other languages that inspired him were ALGOL 68, Ada, CLU and ML. At first, the class, derived class, strong typing, inlining, and default argument features were added to C via Stroustrup's "C with Classes" to C compiler, Core.

In 1983, the name of the language was changed from C with Classes to C++ (++ being the increment operator in C). New features were added includingvirtual functions, function name and operator overloading, references, constants, user-controlled free-store memory control, improved type checking, and BCPL style single-line comments with two forward slashes (//), as well as the development of a proper compiler for C++, Cfront. In 1985, the first edition of The C++ Programming Language was released, providing an important reference to the language, as there was not yet an official standard. The first commercial implementation of C++ was released in October of the same year. Release 2.0 of C++ came in 1989 and the updated second edition of The C++ Programming Language was released in 1991 New features included multiple inheritance, abstract classes, static member functions, const member functions, and protected members. In 1990, The Annotated C++ Reference Manual was published. This work became the basis for the future standard. Late feature additions included templates, exceptions, namespaces, new casts, and a Boolean type.

As the C++ language evolved, the standard library evolved with it. The first addition to the C++ standard library was the stream I/O library which provided facilities to replace the traditional C functions such as printf and scanf. Later, among the most significant additions to the standard library, was a large amount of the Standard Template Library.

It is possible to write object oriented or procedural code in the same program in C++. This has caused some concern that some C++ programmers are still writing procedural code, but are under the impression that it is object oriented, simply because they are using C++. Often it is an amalgamation of the two. This usually causes most problems when the code is revisited or the task is taken over by another coder.

C++ continues to be used and is one of the preferred programming languages to develop professional applications.

FEATURES OF C++

1) Classes: By using classes we can create user defined data types. In other words the class is the collection of set of data and code. The class allows us to do some things which are polymorphism, inheritance, abstraction, encapsulation which are our next features. The objects are the instances of classes.

2) Inheritance: Inheritance allows one data type to acquire properties of other data types. Inheritance from a base class may be declared as public, protected, or private. If the access specifier is omitted, a “class” inherits privately, while a “struct” inherits publicly. This provides the idea of reusability that means we can add the new features to an existing class without modifying it.

3) Data Abstraction and Encapsulation: Encapsulation means hiding of data from the data structures or in other words wrapping up of data in single entity is known as Encapsulation. In this the data is not accessible to outside world and only the functions are allowed to access it. When we want to write the class in which we don’t have the knowledge about the arguments used to instantiate it then we can use templates in C++. Abstraction can be defined as the act of representing essential features without including background details.

4) Polymorphism: it means that the one interface can be used for many implementation so that object can behave differently for each implementation. The different types of polymorphism are static (Compile time) and dynamic (Run time).

5) Dynamic Binding: It means that the linking of a procedure call to code to be executed in response to the call. A function call associated with a polymorphic reference depends on the dynamic type that reference. And at run-time the code matching the object under current reference will be called.

6) Message Passing: An object oriented program consists of the set of objects that communicate with each other. objects communicate with one another by sending and receiving information much the same way as people pass messages to one another. The concept of message passing makes it easier to direct model or simulate their real world counterparts.

1.4 SOFTWARE SPECIFICATIONS

This Application is Developed in C++ Technology.

1) Operating System: Windows 10

2) Dev C++ compiler

SOFTWARE DESCRIPTION

- **TURBO C++**

Turbo C++ is a C++ compiler and integrated development environment and computer language originally from Borland. Most recently it was distributed by Embarcadero Technologies, which acquired all of Borland's compiler tools with the purchase of its Code Gear division in 2008. The original Turbo C++ product line was put on hold after 1994, and was revived in 2006 as an introductory-level IDE, essentially a stripped-down version of their flagship C++Builder. Turbo C++ 2006 was released on September 5, 2006 and was available in 'Explorer' and 'Professional' editions. The Explorer edition was free to download and distribute while the Professional edition was a commercial product. In October 2009 Embarcadero Technologies discontinued support of its 2006 C++ editions. As such, the Explorer edition is no longer available for download and the Professional edition is no longer available for purchase from Embarcadero Technologies. Turbo C++ is succeeded by C++Builder. The first release of Turbo C++ was made available during the MS-DOS era on personal computers. Version 1.0, running on MS- DOS, was released in May 1990. An OS/2 version was produced as well. Version 1.01 was released on February 28, 1991, running on MS-DOS. The latter was able to generate both COM and EXE programs, and was shipped with Borland's Turbo Assembler compiler for Intel x86 processors. The initial version of the Turbo C++ compiler was based on a front end developed by TauMetric was later acquired by Sun Microsystems and their front end was incorporated in Sun C++ 4.0, which shipped in 1994).This compiler supported the AT&T 2.0 release of C++.

Turbo C++ 3.0 was released in 1991 (shipping on November 20), and came in amidst expectations of the coming release of Turbo C++ for Microsoft Windows. Initially released as an MS-DOS compiler, 3.0 supported C++ templates, Borland's inline assembler, and generation of MS-DOS mode executables for both 8086 real-mode & 286-protected (as well as the Intel 80186.) 3.0's implemented AT&T C++ 2.1, the most recent at the time. The separate Turbo Assembler product was no longer included, but the inline-assembler could stand in as a reduced functionality version.

Soon after the release of Windows 3.0, Borland updated Turbo C++ to support Windows application development. The Turbo C++ 3.0 for Windows product was quickly followed by Turbo C++ 3.1(and then Turbo C++ 4.5). It's possible that the jump from version 1.x to version 3.x was in part an attempt to link Turbo C++ release numbers with Microsoft Windows versions; however, it seems more likely that this jump was simply to synchronize Turbo C and Turbo C++, since Turbo C 2.0 (1989) and Turbo C++ 1.0 (1990) had come out roughly at the same time, and the next generation 3.0 was a merger of both the C and C++ compiler.

Starting with version 3.0, Borland segmented their C++ compiler into two distinct product-lines: "Turbo C++" and "Borland C++". Turbo C++ was marketed toward the hobbyist and entry-level compiler market, while Borland C++ targeted the professional application development market. Borland C++ included additional tools, compiler code- optimization, and documentation to address the needs of commercial developers. Turbo C++ 3.0 could be upgraded with separate add-ons, such as Turbo Assembler and Turbo Vision 1.0.

Version 4.0 was released in November 1993 and was notable (among other things) for its robust support of templates. In particular, Borland C++ 4 was instrumental in the development of the Standard Template Library, expression templates, and the first advanced applications of template metaprogramming. With the success of the Pascal-evolved product Delphi, Borland ceased work on their Borland C++ suite and concentrated on C++Builder for Windows. C++Builder shared Delphi's front-end application framework, but retained the Borland C++ back-end compiler. Active development on Borland C++/Turbo C++ was suspended until 2006.

1.5 **HARDWARE REQUIREMENTS**

Processors: Pentium IV or more

Speed: 2.0 GHZ or more

Memory: 64 MB RAM or Harder Disk Drive: 5 MB or more

2.LITERATURE SURVEY

2.1 DESIGN

Earlier Quiz Game was conducted manually in which there used to be a Quiz Master asking questions with a book which was neither flexible nor friendly. So, an automated Quiz Game is designed to play quiz game in a more interactive and fun way which is flexible and more reliable. The proposed system is highly error free and mistake proof as no information has to be entered manually thus reducing the human prone errors. Database of the user is stored in a record file. In comparison to the previous system, the proposed system will be less time consuming and is more efficient.

This 'QUIZ GAME' Project is designed for managing user's records effectively with the help of a simple database namely result records as per performance. Here, in the quiz game, the user is given a set of questions as designed by the administrator. The user is supposed to answer the questions in the specified time frame. As soon as the quiz ends, the user is provided with a detailed description of his/her performance in the quiz. The same result is stored in the form of Result records which describes each user's R.no, Name, Points, Percentage and Grades, hence, helping to keep the records preserved and handy.

