

Lab worksheet 5: Repetition Statements

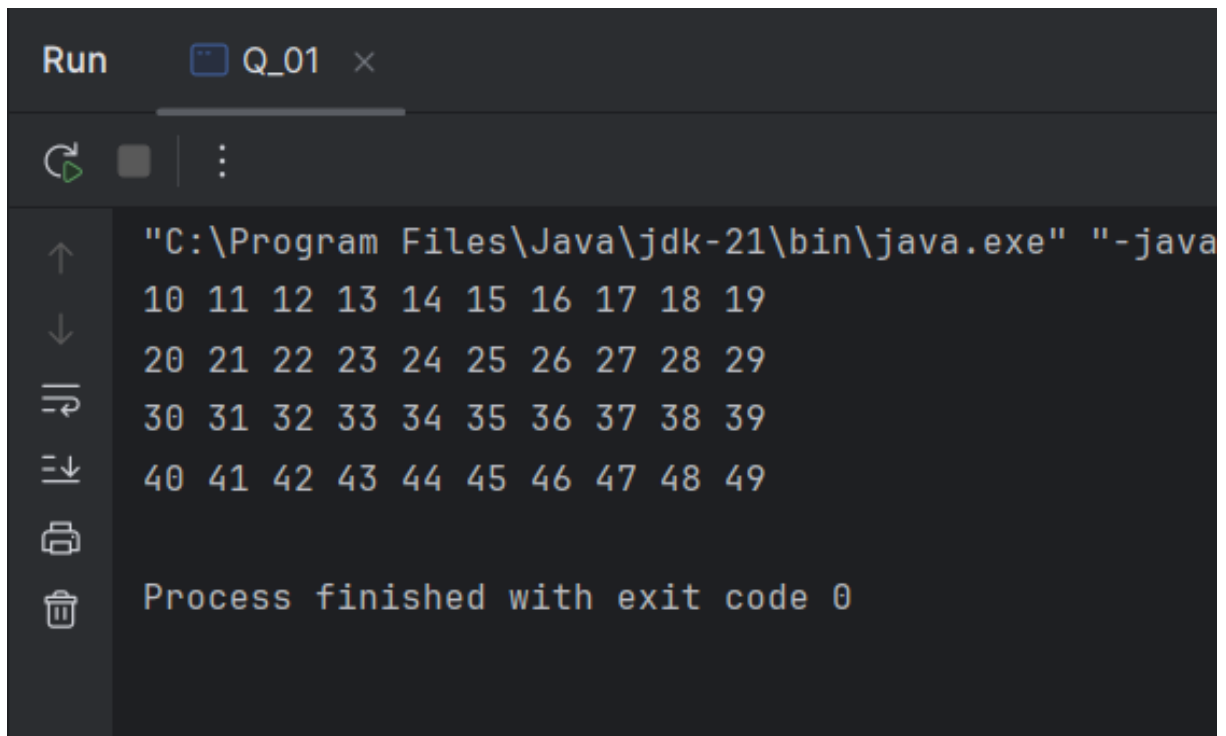
Q1.

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 + " ");
            if (i % 10 == 9) { // After printing go to new
line
                                System.out.println();
                            }
            }
        }
    }
}
```

Output:



```
Run Q_01 x
"C:\Program Files\Java\jdk-21\bin\java.exe" "-java
10 11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26 27 28 29
30 31 32 33 34 35 36 37 38 39
40 41 42 43 44 45 46 47 48 49
Process finished with exit code 0
```

Q2.

Code:

```
package Q_02;

import java.util.Scanner;

public class Q_02 {
    public static int noOfDigits(int number) {
        if (number == 0) {
            return 1;
        }
        number = Math.abs(number);
        int count = 0;

