TASK 1

Internship on Java Programming

Q) 1. Generate a random number within a specified range, such as 1 to 100.

2. Prompt the user to enter their guess for the generated number.

3. Compare the user's guess with the generated number and provide feedback on whether the guess

is correct, too high, or too low.

4. Repeat steps 2 and 3 until the user guesses the correct number.

You can incorporate additional details as follows:

5. Limit the number of attempts the user has to guess the number.

6. Add the option for multiple rounds, allowing the user to play again.

7. Display the user's score, which can be based on the number of attempts taken or rounds won.

PROGRAM:

```
import java.util.Scanner;
import java.util.Random;

public class NumberGame {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        Random random = new Random();

        int minRange = 1;
        int maxRange = 100;
        int maxAttempts = 5;
        int score = 0;
        boolean playAgain = true;
```

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

        while (playAgain) {
            int secretNumber = random.nextInt(maxRange - minRange + 1) + minRange;
            int attempts = 0;
            boolean guessedCorrectly = false;

            System.out.println("I have selected a number between " + minRange + " and " +
maxRange + ". Can you guess it?");

            while (attempts < maxAttempts && !guessedCorrectly) {
                System.out.print("Attempt " + (attempts + 1) + "/" + maxAttempts + ": Enter
your guess: ");
                int guess = scanner.nextInt();
                attempts++;

                if (guess < secretNumber) {
                    System.out.println("Too low! Try again.");
                } else if (guess > secretNumber) {
                    System.out.println("Too high! Try again.");
                } else {
                    guessedCorrectly = true;
                    System.out.println("Congratulations! You guessed the number " +
secretNumber + " correctly in " + attempts + " attempts!");
                    score++;
                }
            }

            if (!guessedCorrectly) {
                System.out.println("Sorry, you've run out of attempts. The correct number
was: " + secretNumber);
            }
```

```
            System.out.print("Do you want to play again? (yes/no): ");
            String playAgainInput = scanner.next().toLowerCase();
            playAgain = playAgainInput.equals("yes");
        }

        System.out.println("Game over! Your final score is: " + score);
        scanner.close();
    }
}
```

OTUPUT:

Welcome to the Number Guessing Game!

I have selected a number between 1 and 100. Can you guess it?

Attempt 1/5: Enter your guess: 50

Too high! Try again.

Attempt 2/5: Enter your guess: 40

Too high! Try again.

Attempt 3/5: Enter your guess: 30

Too high! Try again.

Attempt 4/5: Enter your guess: 20

Too high! Try again.

Attempt 5/5: Enter your guess: 5

Too low! Try again.

Sorry, you've run out of attempts. The correct number was: 8

Do you want to play again? (yes/no): yes

I have selected a number between 1 and 100. Can you guess it?

Attempt 1/5: Enter your guess: 35

Too low! Try again.

Attempt 2/5: Enter your guess: 45

Too low! Try again.

Attempt 3/5: Enter your guess: 60

Too low! Try again.

Attempt 4/5: Enter your guess: 80

Too high! Try again.

Attempt 5/5: Enter your guess: 90

Too high! Try again.

Sorry, you've run out of attempts. The correct number was: 68

Do you want to play again? (yes/no):

=== Session Ended. Please Run the code again ===

The above program allows the user to play a number guessing game with a specified range of numbers (defaulted to 1 to 100) and a limited number of attempts per round (defaulted to 5). After each round, it asks the user if they want to play again and keeps track of their score based on the number of rounds won.