Programming Essentials 2024

Assignment 3

Name : Ali Haider Hussain

Student no:73404

(1) Using the following code snippet and the file Assign3Q1.java.use a switch statement to determine if the variable some char is a vovel or consonant in the English language alphabet.

```
1.public class Assign3q1{
2.public static void main (String args[]) {
3.char some char='a' ;
4.
5. system.out.println("Char is ; "+ someChar);
6.
7.   //inset your code here!
8.
9.        }
10.}
11.
```

```
public class Assign3Q1 {
    public static void main(String[] args) {
        // Define the character variable
        char someChar = 'a';

        // Switch statement to determine the case of the character
        switch (someChar) {
            case 'a':
            case 'e':
            case 'i':
            case 'o':
            case 'u':
                System.out.println("The character is a vowel.");
                break;
            case 'A':
            case 'E':
            case 'I':
            case 'O':
            case 'U':
                System.out.println("The character is an uppercase vowel.");
```

```
            break;
        default:
            System.out.println("The character is a
consonant.");
      }
   }
}
```

(2)Using the following code snippet and the file Assign3Q1.java.use a switch statement to print out the the number of days in the month stored in the variable currentMonth.

```
1.public class assign3Q1  {
2.public static void main(String args[]) {
3.// the months of the year are; January Feburary,
March, April,
4.//May ,  June ,  August , September,  October ,
November ,and  December
5.String currentMonth=’’January’’;
6.
7.System .out. println(‘’The current  month is;”+
currentMonth);
8.
9.  //inset  your code here!
10.
11.    }
12.  }
```

```
public class Assign3Q2 {
    public static void main(String[] args) {
        int currentMonth = 2; // Example: February

        int daysInMonth;

        switch (currentMonth) {
            case 1:  // January
            case 3:  // March
            case 5:  // May
            case 7:  // July
            case 8:  // August
            case 10: // October
            case 12: // December
                daysInMonth = 31;
                break;
            case 4:  // April
            case 6:  // June
            case 9:  // September
            case 11: // November
                daysInMonth = 30;
```

```
            break;
        case 2:  // February
            // Assuming not a leap year for simplicity
            daysInMonth = 28;
            break;
        default:
            System.out.println("Invalid month!");
            return; // Exit the program if the month is
invalid
    }

    System.out.println("Number of days in the
month: " + daysInMonth);
  }
}
```

(3)Using the following code snippet and the file Assign3Q3.java, use a for loop to calculate the factorial of the integer stored in the variable curerentvalue. The factorial of a number is explained here.

```
1.public class Assign3  {
2.   public  static void main  (String args [])    {
3. int currentvalue =5;
4.
5.    System.out.print("The number  is : ''+ currentvalue);
6.
7. //Inset your code here!
8.
9.   }
10.}
11.
```

```
public class Assign3Q3 {
```

```
    public static void main(String[] args) {
        int currentValue = 5; // Change this to the desired integer value

        long factorial = 1;

        // Calculating factorial using a for loop
        for (int i = 1; i <= currentValue; i++) {
            factorial *= i;
        }

        System.out.println("Factorial of " + currentValue + " is: " + factorial);
    }
}
```

(4)Using the following code snippet and the file

Assign3Q4.java use a for loop to draw the following shapes to the screen omitting the i),ii), iii) etc.

i)**********

****

****

****

ii)*

***

*****

****

******

iii)1

  222

  33333

4444444

555555555

vi) 1

     212

    32123

    4321234

   543212345

```
public class ShapeDrawer {
    public static void main(String[] args) {
        drawSquare(5); // Draw a square of size 5
        System.out.println(); // Add a line break between shapes
        drawRightTriangle(5); // Draw a right triangle of height 5
```

```
        System.out.println(); // Add a line break between
shapes
        drawPyramid(5); // Draw a pyramid of height 5
    }

    // Method to draw a square of given size
    public static void drawSquare(int size) {
        for (int i = 0; i < size; i++) {
            for (int j = 0; j < size; j++) {
                System.out.print("* ");
            }
            System.out.println();
        }
    }

    // Method to draw a right triangle of given height
    public static void drawRightTriangle(int height) {
        for (int i = 0; i < height; i++) {
            for (int j = 0; j <= i; j++) {
```

```
            System.out.print("* ");
        }
        System.out.println();
    }
}

// Method to draw a pyramid of given height
public static void drawPyramid(int height) {
    for (int i = 0; i < height; i++) {
        for (int j = height - i; j > 1; j--) {
            System.out.print("  "); // Print spaces for
alignment
        }
        for (int k = 0; k <= i * 2; k++) {
            System.out.print("* ");
        }
        System.out.println();
    }
}
```

}

5)Using the file assign3Q5.java,repeat guestion (3)using a while loop.

```
public class Assign3Q5 {
    public static void main(String[] args) {
        // Call the method to repeat Question 3 using a while loop
        question3WithWhileLoop();
    }

    public static void question3WithWhileLoop() {
        // Initialize variables
        int n = 5;
        int i = 1;

        // Start the while loop
        while (i <= n) {
            System.out.println("Iteration " + i);
            i++; // Increment the loop counter
```

```
        }
    }
}
```

6)using the file Assign 3Q6.java, repeat question (4) using a do while loop.

```
public class Main {
    public static void main(String[] args) {
        int i = 1;
        do {
            System.out.println("Count is: " + i);
            i++;
        } while (i <= 5);
    }
}
```