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

        return count;
    }

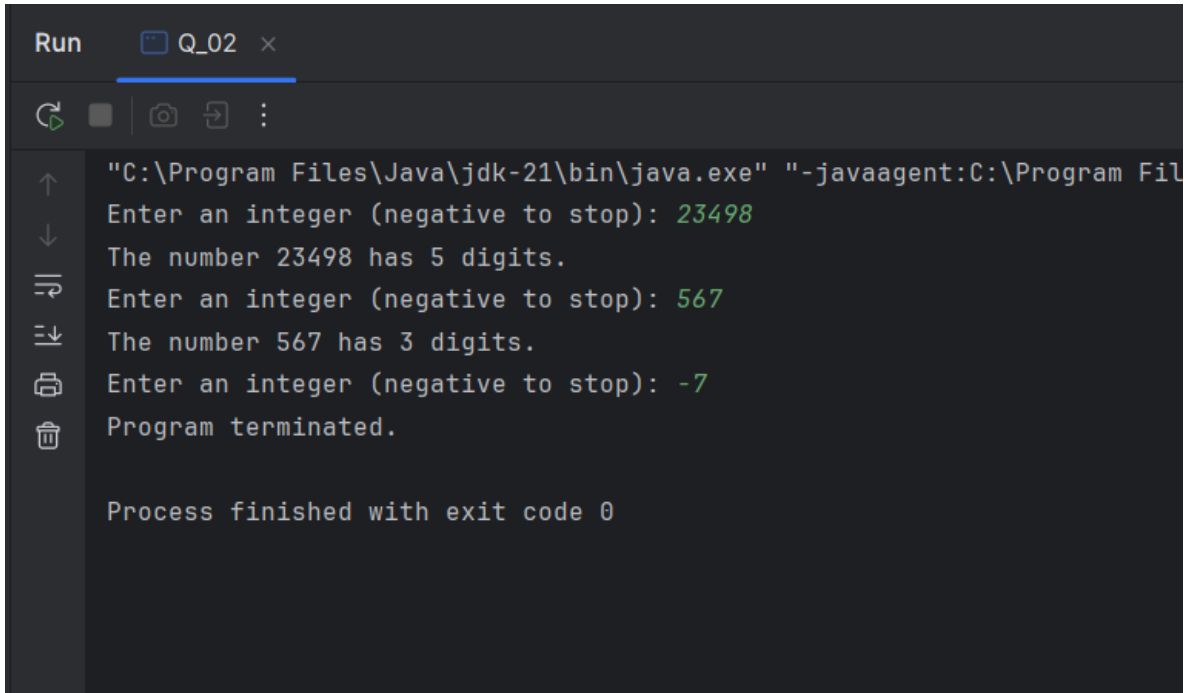
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int input;
        do {
            System.out.print("Enter an integer
(negative to stop): ");
            input = scanner.nextInt();

            if (input >= 0) {
                int digitCount = noOfDigits(input);
                System.out.println("The number " +
input +" has "+ digitCount +" digits.");
            }

        } while (input >= 0);

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

Output:



```
Run Q_02 x
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Fil
Enter an integer (negative to stop): 23498
The number 23498 has 5 digits.
Enter an integer (negative to stop): 567
The number 567 has 3 digits.
Enter an integer (negative to stop): -7
Program terminated.

Process finished with exit code 0
```

Q3.

