Lab worksheet 5: Repetition Statements

Q1.

Code:

```
package Q_01;

public class Q_01 {
    public static void main(String[] args) {
        for (int i = 10; i <= 49; i++) {
            System.out.print(i + " ");
            // Print a new line after every 10 numbers
            if ((i - 10) % 10 == 9) {
                System.out.println();
            }
        }
    }
}
```

Output:

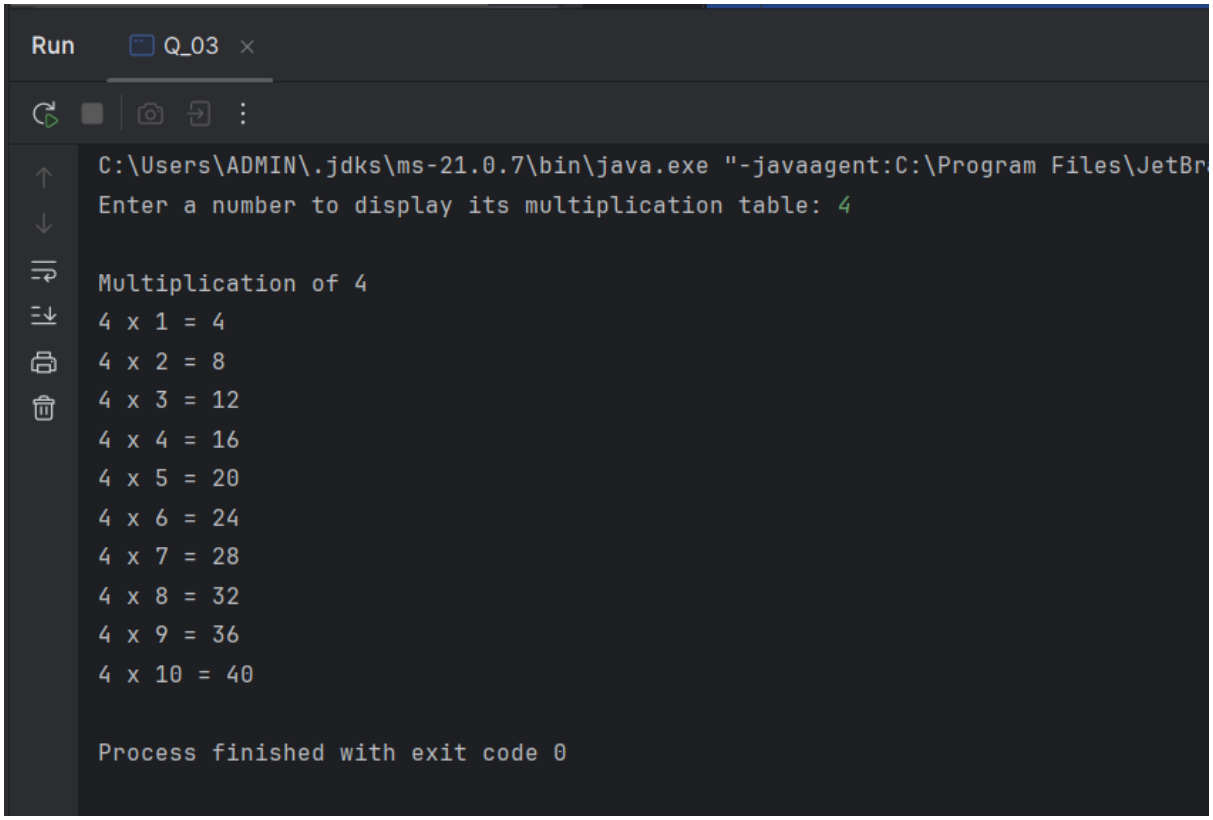
Q2

```
package Q_02;
import java.util.Scanner;

public class Q_02 {
    public static int countDigits(int number) {
        if (number == 0) {
            return 1;
        }

        number = Math.abs(number);

        int count = 0;
```

```
        while (number > 0) {
            number /= 10; // Remove the last digit
            count++; // Increment the digit count
        }
        return count;
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int input;

        // Repeatedly ask for input until a negative number
is entered
        do {
            System.out.print("Enter an integer (negative to
stop): ");
            input = scanner.nextInt();
            if (input >= 0) {
                int digitCount = countDigits(input);
                System.out.println("The number " + input + "
has " + digitCount + " digits.");
            }
        } while (input >= 0);

        System.out.println("Program terminated.");
        scanner.close();
    }
}
```