2.2 EXISTING SYSTEM

The Quiz Game was conducted manually. It was difficult to manage records of student performance in the quiz

2.3 PROPOSED SYSTEM

- In comparison to the present system the proposed system will be less time consuming and is more efficient.
- Quiz will be very easy as all in the new proposed system, the process of quiz game is fully automated.
- The proposed system is highly error and mistake proof as no information has to be entered manually thus reducing the human prone errors.
- Database of the student performance is stored in a record file.

2.4 FEASIBILITY STUDY

2.4.1 OPERATIONAL FEASIBILITY

Earlier Quiz Game was conducted manually in which there used to be a Quiz Master asking questions with a book which was neither flexible nor friendly.

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- The proposed system is highly error and mistake proof as no information has to be entered manually thus reducing the human prone errors.
- Database of the student performance is stored in a record file.

2.4.2 ECONOMICAL FEASIBILITY

The proposed is cost-effective i.e. the benefits do not outweigh the costs then it is not worth going ahead. In the fast paced world today there is a great need of online social networking facilities. Thus, the benefits of this project in the current scenario make it economically feasible. It includes quantification and identification of all the benefits expected.

2.4.3. TECHNICAL FEASIBILITY

The technical feasibility of quiz game using C++ is as follows:

1. The proposed system is a simple console application which makes use of GUI to make it more welcoming to users.
2. We have implemented the project GCC compiler which is quite flexible.
3. Dev C++ is the text editor which we have used in the project that is easy to download and is free of cost.

4. The proposed quiz system is quite simple and can be easily understood by the user. It is flexible and easy to access.

5. This game is very much concerned with the reduction of manual work and the satisfy almost all the user's requirements.

6. The technical need for this system may vary considerably but might include:

a. The facility to produce result report instantly after finishing the quiz.

b. Response time under certain conditions.

c. Ability to access unlimited results records of users just in one type of key.

3.PROBLEM FORMULATION

Quiz Game is a vital game in today’s world. We have already witnessed major quiz games like KBC, The Chase and many others ran by influential celebrities for culturing of knowledge and reward people handsomely. Earlier Quiz Game was conducted manually in which there used to be a Quiz Master asking with a book which was neither flexible nor friendly.

Through the proposed project of Quiz Game, we can judge a person’s problem solving skills as well as his time consumption per question and also grade him at the end for his evaluation which also can be used as a platform for taking the examinations of students also.

The final result can be displayed and updated in the database. The proposed system is highly error free and mistake proof as no information has to be entered manually thus reducing the human prone errors.

In comparison to the previous system, the proposed system will be less time consuming and is more efficient.

4.OBJECTIVES

✓ IMPLEMENTATION OF INTERACTIVE QUIZ GAME WITH REDUCED MANUAL EFFORT

✓ PRESERVED AND ACCURATE RECORDS

✓ TIME MANAGEMENT

✓ KNOWLEDGE ENHANCEMENT

5. METHODOLOGY

Our methodology is to develop an interactive quiz game and to reduce manual efforts. The quiz game is developed to conduct any quiz based on time constraints.

The users has an option to choose amongst various subjects to test his/her skill. As soon as the user attempts the question, it is immediately informed if the question has been answered correctly or not. If user answers the question wrongly, the correct answer is displayed on the console.

The final score will be displayed and updated in the database namely result records.

5.1 IMPLEMENTATION

The following data flow diagram describes the Implementation of the proposed system:

DATA FLOW DIAGRAM OF QUIZ GAME

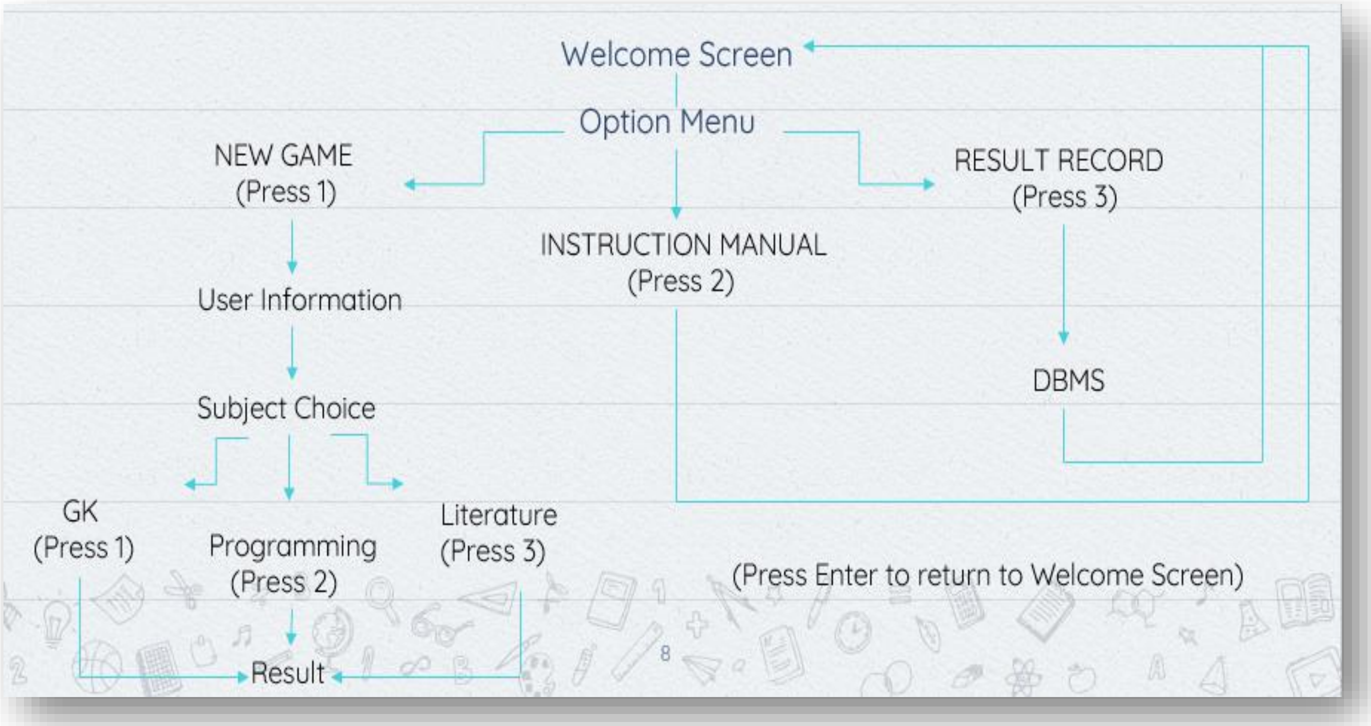


Fig (1)