Code:

```
package Q_03;

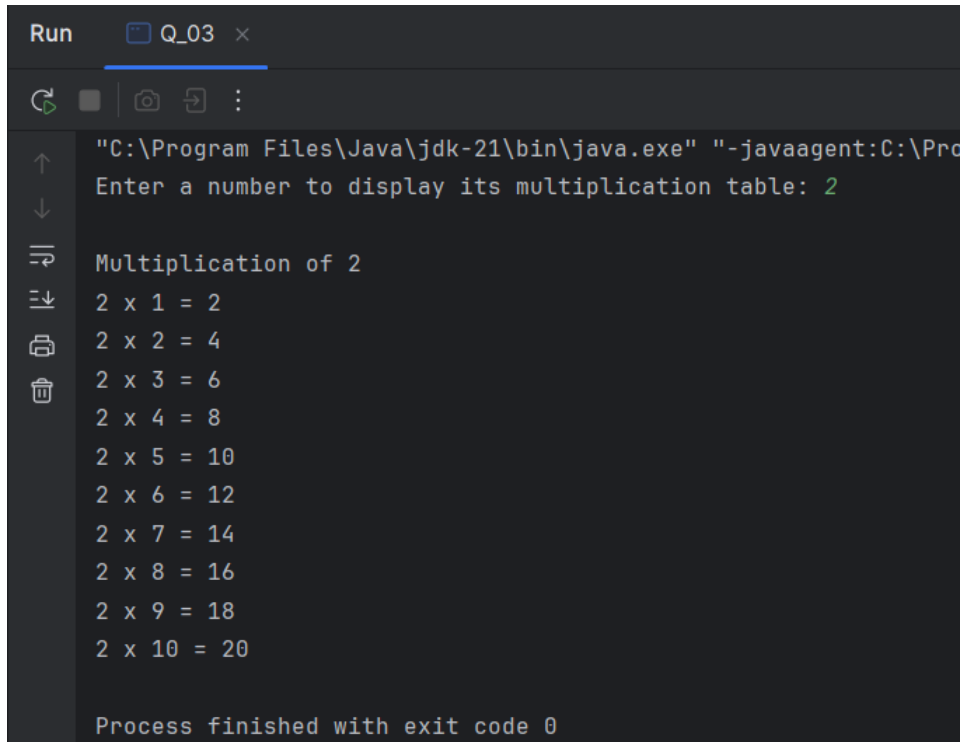
import java.util.Scanner;

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();
    }
}
```

Output:



```
Run Q_03 x
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Pro
Enter a number to display its multiplication table: 2

Multiplication of 2
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
2 x 10 = 20

Process finished with exit code 0
```

Q4.

Code:

```
package Q_04;

import java.util.Scanner;

public class Q_04 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

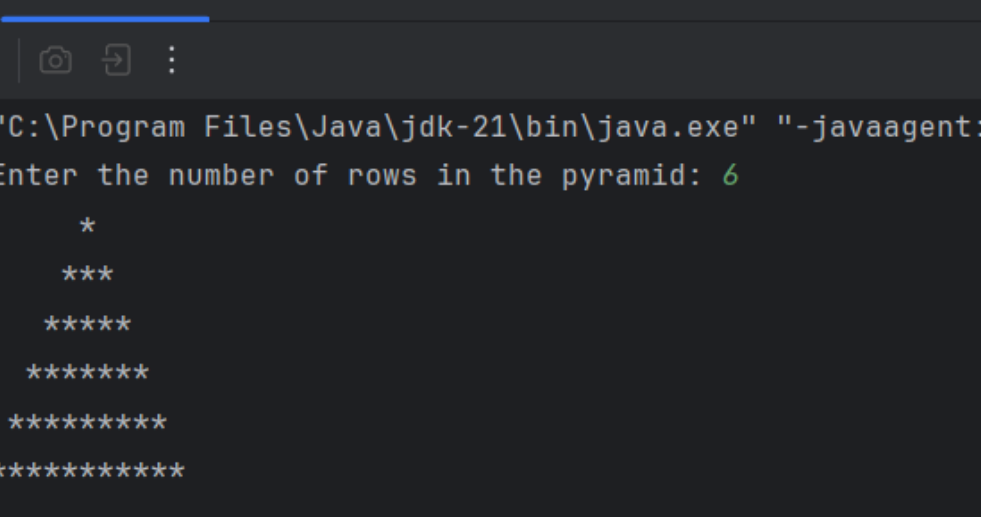
        System.out.print("Enter the number of rows in the
pyramid: ");
        int rows = scanner.nextInt();

        for (int i = 1; i <= rows; i++) {
            for (int j = i; j < rows; j++) {
                System.out.print(" ");
            }
            for (int k = 1; k <= (2 * i - 1); k++) {
                System.out.print("*");
            }
        }
    }
}
```

```
        System.out.println();
    }

    scanner.close();
}
}
```

Output:



