A Project report on

CONSOLE BASED QUIZ APPLICATION

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Contents

MODULE 1

Overview & Purpose

This Java project simulates a quiz game. The game has multiple-choice questions, a time limit for each question, and lifelines such as 50-50 and Skip. The player answers questions to win increasing prize money and can quit anytime to retain their current winnings.

The project aims to:

- Develop a Java console-based quiz game and simulate real-time quiz experiences with a countdown timer.

- Enhance Java programming skills using OOP, arrays, control structures, and threads.

- Provide an engaging way to test general knowledge.

MODULE 2

System Requirements

Hardware:

- Processor: Dual-core 2.0 GHz or higher

- RAM: 2 GB minimum

- Storage: 50 MB

Software:

- OS: Windows/Linux/Mac

- Java Development Kit (JDK) 8 or higher

- IDE (Eclipse, VS code) or command-line terminal

MODULE 3

Applicational Area

- Education: For learning and practicing quiz-based knowledge.

- Gaming: As a casual console-based trivia game.

- Development Training: Demonstrates use of core Java concepts for educational assignments and practice.

MODULE 4
Technology Description

Programming Language: Java

Concepts Used:

- Object-Oriented Programming (OOP)

- Arrays and Control Structures

- Multi-threading (used for countdown timer)

- Input/Output via Scanner

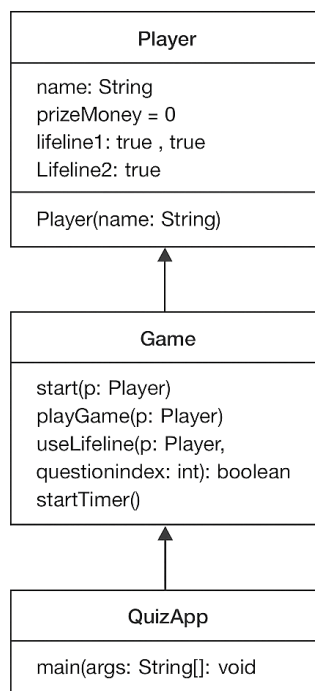- Conditional logic and lifeline management

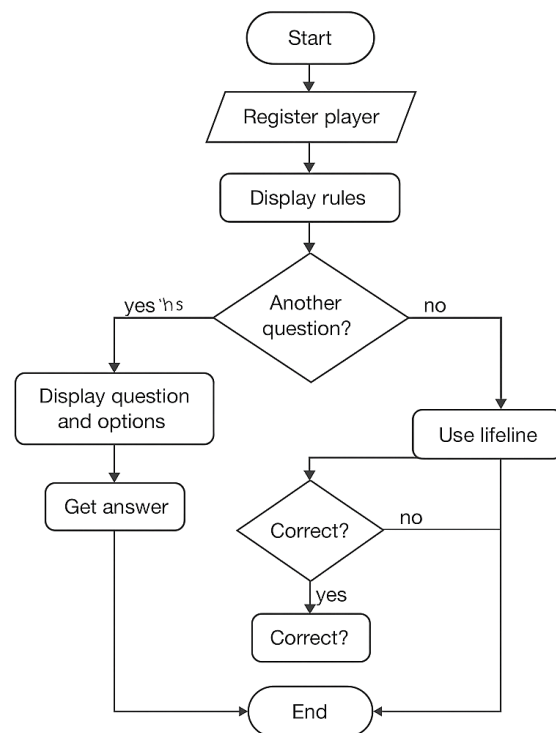# MODULE 5
UML & Flow Diagram

Fig 5.2 Project UML Diagram

Fig 5.1 Project Flow Diagram

MODULE 6
Source Code

7.1 QuizApp.java

```java
import java.util.*;
public class QuizApp {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Welcome to the Console based Quiz game….!");


        System.out.print("\nPlease Enter Your Name: ");
        String name = sc.nextLine();
        System.out.println("{---Player Registered Successfully---}");


        Player p = new Player(name);
        System.out.println("\n\nWelcome to the Game " + name + "...!");
        try {
            new Game().start(p);
        }
        catch (Exception e) {
            System.out.println("Issue while initializing the game");
        }
    }
}
```

7.2 Player.java

```java
import java.util.*;
class Player {
    static String name;
    static int prizeMoney = 0;
    static boolean lifeline1 = true;
    static boolean lifeline2 = true;


    Player(String name) {
        this.name = name;
    }
}
```

