Recitation 9 Practice

Follow the directions below.

- Change your working directory to the **csci101** directory inside your GitHub repository.
- Make a directory named **practice** in your **csci101** directory.
- Change your working directory to **practice.**
- In your **practice** directory, create a file named **Utilities.java** that satisfies the Utility.java Program Requirements shown below.
- In your **practice** directory, create a *program* in a file named Practice9.java that satisfies the Practice9.java Program Requirements shown below.

Utility.java Program Requirements

Note: There should not be a main method in Utility.java and all of the method in Utility.java should be static.

1. Create a method named **max** that takes two integers as arguments. The method uses the ?: operator to return the largest value of the two arguments.

2. Create another method named **max** that takes an array of integers as an argument and returns the largest value held in the array that is passed into the method.
3. Create a method named **sum** that takes an array of integers as an argument and returns the sum of all of the elements in the array that is passed into the method.
4. Create a method named **clone** that takes an array of integers as an argument and returns a new array of integers having the same values as the array that is passed into the method.
5. Create a method named **print** that takes an array of integers as an argument and prints to the console the values in the array that is passed into the method, all on a single line ending with a new line character.

6. Create another method named **max** that takes a 2D array of integers as an argument and returns the largest value held in the 2D array that is passed into the method.
7. Create another method named **sum** that takes a 2D array of integers as an argument and returns the sum of all of the elements in the 2D array that is passed into the method.
8. Create another method named **clone** that takes a 2D array of integers as an argument and returns a new 2D array having the same dimensions and the same values as the 2D array that is passed into the method.
9. Create another method named **print** that takes a 2D array of integers as an argument and prints to the console the values in the 2D array. The values in each row should be printed on a separate line.

Practice9.java

In main, do the following.

1. Ask the user to enter 2 integer values. Read the values into two variables.
2. Determine which is larger using the **max** method in the **Utility** class.
3. Print **max:** followed by the larger value.

4. Ask the user to enter 5 integers. Read in the values into an array named **array1**.

5. Determine the largest value in **array1** by calling the **max** method in the **Utility** class.
6. Print **max:** followed by the largest value in **array1**.
7. Determine the sum of the values in a**rray1** by calling the **sum** method in the **Utility** class.
8. Print **sum:** followed by the sum of the values in **array1**.
9. Create an array named **array2** that is a clone of **array1** by calling the **clone** method in the **Utility** class.
10. Verify **array2** has the same values in the same order as **array1** by calling the **print** method in **Utility** class.

11. Ask the user to enter in 4 integers. Read them into a 2x2 2D array named **matrix1**.
12. Determine the largest value in **matrix1** by calling the **max** method in the **Utility** class.
13. Print **max:** followed by the largest value in **matrix1**.
14. Determine the sum of the values in **matrix1** by calling the **sum** method in the **Utility** class.
15. Print **sum:** followed by the sum of the values in **matrix1**.
16. Create a 2D array named **matrix2** that is a clone of **matrix1** by calling the **clone** method in the **Utility** class.
17. Verify **matrix2** has the same values in the same order as **matrix1** by calling the **print** method in **Utility** class.