The screenshot shows a Java IDE terminal window. The title bar indicates the file is 'Q_04'. The terminal output shows the execution of a Java program that prints a pyramid of stars. The user is prompted to enter the number of rows, and they entered '6'. The program then prints a pyramid of stars with 6 rows. The output is as follows:

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Progr
Enter the number of rows in the pyramid: 6
      *
     ***
    *****
   ********
  *********
 *****
*****

Process finished with exit code 0
```

Q5.

Code:

```
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);
    }

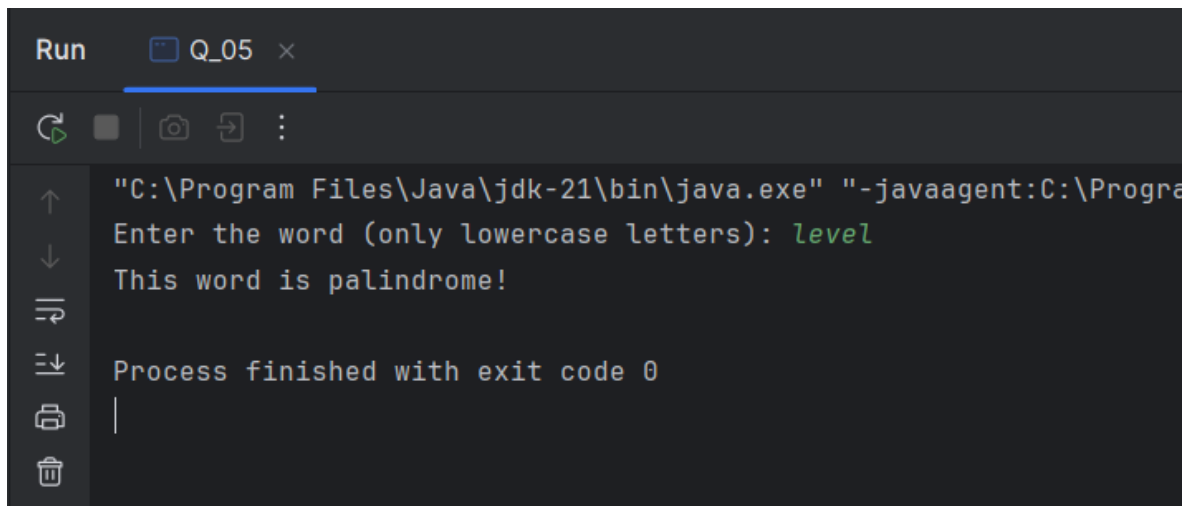
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter the word (only lowercase
letters): ");

        String word = scanner.nextLine();