7.3 Game.java

```java
import java.util.*;

class Game {
    Scanner sc = new Scanner(System.in);
    boolean timeUp;
    Thread t;

    String[] questions = {
        "What is the Financial capital of India?",
        "Which planet is known as the Red Planet?",
        "What is the capital of India?",
        "Who was the first Prime Minister of India?",
        "Which is the national animal of India?",
        "What is the national sport of India?",
        "Which river is known as the Ganga's biggest tributary?",
        "Which is the largest state in India by area?",
        "Who is known as the Father of the Nation in India?",
        "Which is the national bird of India?"
    };
    String[][] options = {
            {"1. Mumbai", "2. Agra", "3. Bengaluru", "4. New Delhi", "5. Quit", "6. Life Line ?"},
            {"1. Mars", "2. Venus", "3. Jupiter", "4. Saturn", "5. Quit", "6. Life Line ?"},
            {"1. New Delhi", "2. Chennai", "3. Kolkata", "4. Mumbai", "5. Quit", "6. Life Line ?"},
            {"1. Jawaharlal Nehru", "2. Mahatma Gandhi", "3. Sardar Patel", "4. Indira Gandhi", "5. Quit", "6. Life Line ?"},
            {"1. Tiger", "2. Lion", "3. Elephant", "4. Peacock", "5. Quit", "6. Life Line ?"},
            {"1. Hockey", "2. Cricket", "3. Kabaddi", "4. Football", "5. Quit", "6. Life Line ?"},
            {"1. Yamuna", "2. Brahmaputra", "3. Godavari", "4. Chambal", "5. Quit", "6. Life Line ?"},
            {"1. Rajasthan", "2. Maharashtra", "3. Uttar Pradesh", "4. Madhya Pradesh", "5. Quit", "6. Life Line ?"},
            {"1. Mahatma Gandhi", "2. Subhash Chandra Bose", "3. B.R. Ambedkar", "4. Bhagat Singh", "5. Quit", "6. Life Line ?"},
            {"1. Peacock", "2. Eagle", "3. Sparrow", "4. Parrot", "5. Quit", "6. Life Line ?"}
        };

    int[] answers = {1, 1, 1, 1, 1, 1, 1, 1, 1, 1};
    int[] lifeline1choices = {2, 2, 2, 2, 2, 2, 2, 2, 2, 2};
    int[] rewards = {1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, 10000};

    void startTimer() {
        t = new Thread(() -> {
            try {
```

```java
        System.out.println("\nRemaining time: ");
        for (int i = 30; i > 0; i--) {
            System.out.print(i + " ");
            Thread.sleep(1000);
        }
        System.out.println("\nXXXXXXXXXXXXXX");
        System.out.println("XXXXXXXXXXXXXX::::::::::::::: Time's up! You won Rs." + Player.prizeMoney
+ " before termination.");
        System.out.println("XXXXXXXXXXXXXX");
        timeUp = true;
      } catch (InterruptedException e) {


      }
    });
    t.start();
  }


  void start(Player p) {

        System.out.println(" |**********************************************|"
            + "\n |*        Please read the Rules carefully:     *|"
            + "\n |* 1.  Game starts only if you type 'yes'.        *|"
            + "\n |* 2.  There are 12 multiple-choice questions.    *|"
            + "\n |* 3.  Each question has 6 options.              *|"
            + "\n |* 4.  You have 30 seconds to answer each.        *|"
            + "\n |* 5.  Time out ends game with prize so far.      *|"
            + "\n |* 6.  Each correct answer increases reward.      *|"
            + "\n |* 7.  Wrong answer ends the game.               *|"
            + "\n |* 8.  Choose option 5 to quit with your prize.   *|"
            + "\n |* 9.  Lifelines: 50-50 and Skip (once each).     *|"
            + "\n |* 10. 50-50 shows 1 correct & 1 wrong option.    *|"
            + "\n |* 11. Skip moves to next question safely.        *|"
            + "\n |* 12. Lifelines can be used only once.          *|"
            + "\n |* 13. Game warns when lifelines are over.        *|"
            + "\n |* 14. Invalid inputs are rejected with retry.    *|"
            + "\n |* 15. Answering all wins maximum prize!          *|"
            + "\n |**********************************************|");
    System.out.println("\nAre you ready? (yes/no)");
    String response = sc.next();
    if (!response.equalsIgnoreCase("yes")) {
        System.out.println("XXXXXXXXXXXXXX");
        System.out.println("XXXXXXXXXXXXXX::::::::::::::: Game terminated. Thank you!");
        System.out.println("XXXXXXXXXXXXXX");
```

```java
        try {
          System.exit(0);
        }
        catch (Exception e) {
          System.out.println("There is a problem while exiting. Please try to exit manually");
        }


      } else {
        System.out.println("\nLet's Go.....!\n");
        try {
               playGame(p);
        }
        catch (Exception e) {
               System.out.println("Something is wrong while starting the game.");
        }
      }
    }

    void playGame(Player p) {
      for (int i = 0; i < questions.length; i++) {
        timeUp = false;
        System.out.println("\nQuestion " + (i + 1) + ": " + questions[i]);
