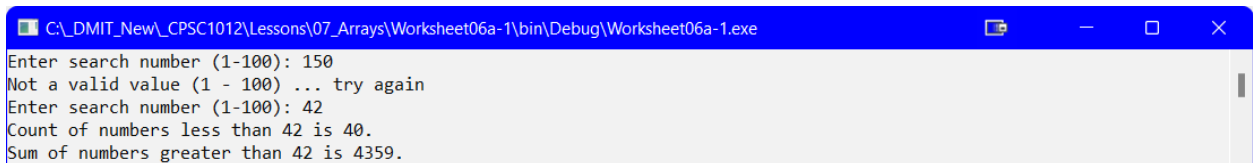


CPSC1012 Worksheet 06a

Test your understanding of this material by answering the following questions by coding each of the questions:

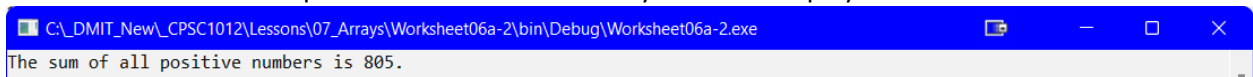
*Note: You may **NOT** assume valid input for all questions below.*

1. Create an array of integers of size 100 that holds random numbers between 1 and 100 inclusive (in a method). The user will input a number to search for in the array. Create a method that, when passed in the array, will return the count of all numbers less than the search number. If there are no numbers less than the search number, return 0. Display the results in a method. Create a second method that, when passed in the array, will return the sum of all numbers greater than the search number. If there are no numbers greater than the search number, return 0. Display the results in a method.



```
C:\DMIT_New\CPSC1012\Lessons\07_Arrays\Worksheet06a-1\bin\Debug\Worksheet06a-1.exe
Enter search number (1-100): 150
Not a valid value (1 - 100) ... try again
Enter search number (1-100): 42
Count of numbers less than 42 is 40.
Sum of numbers greater than 42 is 4359.
```

2. Create an array of integers of size 100 that holds random numbers between -50 and 50 inclusive (in a method). Create a method that, when passed in the array, will return the sum of all positive numbers. If there are no positive numbers in the array return 0. Display the results in a method.



```
C:\DMIT_New\CPSC1012\Lessons\07_Arrays\Worksheet06a-2\bin\Debug\Worksheet06a-2.exe
The sum of all positive numbers is 805.
```

3. Create an array of doubles of size 25 that will hold calculated values; each value will be the square root of the element number (this will be `index + 1` – for example the `array[0]` will hold the square root of 1). Create another method that will read each value in the array, square this value, and place the squared value back into the same element. Display the results in a method. [*What is noticeable about the final values in the array?*]

```
C:\DMIT_New\CPSC1012\Lessons\07_Arrays\Worksheet06a-3\bin\Debug\Worksheet06a-3.exe

Square Roots
1
1.4142135623731
1.73205080756888
2
2.23606797749979
2.44948974278318
2.64575131106459
2.82842712474619
3
3.16227766016838
3.3166247903554
3.46410161513775
3.60555127546399
3.74165738677394
3.87298334620742
4
4.12310562561766
4.24264068711928
4.35889894354067
4.47213595499958
4.58257569495584
4.69041575982343
4.79583152331272
4.89897948556636
5

Squared
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
```