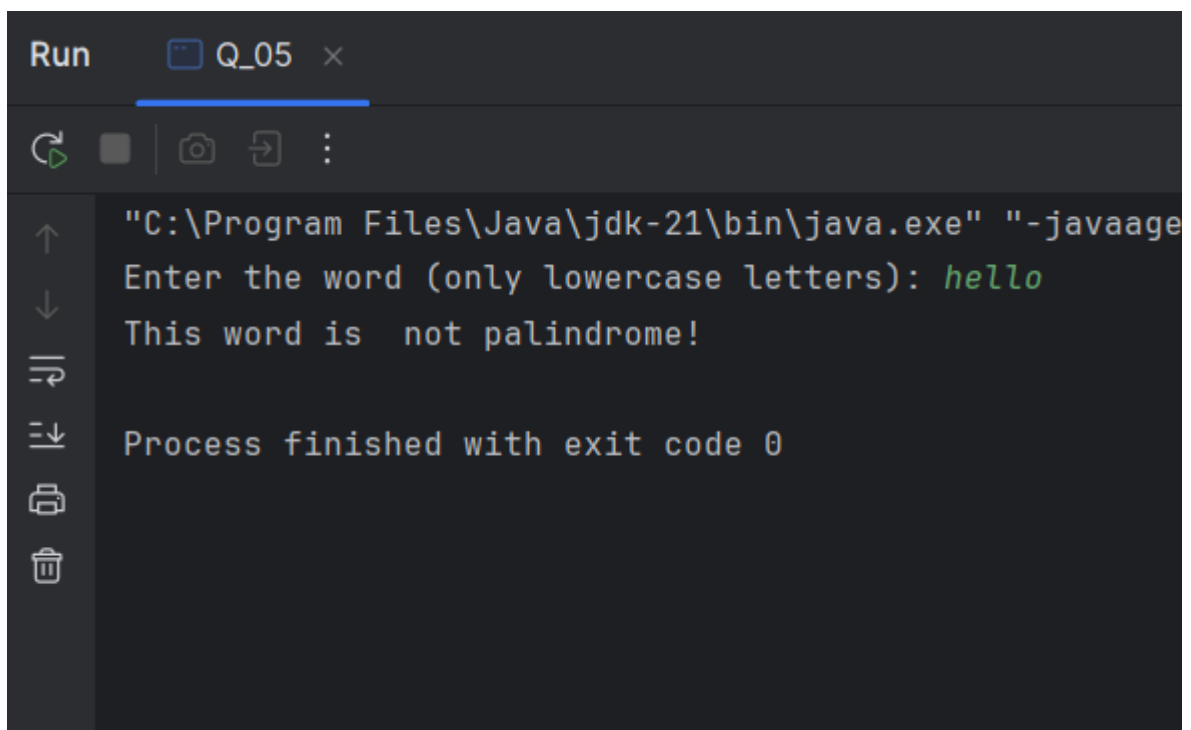
        if(isPalindrome(word)) {
            System.out.println("This word is palindrome! ");
        }
        else {
            System.out.println("This word is not palindrome!
");
        }

        scanner.close();
    }
}
```

Output:



```
Run    Q_05 x
"\"C:\Program Files\Java\jdk-21\bin\java.exe\" \"-javaagent:C:\Progra
Enter the word (only lowercase letters): level
This word is palindrome!
Process finished with exit code 0
```



```
Run    Q_05 x
"\"C:\Program Files\Java\jdk-21\bin\java.exe\" \"-javaage
Enter the word (only lowercase letters): hello
This word is not palindrome!
Process finished with exit code 0
```

Q6.

Code:

```
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;

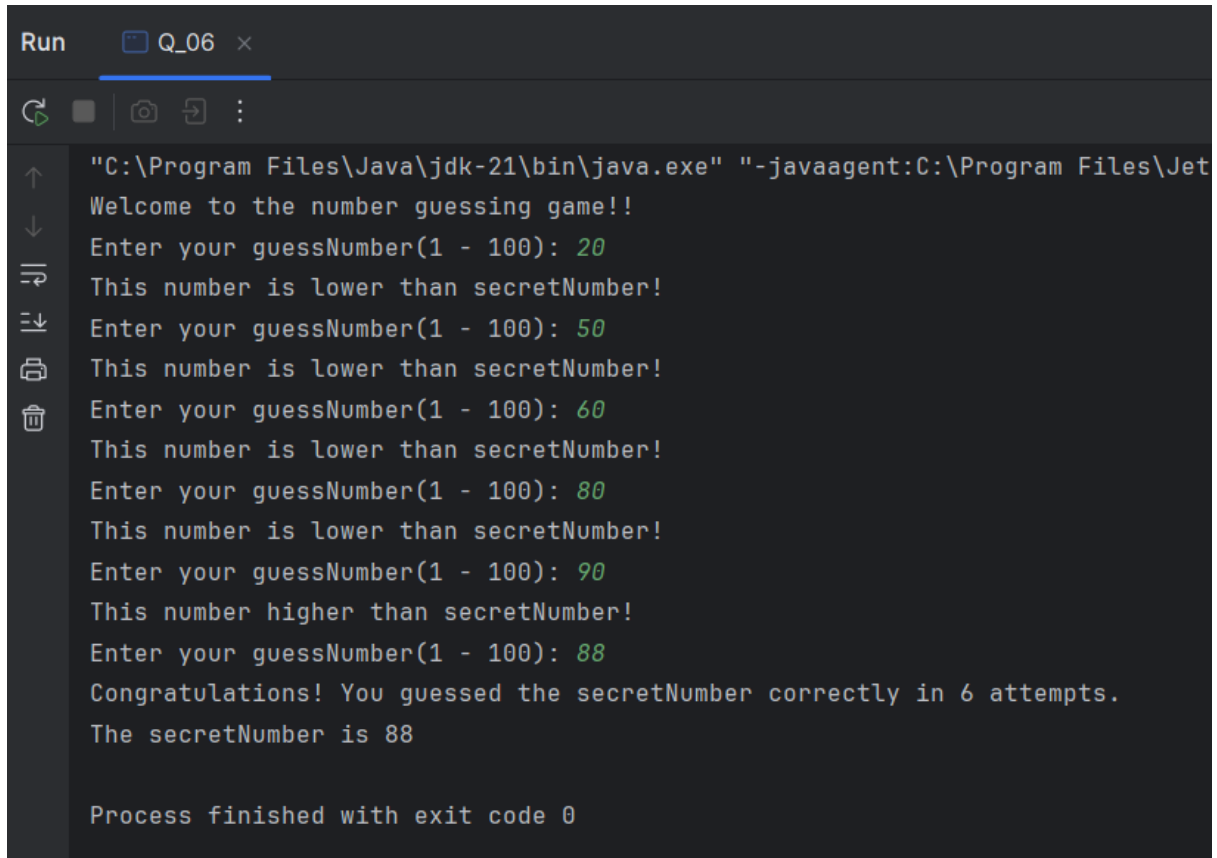
        System.out.println("Welcome to the number guessing
game!!");