        for (String opt : options[i]) {
          System.out.println(opt);
        }
        try {
          startTimer();
        }
        catch(Exception e) {
          System.out.println("Issue while starting the timer.");
        }

        while (!timeUp) {
         System.out.print("_____");
          System.out.print("\nEnter your choice (1-6): ");
          int choice = sc.nextInt();

          switch (choice) {
            case 1: case 2: case 3: case 4:
              if (choice == answers[i]) {
                  try {
                        t.interrupt();
```

```
                }
                catch (Exception e) {
                        System.out.println("Issue while stopping the timer.");
                }
            p.prizeMoney += rewards[i];
            System.out.println("XXXXXXXXXXXXX");
            System.out.println("XXXXXXXXXXXXX::::::::::::::: Correct! Current Purse is: Rs." +
p.prizeMoney);
            System.out.println("XXXXXXXXXXXXX");
          } else {
            try {
                        t.interrupt();
            }
            catch (Exception e) {
                        System.out.println("Issue while stopping the timer.");
            }
            System.out.println("XXXXXXXXXXXXX");
            System.out.println("XXXXXXXXXXXXX::::::::::::::: Wrong answer! You won Rs." +
p.prizeMoney + " before termination.");
            System.out.println("XXXXXXXXXXXXX");
            return;
          }
        break;
      case 5:
            System.out.println("XXXXXXXXXXXXX");
            System.out.println("XXXXXXXXXXXXX::::::::::::::: You have quit the game with Rs." +
p.prizeMoney);
            System.out.println("XXXXXXXXXXXXX");
            try {
                        t.interrupt();
            }
            catch (Exception e) {
                        System.out.println("Issue while stopping the timer.");
            }
            try {
            System.exit(0);
        }
        catch (Exception e) {
          System.out.println("There is a problem while exiting. Please try to exit manually");
        }
      case 6:
        if(useLifeline(p, i)) continue;
        break;
```

```
                default:
                    System.out.println("XXXXXXXXXXXXX");
                  System.out.println("XXXXXXXXXXXXX::::::::::::::: Invalid choice. Try again ");
                  System.out.println("XXXXXXXXXXXXX");
                  continue;
            }
          break;
        }
    }
    System.out.println("\n|XXXXXXXXXXXX::::::::::::::::::::::::::::::::::::::::::::::::::::::");
    System.out.println(  "|XXXXXXXXXXXX----Congratulations {" + Player.name + "} ! You have won Rs."
+ p.prizeMoney);
    System.out.println(  "|XXXXXXXXXXXX::::::::::::::::::::::::::::::::::::::::::::::::::::::\n");
  }


  boolean useLifeline(Player p, int questionIndex) {
    if (!p.lifeline1 && !p.lifeline2) {
        System.out.println("XXXXXXXXXXXXX");
      System.out.println("XXXXXXXXXXXXX::::::::::::::: No lifelines left! Choose an answer ");
      System.out.println("XXXXXXXXXXXXX");
      return true;
    }


    System.out.println("_____");
    System.out.println("Choose a lifeline: \n1. 50-50 \n2. Skip\n");
    int choice = sc.nextInt();


    switch (choice) {
      case 1:
        if (p.lifeline1) {
          p.lifeline1 = false;


          System.out.println("_____");
          System.out.println("50-50 used. Remaining options:");
          System.out.println("1. Option " + answers[questionIndex]);
          System.out.println("2. Option " + lifeline1choices[questionIndex] + "\n");
          return true;
        } else {
              System.out.println("XXXXXXXXXXXXX");
          System.out.println("XXXXXXXXXXXXX::::::::::::::: 50-50 already used ");
          System.out.println("XXXXXXXXXXXXX");
          return true;
        }
```

```
            case 2:
                if (p.lifeline2) {
                    p.lifeline2 = false;
                    System.out.println("XXXXXXXXXXXXX");
                    System.out.println("XXXXXXXXXXXXX::::::::::::::: Skip used. Moving to next question ");
                    System.out.println("XXXXXXXXXXXXX");
                    t.interrupt();
                    return false;
                } else {
                        System.out.println("XXXXXXXXXXXXX");
                    System.out.println("XXXXXXXXXXXXX::::::::::::::: Skip already used");
                    System.out.println("XXXXXXXXXXXXX");
                    return true;
                }
            default:
              System.out.println("XXXXXXXXXXXXX");
                System.out.println("XXXXXXXXXXXXX::::::::::::::: Invalid lifeline choice ");
                System.out.println("XXXXXXXXXXXXX");
                return true;
        }
    }
}
```