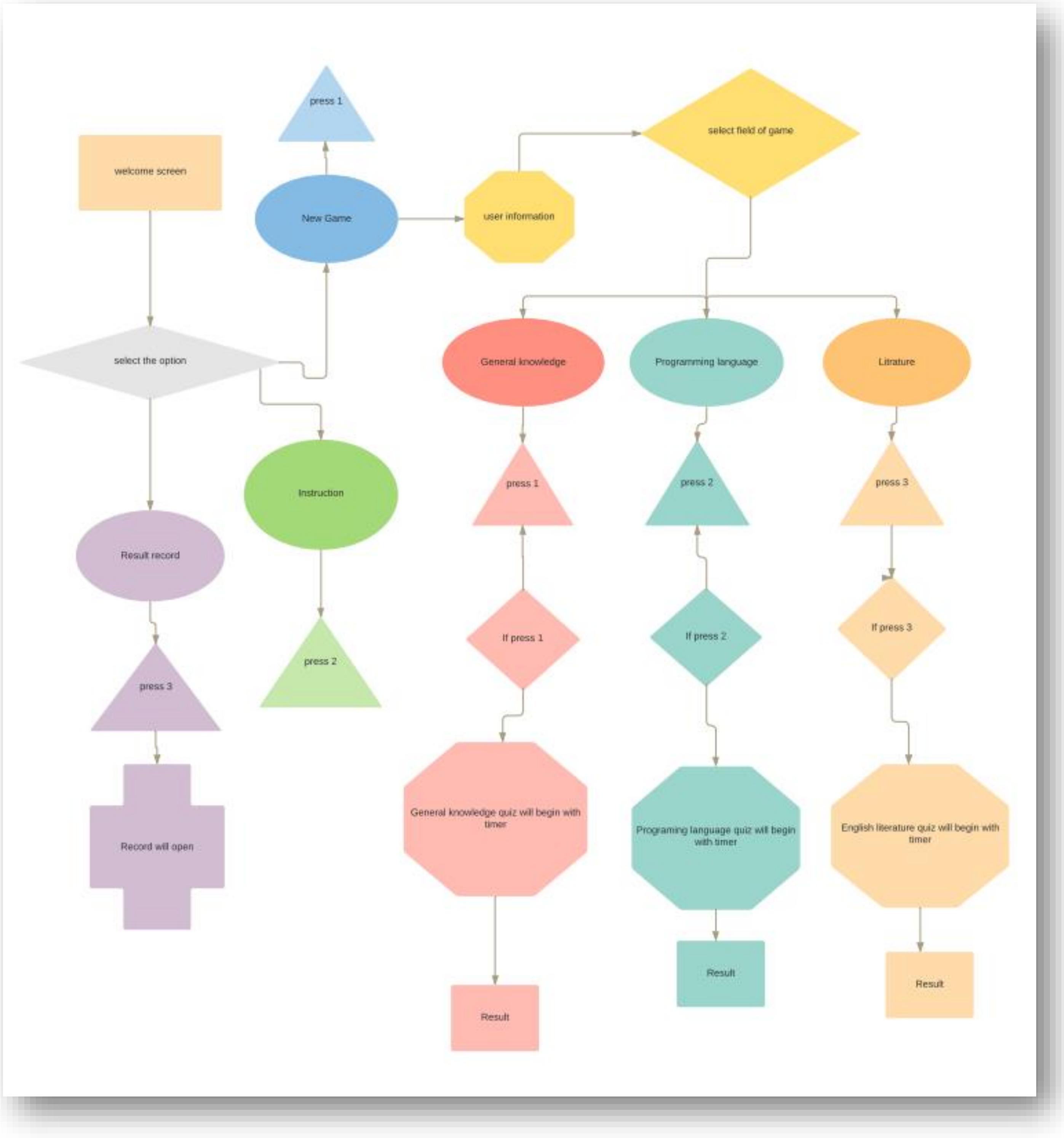
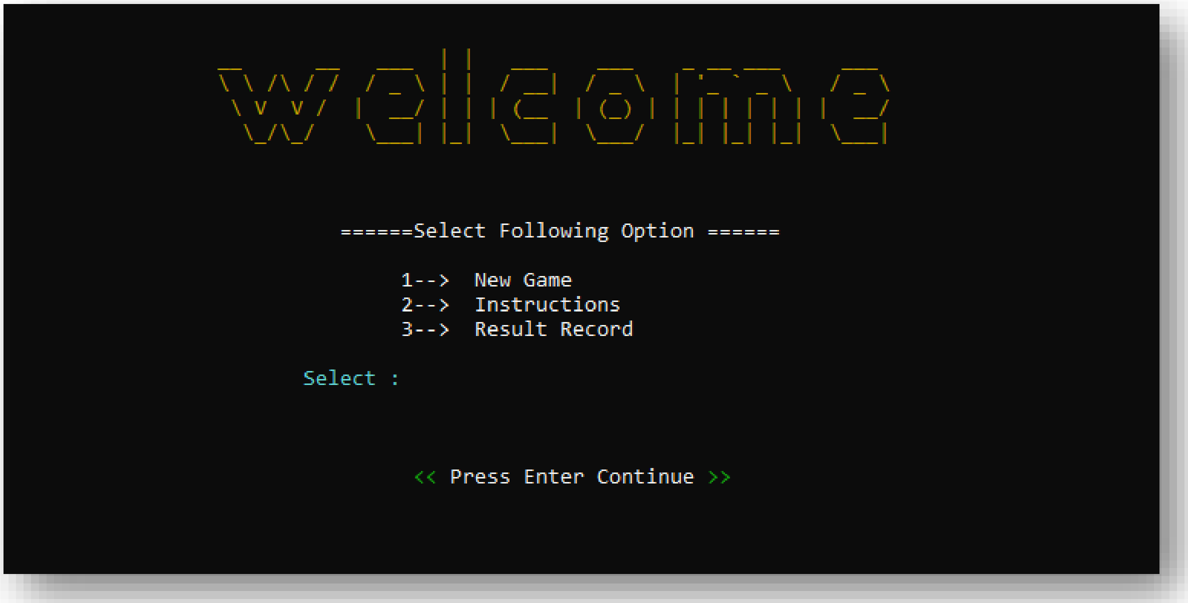

press 1
select field of game
welcome screen
New Game
user information
select the option
General knowledge
Programming language
Litrature
Instruction
press 1
press 2
press 3
Result record
press 2
If press 1
If press 2
If press 3
press 3
General knowledge quiz will begin with timer
Programing language quiz will begin with timer
English literature quiz will begin with timer
Record will open
Result
Result
Result

Fig (2)

6.RESULTS AND OUTPUT

1. WELCOME SCREEN

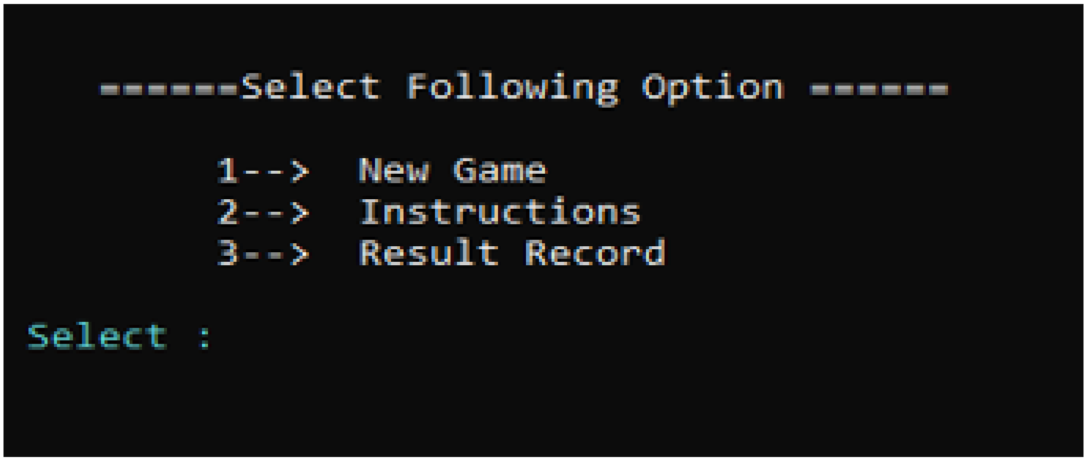


```
                         | |
 __      __    ___    | |   ___    ___    _ __ ___     ___
 \ \ /\ / /   / _ \   | |  / __|  / _ \  | '_ ` _ \   / _ \
  \ V  V /   |  __/   | | | (__  | (_) | | | | | | | |  __/
   \_/\_/     \___|   |_|  \___|  \___/  |_| |_| |_|  \___|


              ======Select Following Option ======

                   1-->  New Game
                   2-->  Instructions
                   3-->  Result Record

           Select :


                 << Press Enter Continue >>
```

