**Number Guessing Game Project Report**

**Abstract**

The *Number Guessing Game* is a simple console-based Java application designed to test the user’s guessing ability and logical thinking.The program generates a random number within a specified range (1–100), and the player tries to guess it.For every wrong guess, the program provides hints such as “Too High” or “Too Low,” allowing the user to adjust their next guess.  
The system keeps track of the number of attempts and displays it once the correct number is guessed.This project demonstrates the use of loops, conditional statements, random number generation, and user input handling in Java.

**Introduction**

Games are a fun and interactive way to learn programming.  
The *Number Guessing Game* project is designed to enhance understanding of basic Java concepts such as control statements, loops, and input/output operations.  
It is simple to implement and helps beginners practice logic building and code structuring.  
The application uses the Math.random() function to generate a random number and a Scanner to receive user input.

**Source Code**

import java.util.\*;

public class Main{

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int numberToGuess = (int)(Math.random() \* 100) + 1;

int guess = 0;

int attempts = 0;

System.out.println("🎯 Welcome to the Number Guessing Game!");

System.out.println("I'm thinking of a number between 1 and 100...");

while (guess != numberToGuess) {

System.out.print("Enter your guess: ");

guess = sc.nextInt();

attempts++;

if (guess < numberToGuess) {

System.out.println("Too low! Try again.");

} else if (guess > numberToGuess) {

System.out.println("Too high! Try again.");

} else {

System.out.println("✅ Correct! You guessed the number " + numberToGuess + " in " + attempts + " attempts.");

}

}

System.out.println("\nThanks for playing!");

sc.close();

}

}

**Sample Output**

🎯 Welcome to the Number Guessing Game!

I'm thinking of a number between 1 and 100...

Enter your guess: 45

Too low! Try again.

Enter your guess: 78

Too high! Try again.

Enter your guess: 63

✅ Correct! You guessed the number 63 in 3 attempts.

Thanks for playing!

**Existing System**

In the existing system (manual or non-programmatic), number guessing is typically done without computer assistance — one person thinks of a number, and the other tries to guess it.  
This process is time-consuming and lacks automation.  
No system exists to automatically generate numbers, give hints, or count attempts efficiently.  
It also does not provide an engaging user experience or record the number of tries made by the player.

**Proposed System**

The proposed system automates the number guessing process through a simple Java application.  
It randomly selects a number and interacts with the user via console inputs and outputs.  
The system provides feedback (“Too High” or “Too Low”) and counts the number of attempts.  
Once the correct number is guessed, it displays a congratulatory message with the total attempts.  
This enhances interactivity, eliminates manual effort, and serves as a foundation for learning programming logic.

**Software Requirements:**

| **Component** | **Specification** |
| --- | --- |
| Operating System | Windows / Linux / macOS |
| Programming Language | Java |
| IDE / Editor | Eclipse / NetBeans / IntelliJ IDEA / VS Code |
| Java Version | JDK 8 or above |

**Hardware Requirements**

| **Component** | **Specification** |
| --- | --- |
| Processor | Intel Core i3 or above |
| RAM | Minimum 2 GB |
| Hard Disk | Minimum 100 MB free space |
| Input Device | Keyboard |
| Output Device | Monitor / Console Window |

**Conclusion**

The *Number Guessing Game* successfully demonstrates core Java programming concepts like loops, conditionals, and user input handling.  
It is easy to develop, understand, and expand.  
This project lays the foundation for developing more advanced interactive applications and helps learners improve problem-solving skills in Java.