Note: For Development and Testing convenience, Option 1 is set to be the correct answer for every question. Suggested changes according to your convenience.

MODULE 7
Output Screenshots

```
Please Enter Your Name: Nadeem
{---Player Registered Successfully---}


Welcome to the Game Nadeem...!
|**************************************************|
|*           Please read the Rules carefully:    *|
|* 1.   Game starts only if you type 'yes'.      *|
|* 2.   There are 12 multiple-choice questions.  *|
|* 3.   Each question has 6 options.             *|
|* 4.   You have 30 seconds to answer each.      *|
|* 5.   Time out ends game with prize so far.    *|
|* 6.   Each correct answer increases reward.    *|
|* 7.   Wrong answer ends the game.              *|
|* 8.   Choose option 5 to quit with your prize. *|
|* 9.   Lifelines: 50-50 and Skip (once each).   *|
|* 10. 50-50 shows 1 correct & 1 wrong option.   *|
|* 11. Skip moves to next question safely.       *|
|* 12. Lifelines can be used only once.          *|
|* 13. Game warns when lifelines are over.       *|
|* 14. Invalid inputs are rejected with retry.   *|
|* 15. Answering all wins maximum prize!         *|
|**************************************************|

Are you ready? (yes/no)
yes

Let's Go.....!
```

Fig 7.1 Rules of the Game

```
Please Enter Your Name: Nadeem
{---Player Registered Successfully---}


Welcome to the Game Nadeem...!
|**************************************************|
|*           Please read the Rules carefully:    *|
|* 1.   Game starts only if you type 'yes'.      *|
|* 2.   There are 12 multiple-choice questions.  *|
|* 3.   Each question has 6 options.             *|
|* 4.   You have 30 seconds to answer each.      *|
|* 5.   Time out ends game with prize so far.    *|
|* 6.   Each correct answer increases reward.    *|
|* 7.   Wrong answer ends the game.              *|
|* 8.   Choose option 5 to quit with your prize. *|
|* 9.   Lifelines: 50-50 and Skip (once each).   *|
|* 10. 50-50 shows 1 correct & 1 wrong option.   *|
|* 11. Skip moves to next question safely.       *|
|* 12. Lifelines can be used only once.          *|
|* 13. Game warns when lifelines are over.       *|
|* 14. Invalid inputs are rejected with retry.   *|
|* 15. Answering all wins maximum prize!         *|
|**************************************************|

Are you ready? (yes/no)
no
XXXXXXXXXXXX
XXXXXXXXXXXX::::::::::::::::: Game terminated. Thank you!
XXXXXXXXXXXX
```

Fig 7.2 User is not Ready

```
Question 1: What is the Financial capital of India?
1. Mumbai
2. Agra
3. Bengaluru
4. New Delhi
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 28 1
XXXXXXXXXXXXX
XXXXXXXXXXXXX:::::::::::::::: Correct! Current Purse is: Rs.1000
XXXXXXXXXXXXX
```

Fig 7.3 Correct Answer

```
Question 9: Who is known as the Father of the Nation in India?
1. Mahatma Gandhi
2. Subhash Chandra Bose
3. B.R. Ambedkar
4. Bhagat Singh
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
XXXXXXXXXXXXX
XXXXXXXXXXXXX::::::::::::::::: Time's up! You won Rs.32000 before termination.
XXXXXXXXXXXXX
```

Fig 7.4 Question Timeout

```
Question 2: Which planet is known as the Red Planet?
1. Mars
2. Venus
3. Jupiter
4. Saturn
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 28 27 26 25 24 23 22 21 20 19 18 6
_____
Choose a lifeline:
1. 50-50
2. Skip

17 1
_____
50-50 used. Remaining options:
1. Option 1
2. Option 2

_____
Enter your choice (1-6): 16 15 1
XXXXXXXXXXXXX
XXXXXXXXXXXXX:::::::::::::::: Correct! Current Purse is: Rs.3000
XXXXXXXXXXXXX
```

Fig 7.5 Lifeline 1 (50-50) Usage

```
Question 5: Which is the national animal of India?
1. Tiger
2. Lion
3. Elephant
4. Peacock
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 6
_____
Choose a lifeline:
1. 50-50
2. Skip

128
XXXXXXXXXXXXX
XXXXXXXXXXXXX:::::::::::::::: 50-50 already used
XXXXXXXXXXXXX
_____
Enter your choice (1-6): 27 26 25 24 23 1
XXXXXXXXXXXXX
XXXXXXXXXXXXX:::::::::::::::: Correct! Current Purse is: Rs.15000
XXXXXXXXXXXXX
```