Fig (3)

This snapshot shows the welcome screen of the MCQ Quiz Game

2. THE OPTION MENU

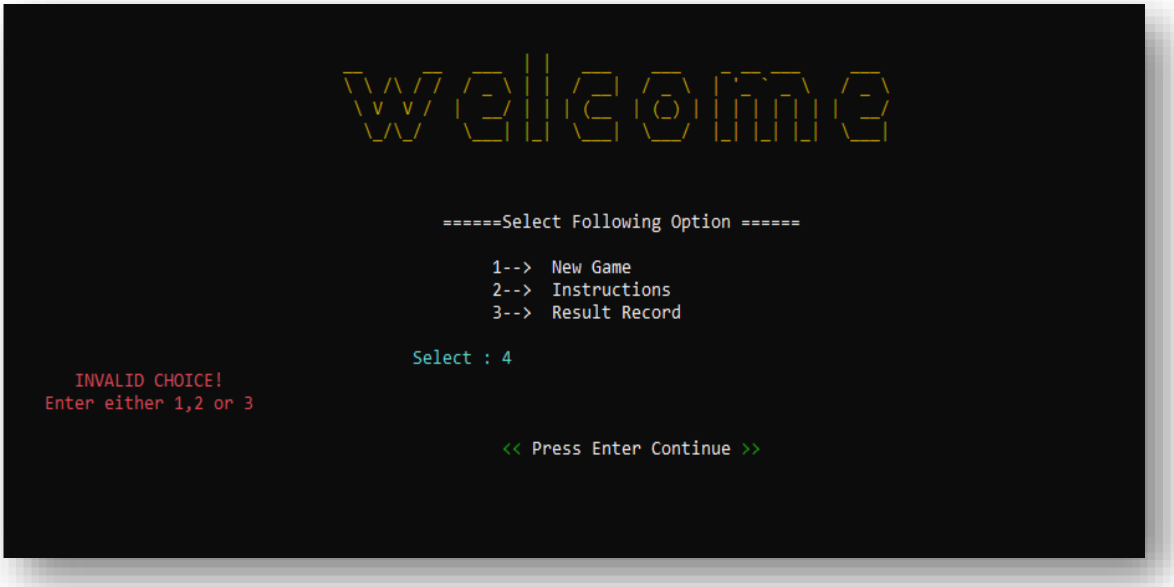


```
   ======Select Following Option ======

        1-->  New Game
        2-->  Instructions
        3-->  Result Record

Select :
```

Fig (4)

After selecting the relevant option user can access the quiz game.

3. INVALID CHOICE

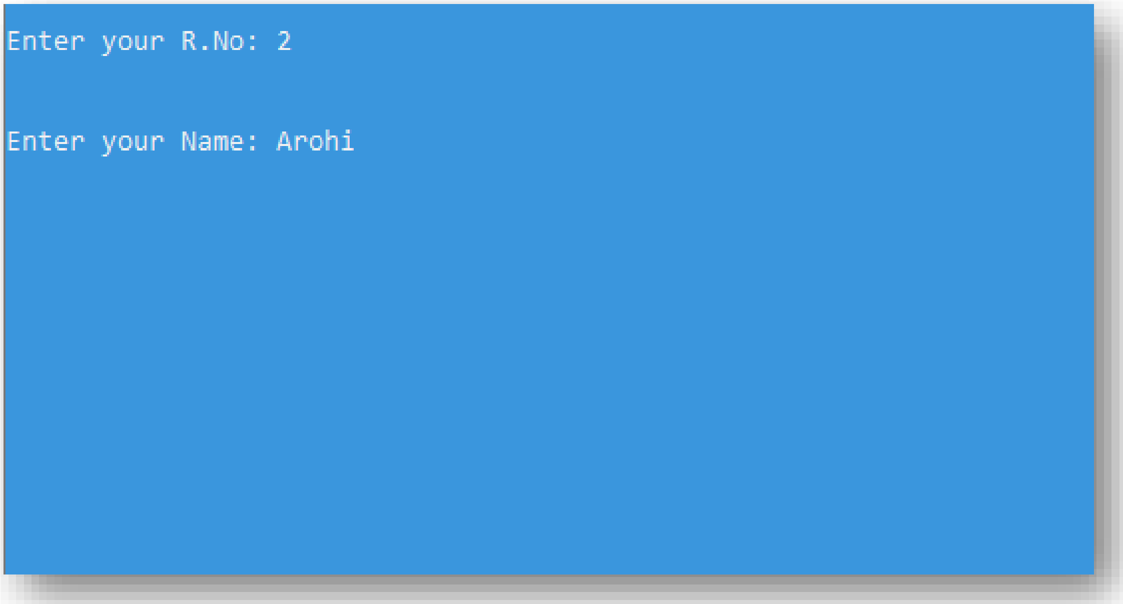


```
                    ======Select Following Option ======

                         1-->  New Game
                         2-->  Instructions
                         3-->  Result Record

                 Select : 4

  INVALID CHOICE!
Enter either 1,2 or 3

                            << Press Enter Continue >>
```

Fig (5)

Notification encountered when user make invalid choice.

4. USER INFORMATION

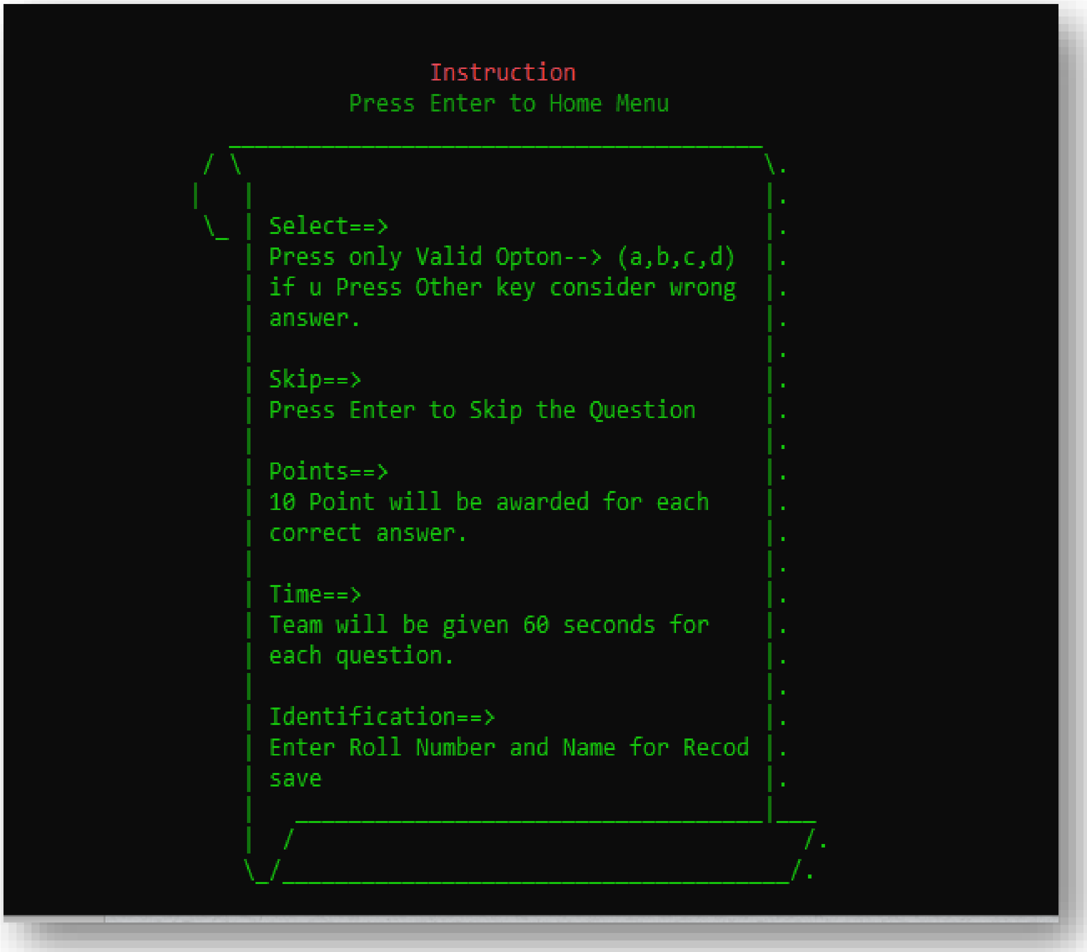


```
Enter your R.No: 2

Enter your Name: Arohi
```

Fig (6)

The snapshot shows how the information of the user is to be stored.

