CST8110 - Introduction to Programming
Lab Exercise #7 – arrays

DUE: This lab should be completed and demonstrated to your lab professor by week 13

- Write a program (using Java classes) that calculates Fibonacci numbers (https://en.wikipedia.org/wiki/Fibonacci_number) and display then in reverse order
- **Class FibonacciNumbers:**
  - Declare four **private** fields: integer **numberofNumbers**, **a**, and **b**; and array of integers **fbNumbers**
  - Write a default constructor that initializes **a** and **b** to 1
  - Write a method called **getNumberFromUser** which prompts the user to enter a value into the **numberofNumbers** and create the array for **fbNumbers** field.
  - Write a private method called **nextNumber** (returns the next number based on the previous two**)** based on the following PDL:

    START nextNumber
    temp ← b
    b ← b + a
    a ← temp
    return b
    END nextNumber
  - Write a method called **createFibonacciNumbers** to populate the array with the Fibonacci numbers using **nextNumber**
  - Write a method called **printFibonacciNumbers** to display the Fibonacci numbers in reverse order

- **Class Lab7**
  - In your method main, print this statement to the screen "Program developed by name" and insert your name into the statement
  - declare an object of **FibonacciNumbers**
  - execute the methods **getNumberFromUser**, **createFibonacciNumbers** and **printFibonacciNumbers** on this object

Example 1: (**Bold** is user input)

```
Program developed by Howard Rosenblum
How many Fibonacci numbers do you want? 10

The first 10 Fibonacci numbers in reverse order are:
55
34
21
13
8
5
3
2
```

```
1
1

Example 2:
Program developed by Howard Rosenblum
How many Fibonacci numbers do you want? -1
You need to generate at least two
How many Fibonacci numbers do you want? 0
You need to generate at least two
How many Fibonacci numbers do you want? 1
You need to generate at least two
How many Fibonacci numbers do you want? 2

The first 2 Fibonacci numbers in reverse order are:
1
1
```