Fig 7.6 Lifeline 1 (50-50) Used Already

```
Question 4: Who was the first Prime Minister of India?
1. Jawaharlal Nehru
2. Mahatma Gandhi
3. Sardar Patel
4. Indira Gandhi
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 28 27 26 25 24 23 22 21 20 19 618
_____
Choose a lifeline:
1. 50-50
2. Skip

17 16 2
XXXXXXXXXXXXX
XXXXXXXXXXXXX:::::::::::::::: Skip used. Moving to next question
XXXXXXXXXXXXX

Question 5: Which is the national animal of India?
1. Tiger
2. Lion
3. Elephant
4. Peacock
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 1
XXXXXXXXXXXXX
XXXXXXXXXXXXX:::::::::::::::: Correct! Current Purse is: Rs.11000
XXXXXXXXXXXXX
```

Fig 7.7 Lifeline 2 (Skip) Usage

```
Question 5: Which is the national animal of India?
1. Tiger
2. Lion
3. Elephant
4. Peacock
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 28 27 6
_____
Choose a lifeline:
1. 50-50
2. Skip

26 2
XXXXXXXXXXXXX
XXXXXXXXXXXXX::::::::::::::: Skip already used
XXXXXXXXXXXXX
_____
Enter your choice (1-6): 25 24 23 22 21 20 62
XXXXXXXXXXXXX
XXXXXXXXXXXXX::::::::::::::: Invalid choice. Try again
XXXXXXXXXXXXX
_____
Enter your choice (1-6): 19 18 17 16 15 14 13 1
XXXXXXXXXXXXX
XXXXXXXXXXXXX::::::::::::::: Correct! Current Purse is: Rs.12000
XXXXXXXXXXXXX
```

Fig 7.8 Lifeline 2 (Skip) Used Already

```
Question 4: Who was the first Prime Minister of India?
1. Jawaharlal Nehru
2. Mahatma Gandhi
3. Sardar Patel
4. Indira Gandhi
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 28 27 626
XXXXXXXXXXXXX
XXXXXXXXXXXXX::::::::::::::: No lifelines left! Choose an answer
XXXXXXXXXXXXX
_____
Enter your choice (1-6): 25 24 23 22 2
XXXXXXXXXXXXX
XXXXXXXXXXXXX::::::::::::::: Wrong answer! You won Rs.3000 before termination.
XXXXXXXXXXXXX
```

Fig 7.9 Lifelines Completed and Wrong Answer

```
Question 7: Which river is known as the Ganga's biggest tributary?
1. Yamuna
2. Brahmaputra
3. Godavari
4. Chambal
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 29 28 27 26 25 24 23 5
XXXXXXXXXXXXX
XXXXXXXXXXXXX::::::::::::::: You have quit the game with Rs.21000
XXXXXXXXXXXXX
```

Fig 7.10 Quit in the Middle of the Game

```
Question 10: Which is the national bird of India?
1. Peacock
2. Eagle
3. Sparrow
4. Parrot
5. Quit
6. Life Line ?
_____
Enter your choice (1-6):
Remaining time:
30 1
XXXXXXXXXXXXX
XXXXXXXXXXXXX:::::::::::::::: Correct! Current Purse is: Rs.55000
XXXXXXXXXXXXX

|XXXXXXXXXXXXX::::::::::::::::::::::::::::::::::::::::::::::::::::::::
|XXXXXXXXXXXXX----Congratulations {Nadeem} ! You have won Rs.55000
|XXXXXXXXXXXXX::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

Fig 7.11 Successful Completion of Game

MODULE 8

Conclusion and References

This project demonstrates how to implement a real-time quiz game in Java using OOP principles and threading. It effectively showcases Java basics, user interaction, and logical flow handling. In addition to solidifying core programming concepts such as classes, objects, control structures, and exception handling, the project introduces advanced features like multithreading to implement time-based logic. The use of lifelines, score tracking, and exit conditions makes the gameplay more interactive and closer to real-world quiz applications.

The modular design of the classes promotes reusability and easy maintenance, while the command-line interface ensures compatibility across platforms. This project can be enhanced further by integrating a graphical interface (e.g., using JavaFX or Swing), a question database, or a leaderboard system.

Overall, it serves as a practical, educational project for students and developers looking to strengthen their Java development skills through hands-on application.

References:

- Javatpoint and GeeksForGeeks for syntax clarification.
- G-TEC JAINx Class notes for Concept clarification.