5. INSTRUCTION MANUAL

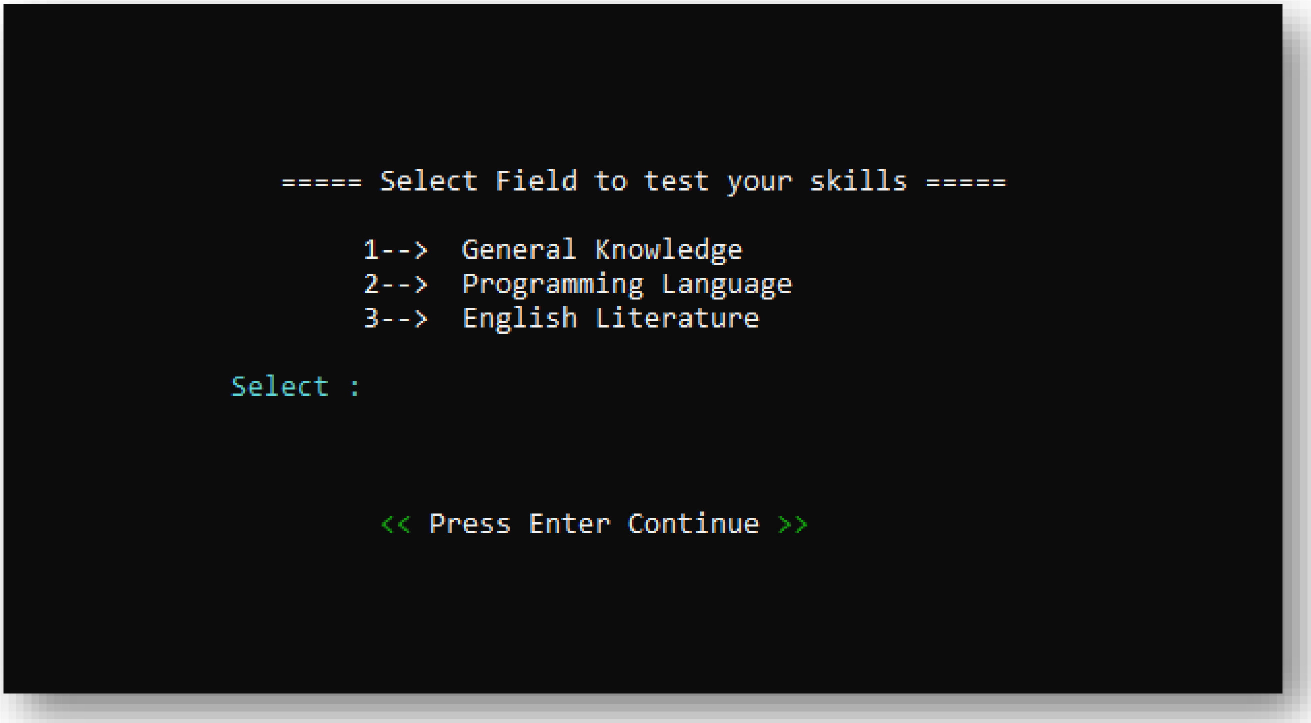


```
                  Instruction
            Press Enter to Home Menu
   ________________________________________
 / \                                       \.
|   |                                      |.
 \_ | Select==>                            |.
    | Press only Valid Opton--> (a,b,c,d)  |.
    | if u Press Other key consider wrong  |.
    | answer.                              |.
    |                                      |.
    | Skip==>                              |.
    | Press Enter to Skip the Question     |.
    |                                      |.
    | Points==>                            |.
    | 10 Point will be awarded for each    |.
    | correct answer.                      |.
    |                                      |.
    | Time==>                              |.
    | Team will be given 60 seconds for    |.
    | each question.                       |.
    |                                      |.
    | Identification==>                    |.
    | Enter Roll Number and Name for Recod |.
    | save                                 |.
    |   ___________________________________|___
    |  /                                      /.
    \_/______________________________________/.
```

Fig (7)

This snapshot shows the instruction manual of the MCQ Quiz Game.

6. SUBJECT CHOICES



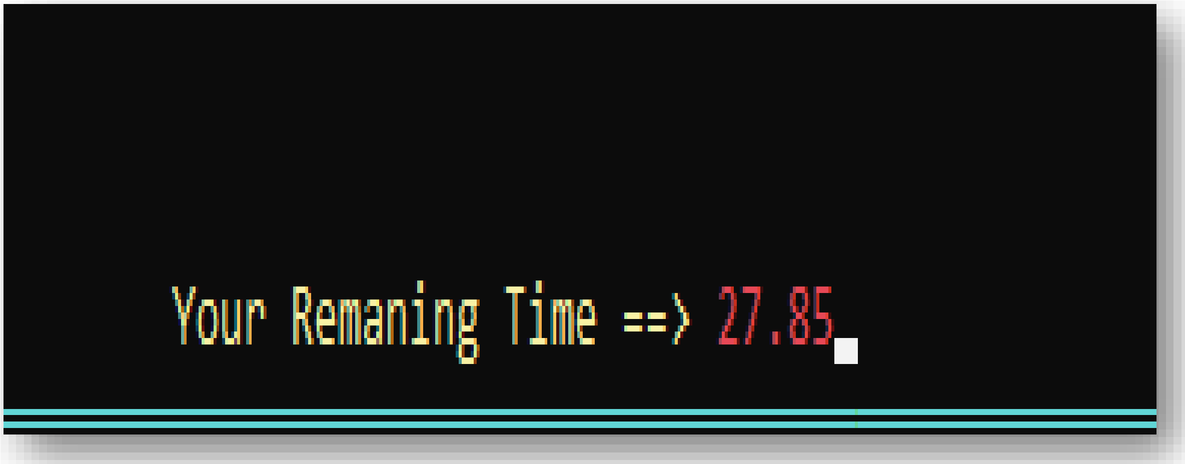
```
                ===== Select Field to test your skills =====

                     1-->  General Knowledge
                     2-->  Programming Language
                     3-->  English Literature

          Select :



                     << Press Enter Continue >>
```

—

Fig (8)

This snapshot shows the option to select the subject in which the user wants to his skills

