JAVA LAB SPOT Exercises

Date : 27.01.2025

1. Design a class named Location for locating a maximal value and its location in a two-dimensional array. The class contains public data fields row, column, and maxValue that store the maximal value and its indices in a two-dimensional array with row and column as int types and maxValue as a double type.

   Write the following method that returns the location of the largest element in a two-dimensional array:

   public static Location locateLargest(double[][] a)

   The return value is an instance of Location. Write a test program that prompts the user to enter a two-dimensional array and displays the location of the largest element in the array. Here is a sample run:

```
Enter the number of rows and columns in the array:  3 4 Enter
Enter the array:
23.5 35 2 10 Enter
4.5 3 45 3.5 Enter
35 44 5.5 9.6 Enter
The location of the largest element is 45 at (1, 2)
```

2. Write a program that prompts the user to enter the three points for **p0**, **p1**, and **p2** and displays whether **p2** is on the left of the line from **p0** to **p1**, right, the same line, or on the line segment. Here are some sample runs:

```
Enter three points for p0, p1, and p2: 1 1 2 2 1.5 1.5 Enter
(1.5, 1.5) is on the line segment from (1.0, 1.0) to (2.0, 2.0)
```

```
Enter three points for p0, p1, and p2: 1 1 2 2 3 3 Enter
(3.0, 3.0) is on the same line from (1.0, 1.0) to (2.0, 2.0)
```

```
Enter three points for p0, p1, and p2: 1 1 2 2 1 1.5 Enter
(1.0, 1.5) is on the left side of the line
  from (1.0, 1.0) to (2.0, 2.0)
```

```
Enter three points for p0, p1, and p2: 1 1 2 2 1 -1 Enter
(1.0, -1.0) is on the right side of the line
  from (1.0, 1.0) to (2.0, 2.0)
```