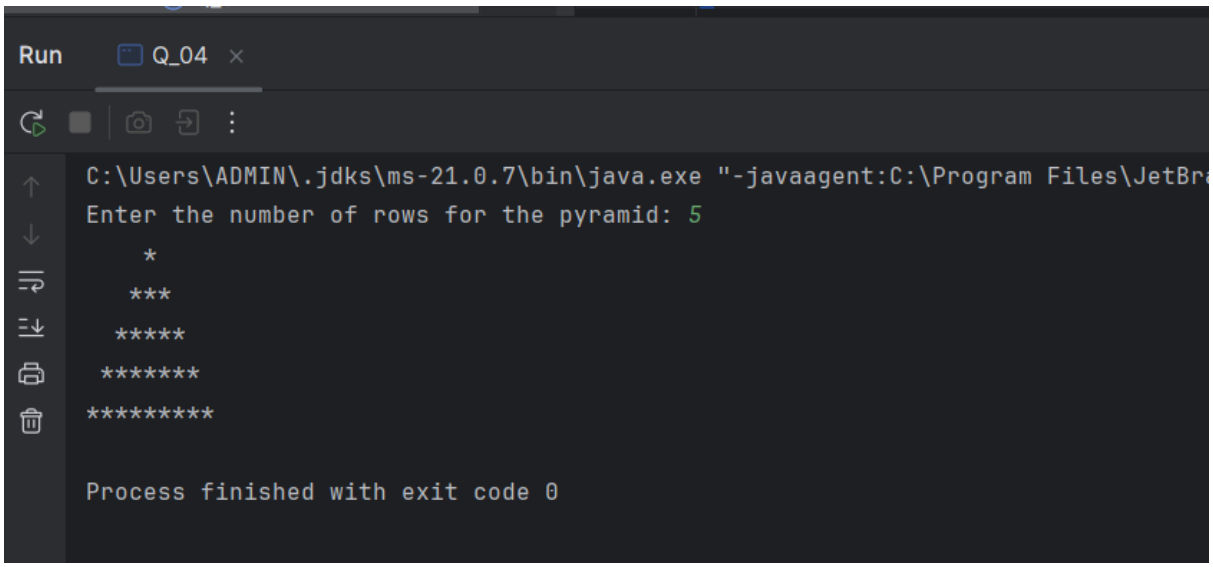
Q3

```
package Q_03;

import java.util.Scanner;

public class Q_03 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a number to display its
multiplication table: ");
        int N = scanner.nextInt();
        System.out.println("\nMultiplication of "+ N);

        for (int i = 1; i <= 10; i++) {
            System.out.println(N + " x " + i + " = " + (N *
i));
        }
        scanner.close();
    }
}
```



Q4

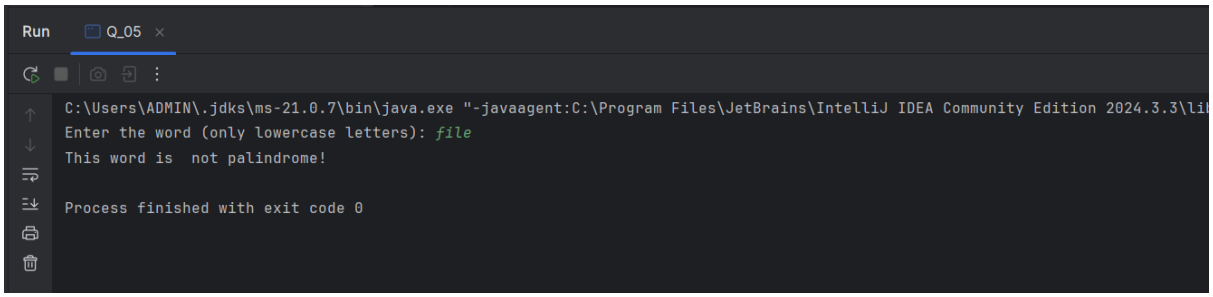
```
package Q_04;
import java.util.Scanner;

public class Q_04 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the number of rows for the
pyramid: ");
        int rows = scanner.nextInt();

        for (int i = 1; i <= rows; i++) {
            // Print spaces
            for (int j = i; j < rows; j++) {
                System.out.print(" ");
            }
            // Print asterisks
            for (int k = 1; k <= (2 * i - 1); k++) {
                System.out.print("*");
            }
            // Move to the next line
            System.out.println();
        }

        scanner.close();
    }
}
```



Q_05

```
package Q_05;

import java.util.Scanner;

public class Q_05 {

    public static boolean isPalindrome(String word) {
        String reverseWord= "";
        for(int i = word.length() - 1; i >=0; i--) {
            reverseWord = reverseWord + word.charAt(i);
        }
        return word.equals(reverseWord);
    }


    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the word (only lowercase
letters): ");

        String word = scanner.nextLine();

        if(isPalindrome(word)) {
            System.out.println("This word is palindrome! ");
```