7. TIMER

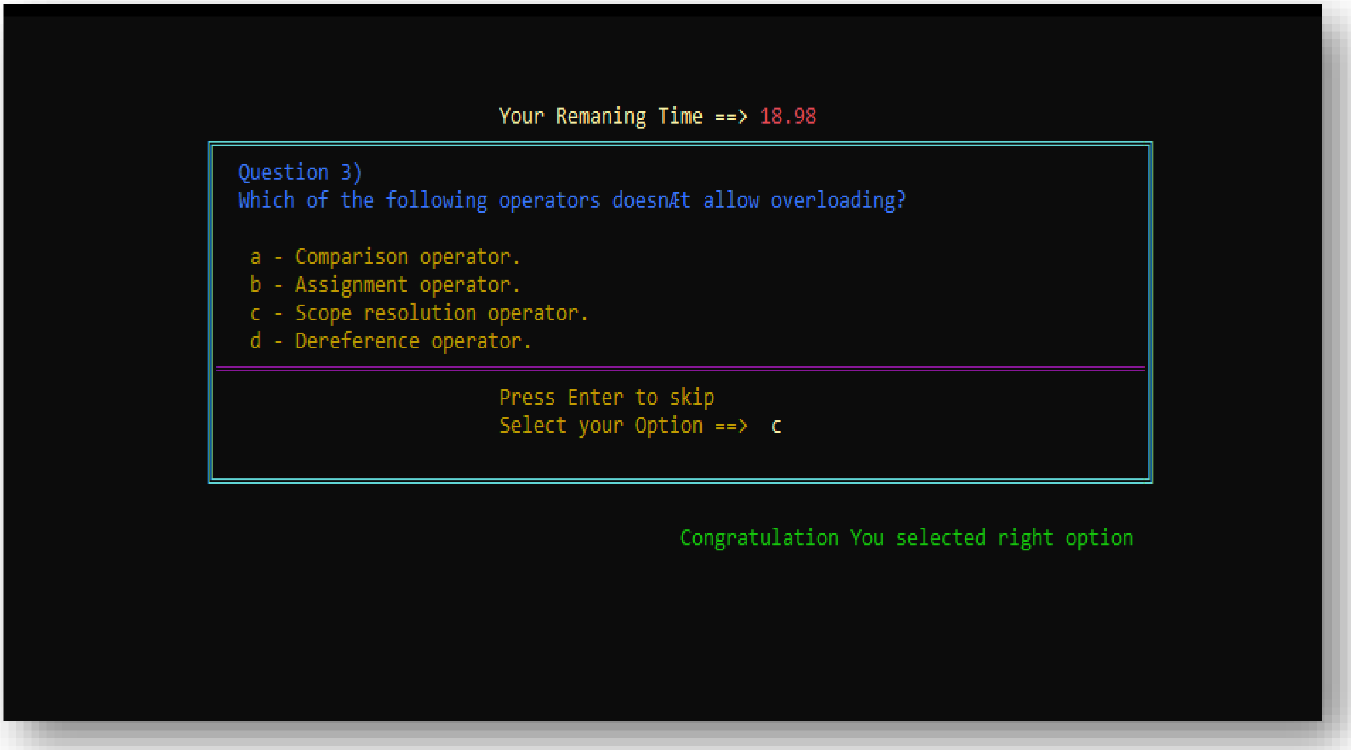


```
Your Remaning Time ==> 27.85
```

Fig (9)

This snapshot shows the working of timer in the MCQ Quiz Game.

8. CORRECT ANSWER

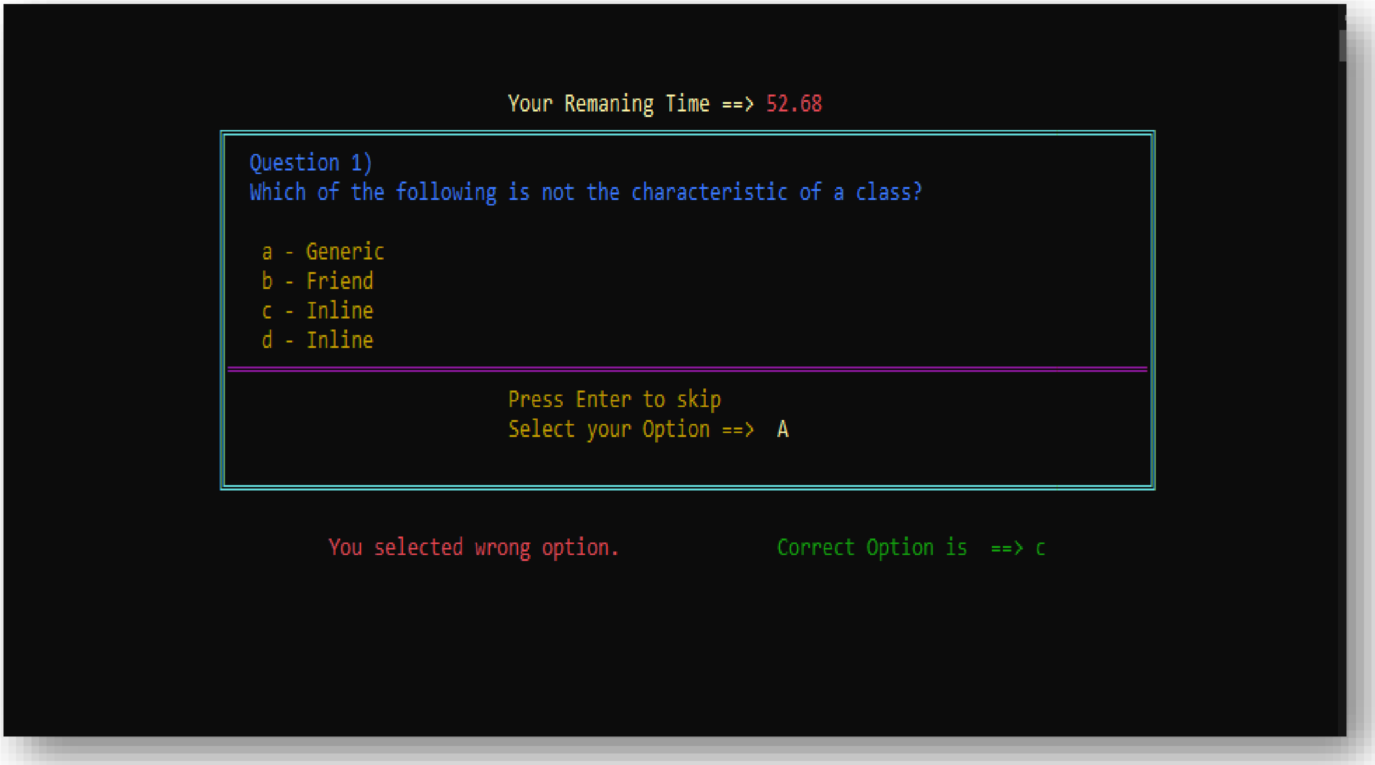


```
                      Your Remaning Time ==> 18.98

  Question 3)
  Which of the following operators doesnÆt allow overloading?

   a - Comparison operator.
   b - Assignment operator.
   c - Scope resolution operator.
   d - Dereference operator.

                         Press Enter to skip
                         Select your Option ==>  c

                                         Congratulation You selected right option
```

Fig (10)

The snapshot shows the notification sent when user gives the correct answer.

