CS162 – Introduction to Computer Science II

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Lab 2

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Factorial

Write a Java program, called Factorial that contains a static method called `getFactorial()`**. The getFactorial() method should accept an integer value as n for the intial number as well as m as the last number, both as parameters. It will return nothing and print the factorial of the input parameter to the screen. The main method should read in user input in the form of two integer numbers, n and m. When the code executes the factorial of all numbers from n up to m should be printed to the screen each on a new line using a loop. If either of the user inputs are negative,** an error message should print to the screen stating "Not a valid entry!"

Input

n m , where n and m are integer values

Sample input

2 5

Output

The Factorial of all numbers from n up to m

Sample output

2

6

24

120

MethodsArrays

Write a Java program, called MethodsArrays that has 4 static methods called `fillArray()`, `sumArray()`, `avgArray()`, **and** `printArray()`**. The** `fillArray()` **method should be called from the main method. The** `fillArray()` **method should use a Scanner to take in a number representing the length of the array and then read in numbers to fill the array.**

The `sumArray()` **method should take an int array as its input parameter and returns an integer value that is the sum of all the elements in the array.**

The `avgArray()` **method should take an int array as its input parameter and returns an double value that is the average of all the elements in the array.**

The `printArray()` **method should take an int array as its input parameter and has no return value. It should then print out the elements of the array on the same line** separated by a space (" "). All methods should work for integer arrays.

Input

n, where n is the length of the array, followed by m numbers

Sample input

3 2 3 4

Output

The program should print to the screen the sum of all the elements in the array, and the average of all the elements in the array followed by the array elements printed to the screen separated by a space.

Sample output

Sum = 9

Average = 3.0

2 3 4

Note: The Message for sum is: "Sum = " and the message for average is: "Average = "

In your code these should match EXACTLY to pass all test cases.

LinearSearch

Write a Java program, called LinearSearch that contains a static method called `findElement()` that accepts a double array and a double as its parameters and return a boolean value if the double number entered is contained in the double array. In the main method you should use user input to take in the length of the array to be filled, then the elements of the array, and finally the element you wish to search for in the array. You program should call `findElement()` to check for the occurence of the double number entered in the array. You should print an appropriate message to the screen if the element is found.

Input

n mi mi+1 mi+2 .... mi+n x, where n is the length of the array, mi is an element in the array and x is the element that is being searched for.

Sample input 1

4.0 345.6 678.954 234.534 -89.23 678.954

Sample input 2

4.0 345.6 678.954 234.534 -89.23 67.4

Output

A message stating if the element is found.

Sample output 1

678.954 was found in the array

Sample output 2

67.4 was NOT found in the array