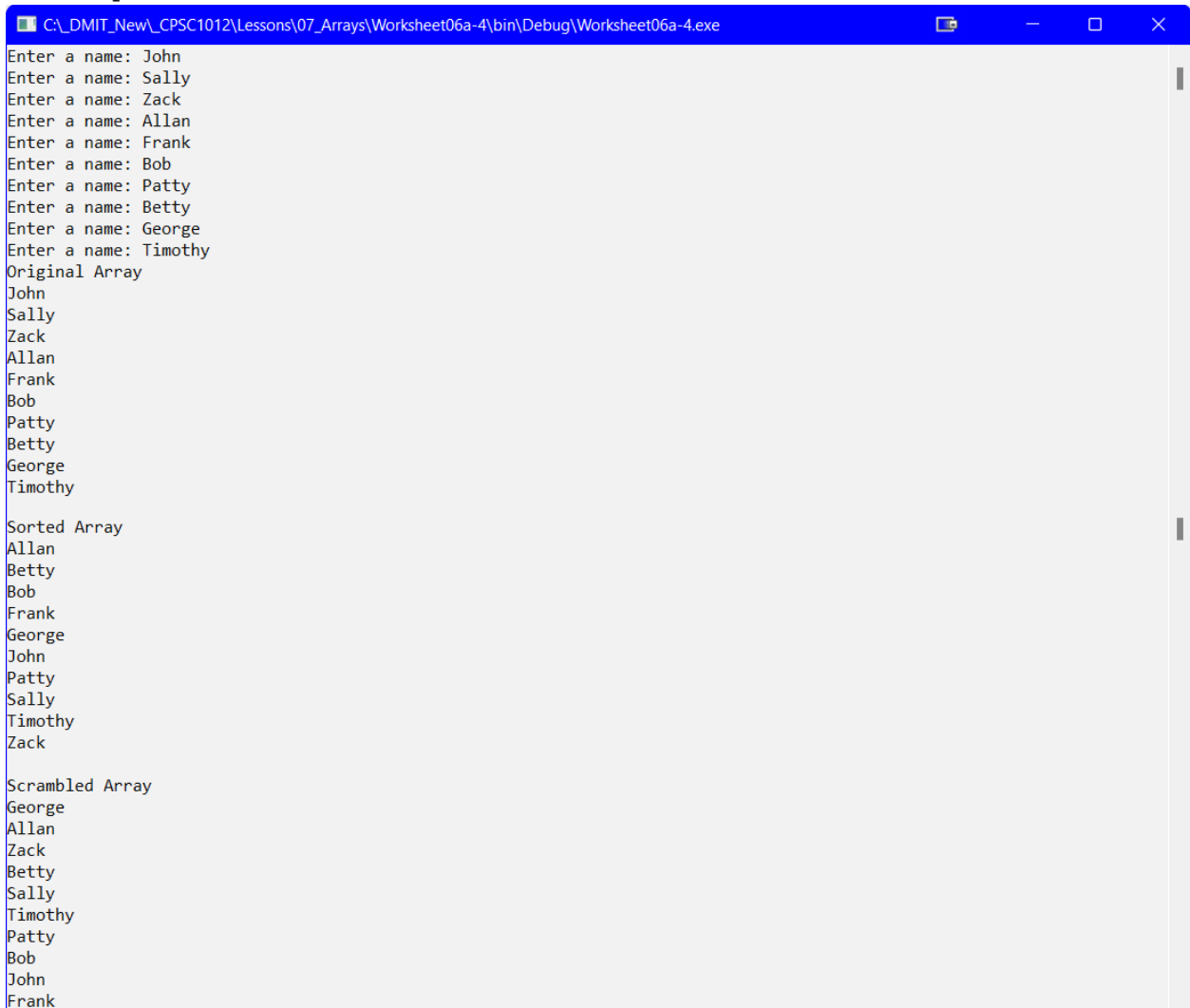
Locals		
Search (Ctrl+E)		
Name	Value	Type
args	(string[0])	string[]
squaresRoots	(double[25])	double[]
[0]	1	double
[1]	2.0000000000000004	double
[2]	2.9999999999999996	double
[3]	4	double
[4]	5.0000000000000009	double
[5]	5.9999999999999991	double
[6]	7.0000000000000009	double
[7]	8.0000000000000018	double
[8]	9	double
[9]	10.000000000000002	double
[10]	11	double
[11]	11.999999999999998	double
[12]	12.999999999999998	double
[13]	14	double
[14]	15.000000000000002	double
[15]	16	double
[16]	17	double
[17]	17.999999999999996	double
[18]	19.000000000000004	double
[19]	20.000000000000004	double
[20]	21	double
[21]	22	double
[22]	22.999999999999996	double
[23]	23.999999999999996	double
[24]	25	double

Actual data in the array after
squaring all the elements

4. Create an array of names of size 10 with each name being entered by the user (in a method). Sort the array and display it. Create a method to scramble the names in the array. Redisplay the values in the array to show that the names are scrambled.

HINT:

```
While (... decide how many times to loop ..)
    Create 2 random numbers
    TempVariable = Array[Random1]
    Array[Random1] = Array[Random2]
    Array[Random2] = TempVariable
Loop
```



```
C:\DMIT_New_CPSC1012\Lessons\07_Arrays\Worksheet06a-4\bin\Debug\Worksheet06a-4.exe
Enter a name: John
Enter a name: Sally
Enter a name: Zack
Enter a name: Allan
Enter a name: Frank
Enter a name: Bob
Enter a name: Patty
Enter a name: Betty
Enter a name: George
Enter a name: Timothy
Original Array
John
Sally
Zack
Allan
Frank
Bob
Patty
Betty
George
Timothy

Sorted Array
Allan
Betty
Bob
Frank
George
John
Patty
Sally
Timothy
Zack

Scrambled Array
George
Allan
Zack
Betty
Sally
Timothy
Patty
Bob
John
Frank
```