9. WRONG ANSWER

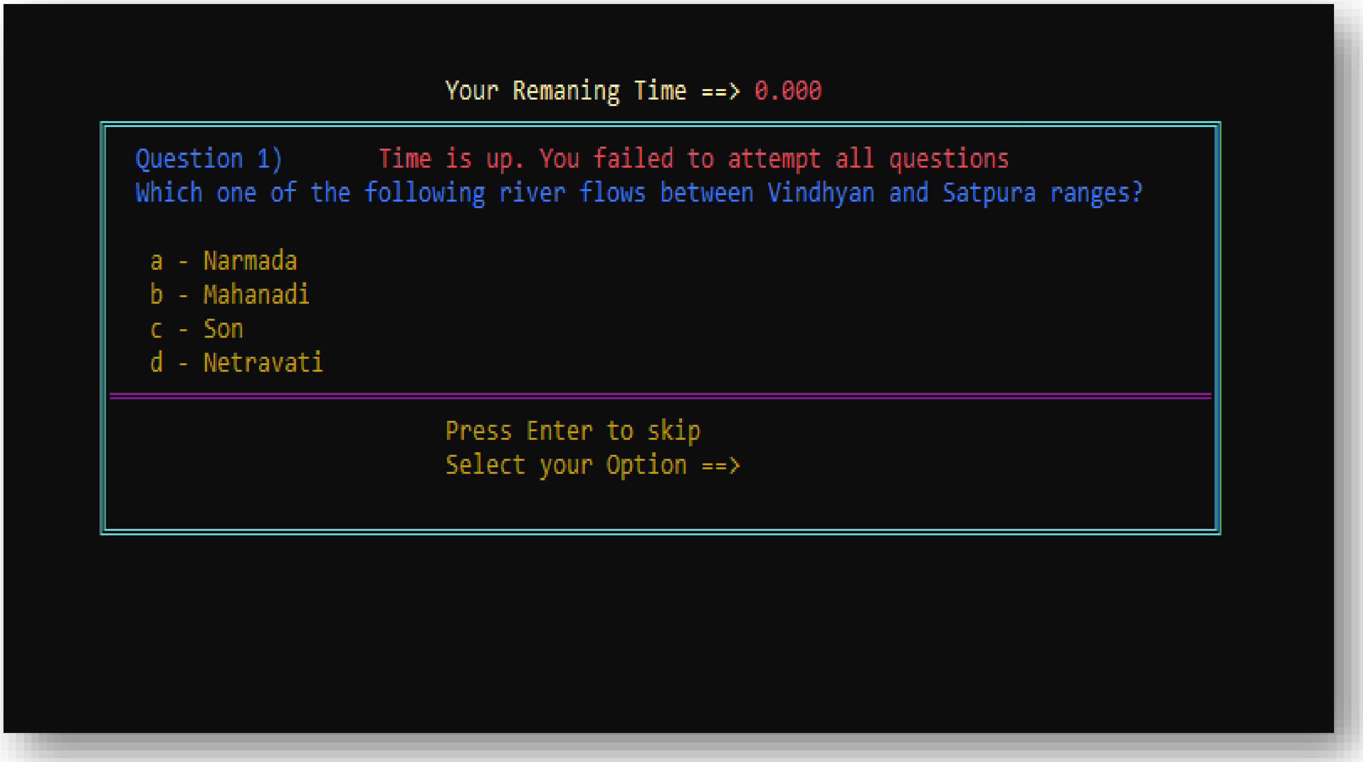


```
                         Your Remaning Time ==> 52.68

   Question 1)
   Which of the following is not the characteristic of a class?

    a - Generic
    b - Friend
    c - Inline
    d - Inline

                         Press Enter to skip
                         Select your Option ==>  A

        You selected wrong option.           Correct Option is  ==> c
```

Fig (11)

The snapshot shows the notification sent when user gives the wrong answer.

10. CASE OF TIME-UP

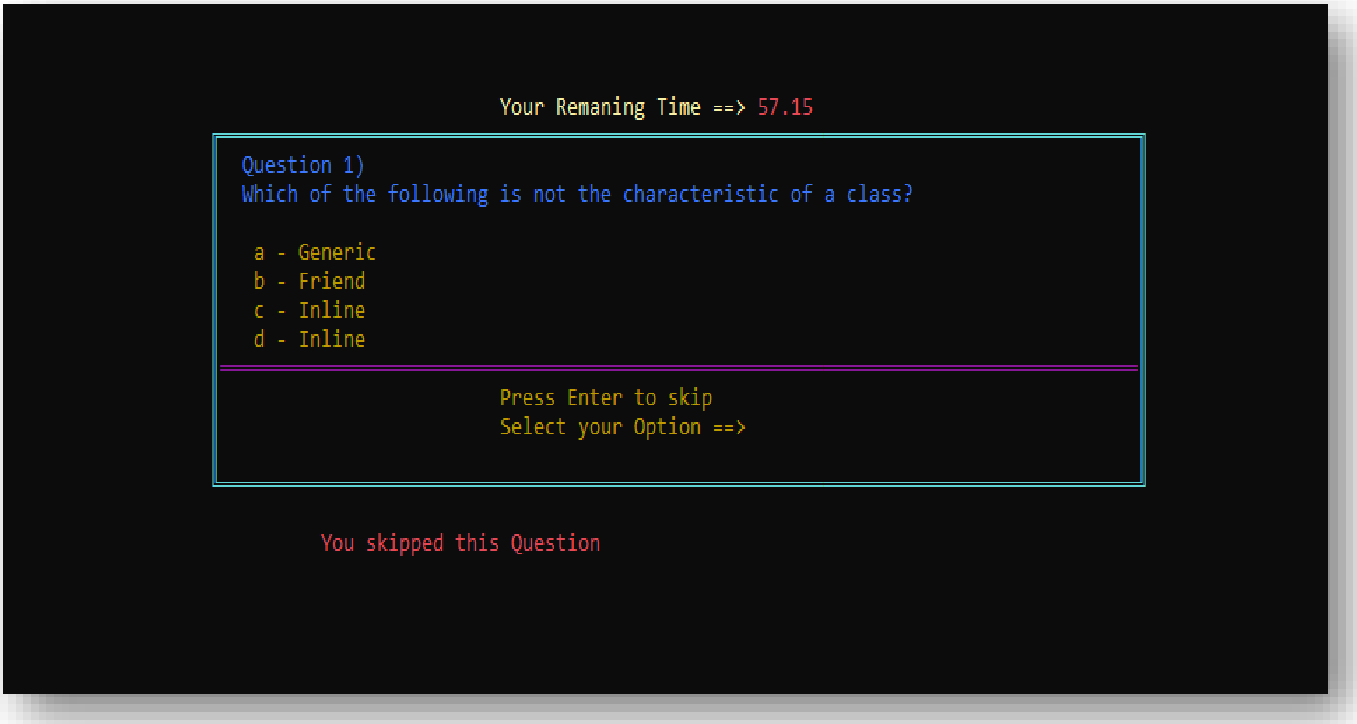


```
                         Your Remaning Time ==> 0.000

    Question 1)       Time is up. You failed to attempt all questions
    Which one of the following river flows between Vindhyan and Satpura ranges?

     a - Narmada
     b - Mahanadi
     c - Son
     d - Netravati

                         Press Enter to skip
                         Select your Option ==>
```

Fig (12)

This snapshot shows the time-up condition.

