CIS 36A :: LAB 5 - Arrays

Student Name:

Task 2: Understanding Programming

Instructions: Answer each question below. Try to understand and explain the code. **Do not put an IDE code screenshot.**

Exercise 9: Show how this sequence can be rewritten using the ? operator.

```
if(x < 0) y = 10;
else y = 10;
```

Answer => x<0 ? y=10 : y=10;

Exercise 18: Can you have an array length of 0? If so, how would you create one?

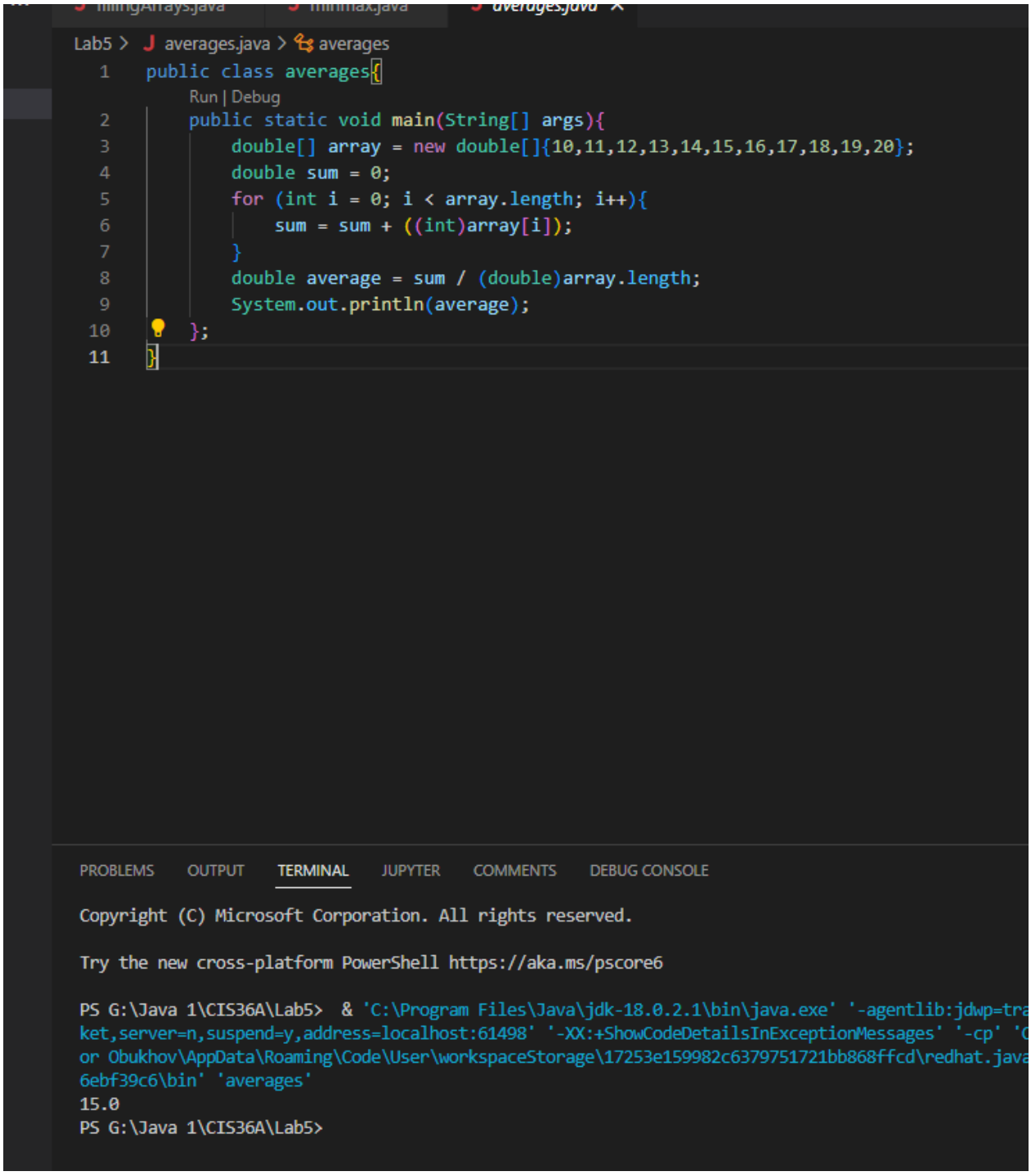
Answer => Yes. int[] array = new int[0];

Task 3: Programming Exercises

Instructions: Use any text editor to write and execute below exercises from the book chapter 5. Attach Snipping photos of your source code and execution of the code in the console. Make sure to create separate files for each exercise.

