جامعة عفت

EFFAT UNIVERSITY

CS2132-2

OOP - Spring2022

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Date of Submission: **01/03/2022**

Contents

1 Objectives

- Implement classes that contains attributes, constructors, and methods
- Using classes to create objects
- Using Java APIs

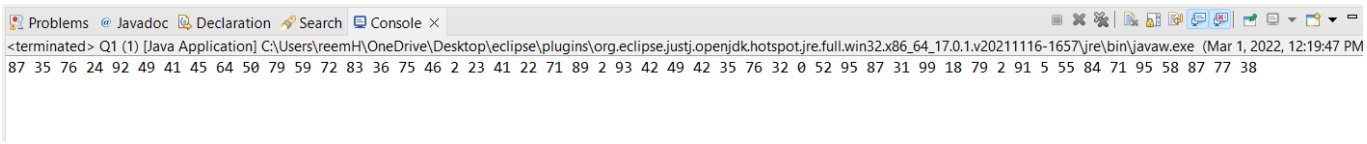
2 Questions

2.1 Question 1

- Code

```
import java.util.Random;
public class Q1
{
    public static void main(String[] args)
    {
        Random r = new Random(1000);
        for (int i = 0; i < 50; i++) {
            System.out.print(r.nextInt(100) + " ");
        }
    }
}
```

- Output



2.2 Question 2

- Code

```
import java.util.GregorianCalendar;
public class Q2
{
   public static void main(String[] args)
   {
      GregorianCalendar c1 = new GregorianCalendar();

      System.out.println("Part one");
      System.out.println("Current Year: " + c1.get(GregorianCalendar.YEAR)
                  + "\nCurrent Month: " + c1.get(GregorianCalendar.MONTH)
                  + "\nCurrent Day: " + c1.get(GregorianCalendar.DAY_OF_MONTH) );

      c1.setTimeInMillis(1234567898765L);
      System.out.println("\nPart two");
      System.out.println("Current Year: " + c1.get(GregorianCalendar.YEAR)
      + "\nCurrent Month: " + c1.get(GregorianCalendar.MONTH)
      + "\nCurrent Day: " + c1.get(GregorianCalendar.DAY_OF_MONTH) );
   }
}
```

- Output

```
<terminated> Q2 (2) [Java Application] C:\Users\reemH\OneDrive\Desktop\ecli
Part one
Current Year: 2022
Current Month: 2
Current Day: 1

Part two
Current Year: 2009
Current Month: 1
Current Day: 14
```

2.3 Question 3

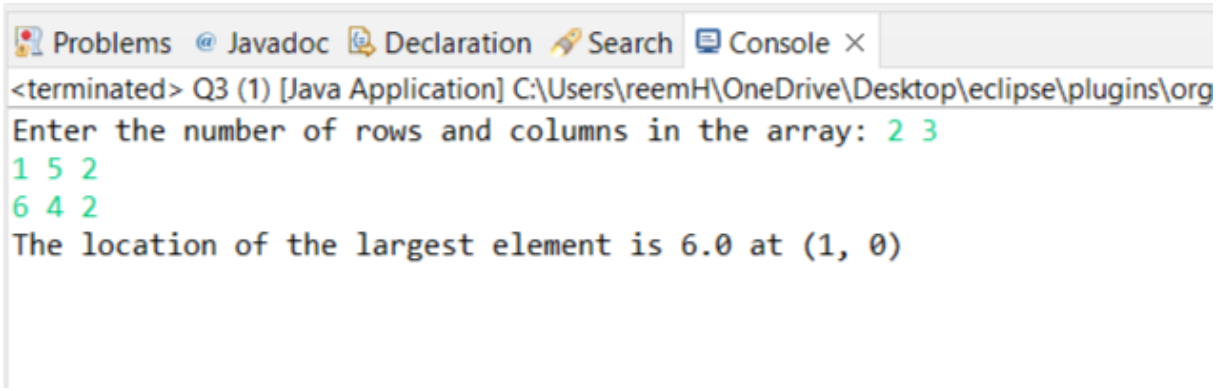
- Location Class

```
public class Location
{
   public int row;
   public int column;
   public double maxValue;

   public Location(int r, int c, double m)
   {
      row = r;
      column = c;
      maxValue = m;
   }
   public static Location locateLargest(double[][] a)
   {
      int r = 0;
      int c = 0;
      double m = a[r][c]; //set the maximal value to the first element in the array

      for (int i = 0; i < a.length; i++) //number of rows of the passed array
      {
         for (int j = 0; j < a[i].length; j++) //number of columns of the passed array
         {
            if (a[i][j] > m )
            {
               m = a[i][j];
               r = i;
               c = j;
            }
         }
      }
      return new Location(r, c, m);
   }
}
```

- The main function

```
import java.util.Scanner;
public class Q3
{
   public static void main(String[] args)
   {

        Scanner input = new Scanner(System.in);
        System.out.print("Enter the number of rows and columns in the array: ");
        int row = input.nextInt();
        int column = input.nextInt();
        double[][] arr = new double[row][column];
        for (int i = 0; i < row; i++)
      {
         for (int j = 0; j < column; j++)
         {
            arr[i][j] = input.nextDouble();
         }
      }
        Location l = Location.locateLargest(arr);
        System.out.println("The location of the largest element is "
                     + l.maxValue + " at (" + l.row + ", " + l.column + ")");
   }
}
```

- Output



3 Conclusion

This lab was very clear and helpful. I got better with Java syntax, OOP concepts, 2D arrays, and Java classes.