Number Guessing Game in Java

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1.Introduction

*The Number Guessing Game is a simple console-based game developed using Java. In this game, the computer randomly selects a number within a given range, and the player must guess the correct number within a limited number of attempts. This game tests the user’s logical thinking and decision-making abilities.*

2.Objective

*- To develop a console-based Java game.*

*- To enhance understanding of Java programming constructs such as loops, conditionals, random number generation, and user input handling.*

*- To provide interactive gameplay with scoring and multiple rounds.*

3.Tool Used

*- Language: Java*

*- IDE: VS Code*

*- Compiler: JDK 24.0.1*

*- OS: Windows*

4.Features

*- Random number generation between 1 to 100*

*- User gets 10 attempts per round*

*- Total 3 rounds of gameplay*

*- Input validation (non-integer input handling)*

*- Scoring system based on remaining attempts*

*- Displays total score at the end*

5.Source Code

*import java.util.Scanner;*

*import java .util.Random;*

*public class Numberguessinggame {*

*private static final int MIN\_RANGE=1;*

*private static final int MAX\_RANGE=100;*

*private static final int MAX\_ATTEMPTS=10;*

*private static final int MAX\_ROUNDS=3;*

*public static void main(String args[]){*

*Random random = new Random();*

*Scanner sc= new Scanner(System.in);*

*int TotalScore=0;*

*System.out.println("--------- Welcome to Number Guessing Game-----------");*

*System.out.println("----Total Number Of Rounds : 3---- ");*

*System.out.println("---Attemps To Guess The Number In Each Rounds : 10---\n");*

*for(int i =1 ;i<=MAX\_ROUNDS ; i++){*

*System.out.println("\nROUND :"+i);*

*int number = random.nextInt(MAX\_RANGE)+MIN\_RANGE;*

*int attempts = 0;*

*while(attempts<MAX\_ATTEMPTS){*

*System.out.print("Enter your guessing number: ");*

*if (!sc.hasNextInt()) {*

*System.out.println("Invalid input! Please enter an integer.");*

*sc.next(); // Clear the invalid input*

*continue;  // Skip to the next loop iteration*

*}*

*int GuessNo = sc.nextInt();*

*if(GuessNo == number){*

*int Score = MAX\_ATTEMPTS - attempts;*

*TotalScore = TotalScore + Score;*

*System.out .println("Congratulation ! You Guess The Number in "+ (attempts+1 )+ "attempts and your Round Score is "+ Score);*

*break;*

*}*

*else if(GuessNo< number){*

*System.out.println("The number is greater than the  " + GuessNo + " . Now " +( MAX\_ATTEMPTS-(attempts+1) )+" attempts are left");*

*}*

*else if(GuessNo> number){*

*System.out.println("The number is less than the  " + GuessNo + " . Now " +( MAX\_ATTEMPTS-(attempts+1) )+" attempts are left");*

*}*

*attempts= attempts +1;*

*}*

*if (attempts == MAX\_ATTEMPTS){*

*System.out.println("The random which is generated is " + number +"in "+ i + " rounds . Now no attempt is left");*

*}*

*}*

*System.out.println (" \nYour TotalScore after completing all the round is : "+ TotalScore);*

*sc.close();*

7.Conclusion

*The Number Guessing Game helped in understanding the core concepts of Java programming. It demonstrates the use of loops, conditional statements, and object-oriented concepts. The project is user-friendly and can be enhanced further with GUI or additional difficulty levels.*

8. Future Scope

*- Add GUI using Java Swing or JavaFX.*

*- Add difficulty levels.*

*- Add leaderboard or high score tracking.*