Chapter Exercises: Do the following chapter exercises.

- Exercise 03: Average of 10 numbers



- Exercise 13: MinMax

```java
// Find the minimum and maximum values in an array.
class minmax {
    Run | Debug
    public static void main(String[] args) {
        int[] nums = new int[10];
        int min, max;
        nums[0] = 99;
        nums[1] = -10;
        nums[2] = 100123;
        nums[3] = 18;
        nums[4] = -978;
        nums[5] = 5623;
        nums[6] = 463;
        nums[7] = -9;
        nums[8] = 287;
        nums[9] = 49;
        min = max = nums[0];
        for (int num : nums) {
            if (num < min)
                min = num;
            if (num > max)
                max = num;
        }
        System.out.println("min and max: " + min + " " + max);
    }
}
```

```
PROBLEMS  OUTPUT  TERMINAL  JUPYTER  COMMENTS  DEBUG CONSOLE

868ffcd\redhat.java\jdt_ws\Lab5_6ebf39c6\bin' 'minmax'
Exception in thread "main" java.lang.ArrayIndexOutOfBoundsException: Index -10 out o
        at minmax.main(minmax.java:19)
PS G:\Java 1\CIS36A\Lab5>  g:; cd 'g:\Java 1\CIS36A\Lab5'; & 'C:\Program Files\Java\
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:56181' '-XX
nMessages' '-cp' 'C:\Users\Theodor Obukhov\AppData\Roaming\Code\User\workspaceStorag
868ffcd\redhat.java\jdt_ws\Lab5_6ebf39c6\bin' 'minmax'
min and max: -978 100123
PS G:\Java 1\CIS36A\Lab5>  g:; cd 'g:\Java 1\CIS36A\Lab5'; & 'C:\Program Files\Java\
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:61516' '-XX
nMessages' '-cp' 'C:\Users\Theodor Obukhov\AppData\Roaming\Code\User\workspaceStorag
868ffcd\redhat.java\jdt_ws\Lab5_6ebf39c6\bin' 'minmax'
min and max: -978 100123
PS G:\Java 1\CIS36A\Lab5>
```