        do {
            System.out.print("Enter your guessNumber(1 -
100): ");
            guessNumber = scanner.nextInt();
            attempts++;

            if (guessNumber > secretNumber) {
                System.out.println("This number higher than
secretNumber! ");
            }
            else if (guessNumber < secretNumber) {
                System.out.println("This number is lower than
secretNumber! ");
            }
            else {
                System.out.println("Congratulations! You
guessed the secretNumber correctly in "+ attempts + "
attempts.\nThe secretNumber is "+ secretNumber);
            }

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


Output:



The screenshot shows a Java IDE console window titled "Run" with a tab for "Q_06". The console output is as follows:

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\Jet
Welcome to the number guessing game!!
Enter your guessNumber(1 - 100): 20
This number is lower than secretNumber!
Enter your guessNumber(1 - 100): 50
This number is lower than secretNumber!
Enter your guessNumber(1 - 100): 60
This number is lower than secretNumber!
Enter your guessNumber(1 - 100): 80
This number is lower than secretNumber!
Enter your guessNumber(1 - 100): 90
This number higher than secretNumber!
Enter your guessNumber(1 - 100): 88
Congratulations! You guessed the secretNumber correctly in 6 attempts.
The secretNumber is 88

Process finished with exit code 0
```

Q7.

Code:

```
package Q_07;

import java.util.Scanner;

public class Q_07 {
    public static String replaceword(String sentence, String
wordToReplace,String replacementWord){
        //split the sentense into an array of words
        String[] words = sentence.split(" ");
        for (int i = 0; i < words.length; i++){
            if(words[i].equalsIgnoreCase(wordToReplace)){
                words[i]= replacementWord;
            }
        }
    }
}
```

```

        return String.join(" ",words);
    }

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

        System.out.println("Enter the sentence: ");
        String sentence = scanner.nextLine();

        System.out.println("Enter the replace word: ");
        String wordToReplace = scanner.nextLine();

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

        String modifiedSentence = replaceword(sentence,
wordToReplace,replacementWord);
        System.out.println("Modified sentense:
\n"+modifiedSentence);

        scanner.close();
    }
}

```

Output:

```

Run    Q_07 x
Enter the sentence:
University of kelaniya
Enter the replace word:
kelaniya
Enter the replacement word:
colombo
Modified sentense:
University of colombo

Process finished with exit code 0

```