11. SKIP QUESTION

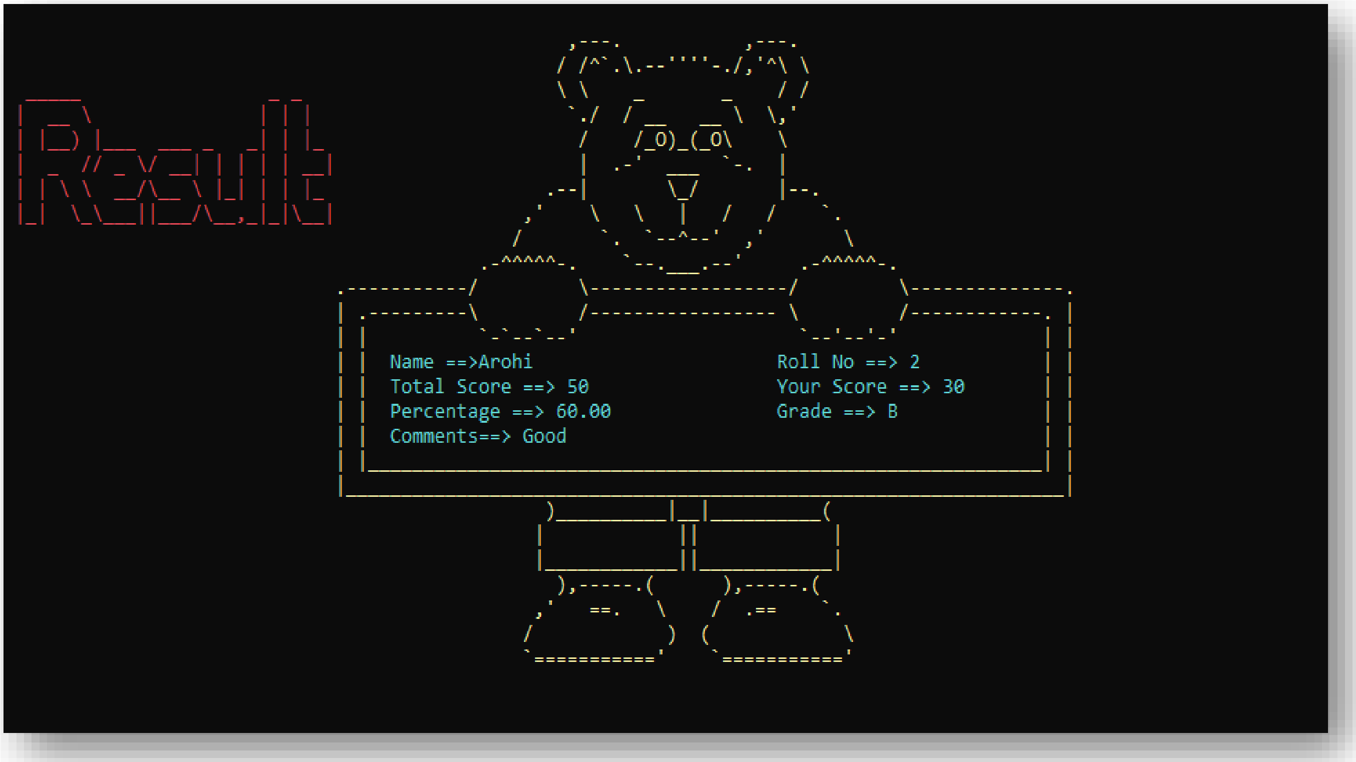


```
                Your Remaning Time ==> 57.15

  Question 1)
  Which of the following is not the characteristic of a class?

   a - Generic
   b - Friend
   c - Inline
   d - Inline

                Press Enter to skip
                Select your Option ==>


        You skipped this Question
```

Fig (13)

The SS shows the case when user skips the question

12.SCORE CARD OF THE USER

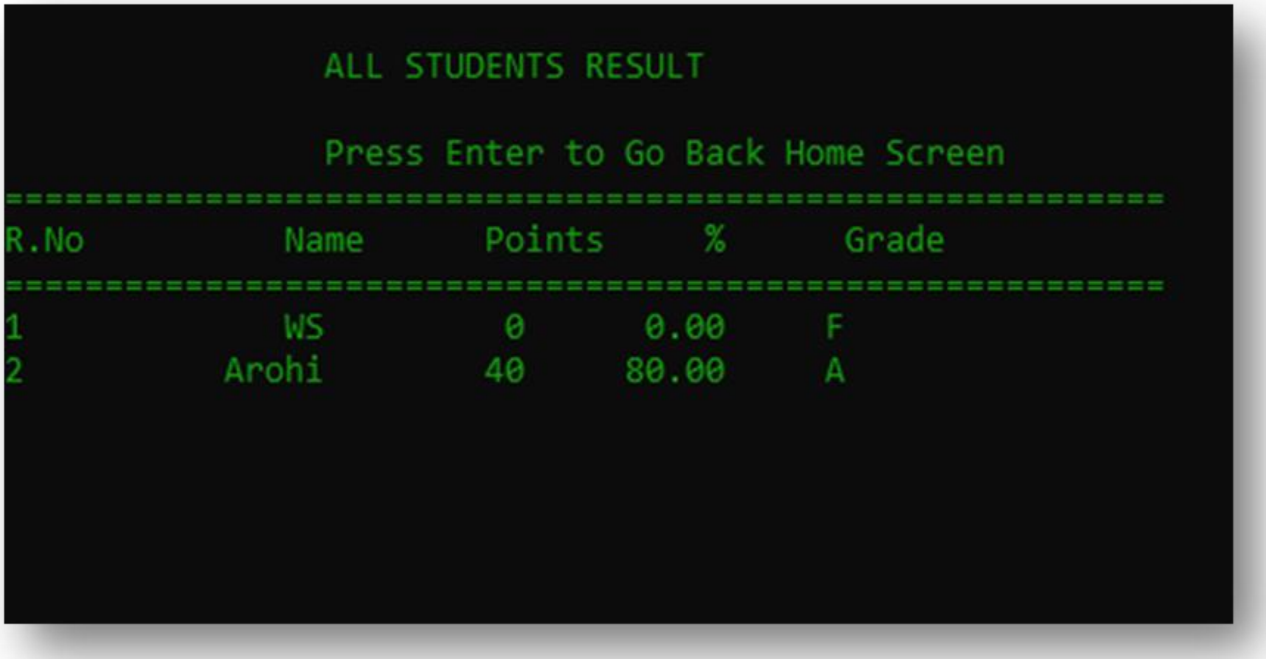


```
Name ==>Arohi                          Roll No ==> 2
Total Score ==> 50                     Your Score ==> 30
Percentage ==> 60.00                   Grade ==> B
Comments==> Good
```

Fig (14)

This snapshot shows the score card of the user after the quiz ends.

13.RESULT RECORDS



```
                    ALL STUDENTS RESULT

                    Press Enter to Go Back Home Screen
==========================================================
R.No              Name       Points      %      Grade
==========================================================
1                   WS          0      0.00     F
2               Arohi          40     80.00     A
```

Fig (15)

This snapshot shows the result records of the users.

7. CONCLUSION AND RECOMMENDATIONS

The Quiz Game designed is very interactive, user friendly and easy to play.

Recommendations are more and more games like these should be designed as it improves the knowledge and at the same time test your IQ level. Quiz games should be designed in a more interactive and friendly way so that more people can play, enjoy and at the same time improve, enhance and test their knowledge on various subjects. The performance report of every user is later stored in the results records for future reference.

The Project can be used to generate and manage a simple database for storing student records with the objective of reducing manual work.

Here, in the quiz game, the user has a choice to select the subject in which he wants to attempts the quiz that contains the set of questions as designed by the administrator. The user is supposed to answer the questions in the specified time frame. As soon as the quiz ends, the user is provided with a detailed description of his/her performance in the quiz. The same result is stored in the form of Result records which describes each User's UID, Name, Points, Percentage and Grades, hence, helping to keep the records preserved and handy

8.IMPLICATIONS FOR FUTURE RESEARCH

Nothing is 100% perfect, there always a scope of improvement. Similarly, this project can be improved further. There are many areas in this project which can be expanded more on a larger scale that could not be achieved due limited time and resources. Some more research needs to be done to meet the requirements of a learner. Following are some implications and changes that can be done in this project.

Additional features which could be added to the application is improving the graphical user interface, adding features of the like IQ AND EQ and making it more user friendly and interactive so that more and more players can play and enjoy the game with ease. The project has the below the mentioned scopes in future:

- ❑ Scope to launch the quiz game on a website to make it more welcoming to users.
- ❑ Scope to broaden the field of testing skills of the users by adding more question series to the game on various subjects.
- ❑ Scope to add camera support for remotely taking this test in proctored mode.
- ❑ Use of AI Plugins for further strengthening the security and robustness.
- ❑ Scope to connect to cloud server for smooth data storage and easy automated result calculations.
- ❑ Scope to implement in educational field to maintain student performance records.

9.REFERENCES

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************************ THANK YOU *************************