- Exercise 16: Filling arrays
    - Not sure if I'm following directions correctly but whatever.

```java
import java.util.Arrays;

public class fillingArrays {
    Run | Debug
    public static void main(String[] args){
        //Array A
        int arrayA[] = new int[]{};
        for (int i = 1; i < 31; i++){
            int current = i;
            if ((i%2)==(0)){
                current = -current;
            }
            arrayA = Arrays.copyOf(arrayA, arrayA.length+1);
            arrayA[arrayA.length-1] = current;
        }
        for (int number1: arrayA){
            System.out.println(number1);
        }

        //Array B
        int arrayB[] = new int[] {};
        for (int i = 1; i < 16; i++) {
            arrayB = Arrays.copyOf(arrayB, arrayB.length + 1);
            arrayB[arrayB.length - 1] = i;
            arrayB = Arrays.copyOf(arrayB, arrayB.length + 1);
            arrayB[arrayB.length - 1] = i;
        }
        for (int number2 : arrayB) {
            System.out.println(number2);
        }

        // Array C
        int currentC = 1;
        int arrayC[] = new int[] {};
        for (int i = 1; i < 31; i++) {
            arrayC = Arrays.copyOf(arrayC, arrayC.length + 1);
            arrayC[arrayC.length - 1] = (currentC);
            currentC = currentC*2;
        }
        for (int number3 : arrayC) {
           System.out.println(number3);
        }

        // Array D
        int arrayD[] = new int[30];
        arrayD[0] = 1;
        arrayD[1] = 2;
        for (int i = 0; i < 28; i++) {
            int first = arrayD[i];
            int second = arrayD[i+1];
            arrayD[i+2] = (first+second);
```

```java
            System.out.println(number1);
        }

        //Array B
        int arrayB[] = new int[] {};
        for (int i = 1; i < 16; i++) {
            arrayB = Arrays.copyOf(arrayB, arrayB.length + 1);
            arrayB[arrayB.length - 1] = i;
            arrayB = Arrays.copyOf(arrayB, arrayB.length + 1);
            arrayB[arrayB.length - 1] = i;
        }
        for (int number2 : arrayB) {
            System.out.println(number2);
        }

        // Array C
        int currentC = 1;
        int arrayC[] = new int[] {};
