

0. Write display methods for
 - a. Write a method that displays the given array in a single line, tab separated
 - b. Write a method that displays two-dimensional array, each row in a new line
1. Write a method that returns the sum of all the elements in a specified
 - a. Column
 - b. Row

In a matrix using the following headers

```
public static int sumColumn(int[][] matrix, int columnIndex)
public static int sumRow(int[][] matrix, int rowIndex)
```

2. Suppose the answers to exam questions for all students are stored in a two-dimensional array. Each row represents a student's answers to all exam questions. Answers to questions can vary from 'A' to 'E'.

Write a method that finds the number of correct answers for each student given their answers to exam questions and the actual answers of those questions, then sort the student's according to their number of correct answers in increasing order.

- a. Write a method that generates a random char between any given two characters according to the following header

```
public static char random(char start, char end)
```

- b. Prompt user to enter the number of students and number of questions in the exam, then randomly generate a two-dimensional array that represents the answers to each question for all students using the above random method, number of students and number of questions.
- c. Generate an answer array that represents the correct answers of questions according to number of questions.
- d. Write a method that given an array and two indexes, swaps elements at those indexes according to given method header.

```
public static void swap(int[] array, int i, int j)
```

hint: the method header should be:

```
public static int[] grade(char[][] studentAnswers, char[] correctAnswers)
```

3. Write a method to add two matrices. The header of the method should be:

```
public static int[][] addMatrix(int[][] matrixA, int[][] matrixB)
```

- a. Overload the random method for int data type.
- b. Write a method that generates a random matrix given its dimensions. Method header should be

```
public static int[][] generateMatrix(int m, int n)
```

4. Write a method that returns the index of the point which is closest to a given point from an array of points in three-dimensional coordinate space. Use a two-dimensional array to represent points.

Your method header should be:

```
public static int getClosestPoint(int[][] points, int pointIndex)
```

- a. Write a round method that rounds any given double to given amount of int decimal places

Hint: Your method signature for round method should be:

```
public static double round(double value, int places)
```

Hint: the formula for computing the distance between two points (x1, y1, z1) and (x2, y2, z2) is

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$$

5. Write a method that generates a matrix randomly filled with 0s and 1s, displays the matrix and returns the row and column indexes with the most 1s as a pair of two.

Hint: Your method signature should be:

```
public static int[] locateMostOnes(int m, int n)
```

*Hint: You can use **sumRow** and **sumColumn** methods you have written*