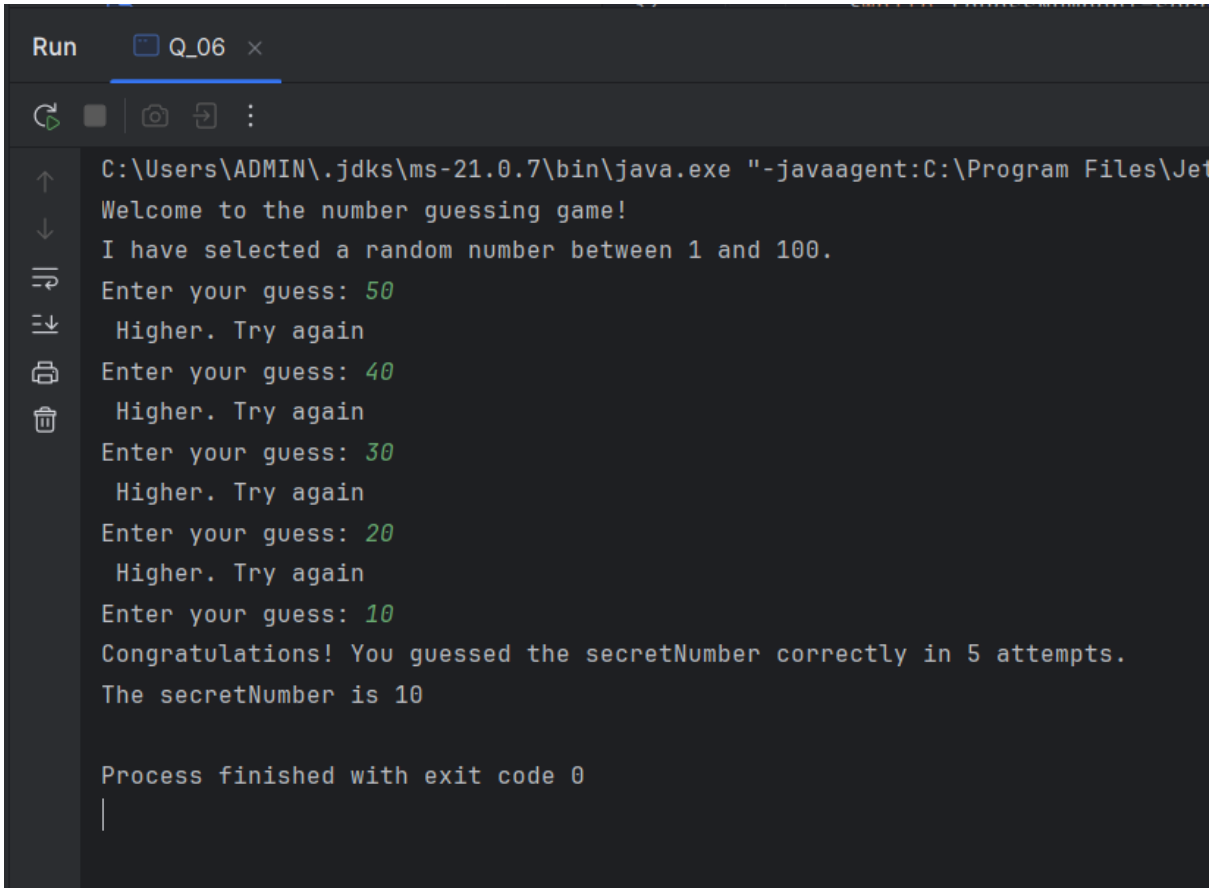
```
        }
        else {
            System.out.println("This word is  not palindrome!
");

        }
        scanner.close();
    }

}
```



Q_06

```
package Q_06;

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

public class Q_06 {
    public static void main(String[] args) {
        Random random = new Random();
        Scanner scanner = new Scanner(System.in);

        int secretNumber = random.nextInt(100);
        int guessNumber;
        int attempts = 0;
```

```
        System.out.println("Welcome to the number guessing
game!");
        System.out.println("I have selected a random number
between 1 and 100.");
        do {
            System.out.print("Enter your guess: ");
            guessNumber =scanner.nextInt();
            attempts++;

            if (guessNumber>secretNumber) {
                System.out.println(" Higher. Try again");
            }
            else if(guessNumber< secretNumber){
                System.out.println("Lower. Try again ");
            }else {
                System.out.println("Congratulations! You
guessed the secretNumber correctly in "+ attempts +"
attempts.\nThe secretNumber is "+ secretNumber);
            }

        }while (guessNumber!=secretNumber);
        scanner.close();
    }
}
```



Q_07.

```
package Q_07;

import java.util.Scanner;

public class Q_07 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a sentence: ");
        String sentence = scanner.nextLine();

        System.out.print("Enter the word to be replaced: ");
        String wordToReplace = scanner.nextLine();

        System.out.print("Enter the replacement word: ");
        String replacementWord = scanner.nextLine();

        String modifiedSentence = sentence.replaceAll("\\b" +
wordToReplace + "\\b", replacementWord);

        System.out.println("Modified sentence: " +
modifiedSentence);

        scanner.close();
    }
}
```