Recitation 9 Quiz

Follow the directions below.

- Turn on your virtual machine and log in to it.
- Change your working directory to the **csci101/quizzes** directory inside your GitHub repository.
- Make a directory named **quiz9** and change your working directory to **quiz9**.
- In your **quiz9** directory, create a file named **Utilities.java** that satisfies the Utility.java Program Requirements shown below.
- In your **quiz9** directory, create a *program* in a file named Quiz9.java that satisfies the Quiz9.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 **longer** that takes two Strings as arguments. The method uses the ?: operator to return the longest of the two arguments.

2. Create method named **mean** that takes an array of integers as an argument and returns the mean average of the values in the array.
3. Create a method named **numPositive** that takes an array of integers as an argument and returns the number of positive integers (greater than 0) in the array.
4. Create a method named **reverse** that takes an array of integers as an argument and returns an array of integers having the same values as the array that was passed into the method but in reverse order.
5. Create a method named **print** that takes an array of integers as an argument and prints the values in the array to the console on a single line.

6. Create another method named **mean** that takes a 2D array of integers as an argument and returns the mean average of the values in the 2D array.
7. Create another method named **numPositive** that takes a 2D array of integers as an argument and returns the number of positive integers (greater than 0) in the 2D array.
8. Create another method named **reverse** that takes a 2D array of integers as an argument and returns a 2D array of integers having the same values as the 2D array that was passed into the method, but in reverse order.

   For example, the two matrices below illustrate an argument and return value, respectively.

```
1 2 3        9 8 7
4 5 6   ->   6 5 4
7 8 9        3 2 1
```

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.

Quiz9.java

In main, do the following.

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

4. Ask the user to enter 5 integers. Read in the values into an array named **array1**.
5. Determine the mean average of the values in **array1** by calling the **mean** method in the **Utility** class.
6. Print **mean:** followed by the mean average of the value in **array1**.

7. Determine the number of positive values in a**rray1** by calling the **numPositive** method in the **Utility** class.
8. Print **number of positive:** followed by the number of positive values in **array1**.

9. Create an array named **array2** that is the reverse of the elements in **array1** by calling the **reverse** method in the **Utility** class.
10. Verify **array2** has the same values as **array1** but in reverse order by calling the **print** method in **Utility** class.

11. Ask the user to enter in 6 integers. Read them into a 2x3 2D array named **matrix1**.
12. Determine the mean average of the values in **matrix1** by calling the **mean** method in the **Utility** class.
13. Print **mean:** followed by the mean average of the values in **matrix1**.

14. Determine the number of positive values in **matrix1** by calling the **numPositive** method in the **Utility** class.
15. Print **number of positive:** followed by the number of positive values in **matrix1**.

16. Create a 2D array named **matrix2** that is the reverse (as defined above) of the elements in **matrix1** by calling the **reverse** method in the **Utility** class.
17. Verify **matrix2** has the same values as **matrix1** but in reverse order by calling the **print** method in **Utility** class.