        for (int i = 1; i < 31; i++) {
            arrayC = Arrays.copyOf(arrayC, arrayC.length + 1);
            arrayC[arrayC.length - 1] = (currentC);
            currentC = currentC*2;
        }
        for (int number3 : arrayC) {
           System.out.println(number3);
        }

        // Array D
        int arrayD[] = new int[30];
        arrayD[0] = 1;
        arrayD[1] = 2;
        for (int i = 0; i < 28; i++) {
            int first = arrayD[i];
            int second = arrayD[i+1];
            arrayD[i+2] = (first+second);
        }
        for (int number4 : arrayD) {
            System.out.println(number4);
        }
    }
}
```

```
PS G:\Java 1\CIS36A\Lab5>  g:; cd 'g:\Java 1\CIS36A\Lab5'; & 'C:\Program Files\Java\jdk-18.0.2.1\bin\java.exe'
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:61540' '-XX:+ShowCodeDetailsInExceptio
nMessages' '-cp' 'C:\Users\Theodor Obukhov\AppData\Roaming\Code\User\workspaceStorage\17253e159982c6379751721bb
868ffcd\redhat.java\jdt_ws\Lab5_6ebf39c6\bin' 'fillingArrays'
1
-2
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```

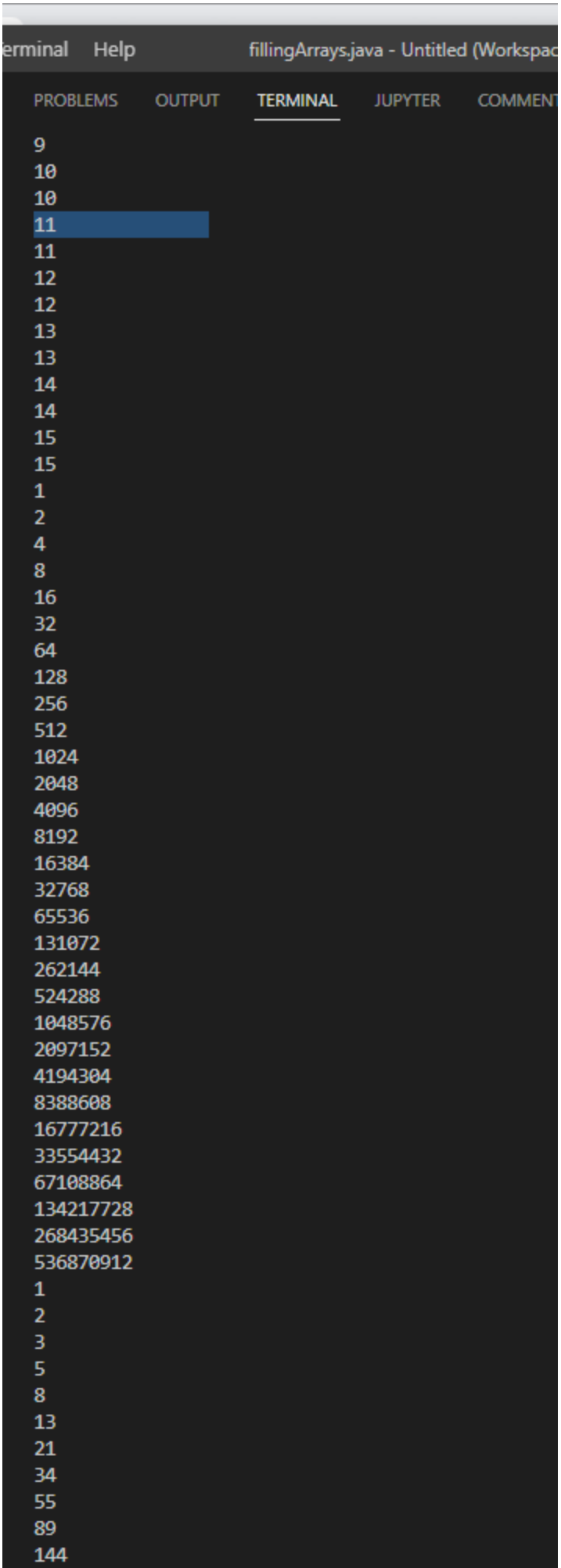
erminal Help
fillingArrays.java - Untitled (Workspac
PROBLEMS
OUTPUT
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16384
32768
65536
131072
262144
524288
1048576
2097152
4194304
8388608
16777216
33554432
67108864
134217728
268435456
536870912
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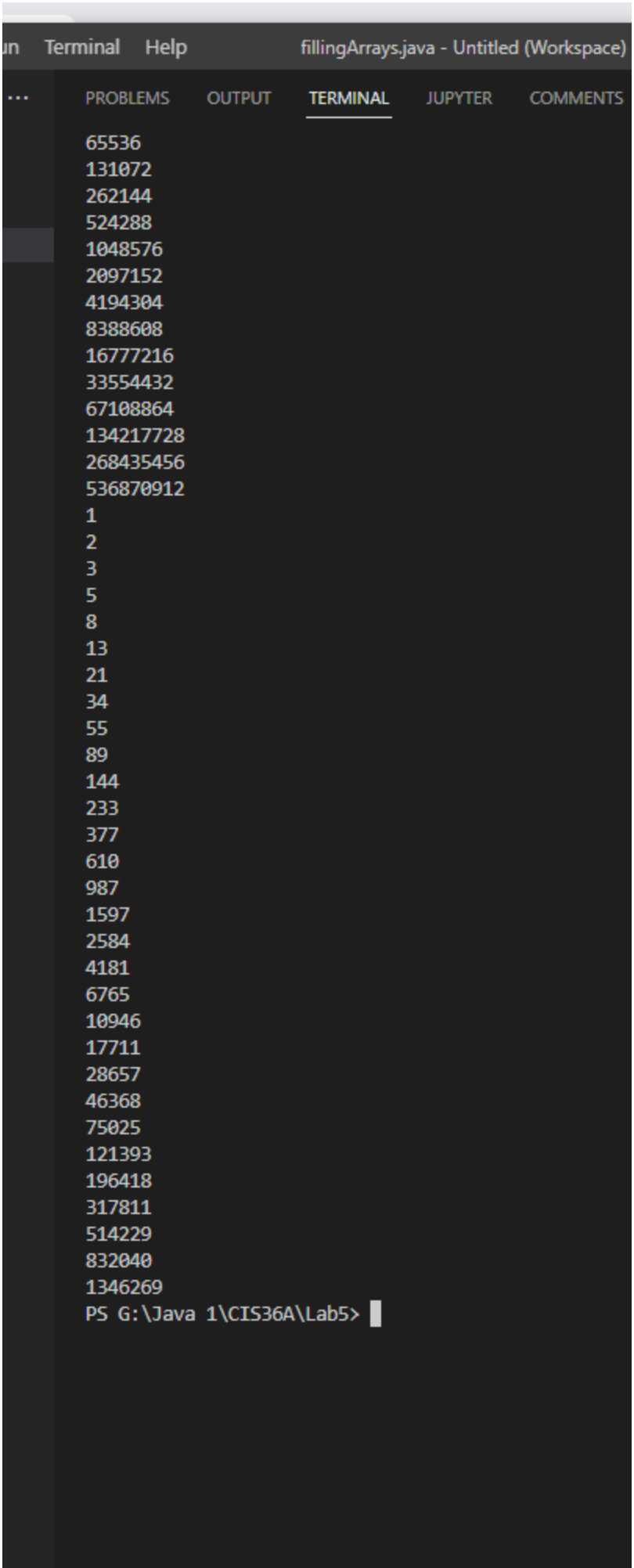
21
34
55
89
144


un Terminal Help
fillingArrays.java - Untitled (Workspace)
PROBLEMS
OUTPUT
TERMINAL
JUPYTER
COMMENTS
65536
131072
262144
524288
1048576
2097152
4194304
8388608
16777216
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4181
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10946
17711
28657
46368
75025
121393
196418
317811
514229
832040
1346269
PS G:\Java 1\CIS36A\Lab5>

- Exercise 22: Triangular Array
- Exercise 23: Reversing an Array
- Exercise 26: Merging Arrays
- Exercise 27: Sorter or Not Sorted

Task 4: Programming Application

Instructions: Use any IDE to write and execute the program below. Attach Snipping photos of your source code and execution of the code in the console.

NO TASK 4