
University of Colorado at Colorado Springs

Home Work Assignment 3

Out 10/7/2019, Due 10/21/2019

1. Square Roots of Odd Integers (30 pts code + 5 pts pseudocode = 35 pts)

Write a program `SqrtOdd.java` that prints the square roots of the first 10 odd positive integers: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, **using a loop**. Please do not prompt the user to enter these numbers: only use a loop to iterate (Some of you may have learned about arrays in Java. However, please do not use arrays either). The results are formatted with **2 decimal points**. Your output should look like the following:

```
The square root of 1 is 1.00
The square root of 3 is 1.73
The square root of 5 is 2.24
...
(more output)
...
The square root of 19 is 4.36
```

Since this program does not require any input, you can write this in your pseudocode:

```
/* Pseudocode
 * Input: None
 * Output: ...
 * ...
 */
```

2. Analyzing Numbers (50 pts code + 5 pts pseudocode = 55 pts)

Write a program `Numbers.java` that prompts the user for **an unspecified number of integers using a loop**. The number 0 will be used to indicate the end of the list of values. Process all the input values, determine and display the following:

1. How many values are positive
2. How many values are negative
3. How many values are even
4. How many values are odd
5. What is the largest value
6. What is the smallest value
7. The sum of all the values
8. The average of all the values displayed as a **floating-point** value, formatted with **2 decimal points**.

Note that the user only enters the list of integers **once**. Your program will then calculate items 1 to 8 listed above. `0` should be excluded from all these calculations. So if the user input only includes `0`, the program does not need to calculate items 1 to 8. We can assume that the user input is always integer(s).

Some of you may have learned about arrays in Java. However, please do not use arrays, but only use a loop. Your output should look like the following.

Example 1:

```
Enter integers ending with 0:
```

```
12
8
1
7
2
-4
-45
-1
3
71
0
```

```
Number of positive values = 7
Number of negatives values = 3
Number of even values = 4
Number of odd values = 6
Largest value entered = 71
```

Smallest value entered = -45
Sum of all numbers = 54
Average = 5.40

Example 2:

Enter integers ending with 0:
5
0

Number of positive values = 1
Number of negatives values = 0
Number of even values = 0
Number of odd values = 1
Largest value entered = 5
Smallest value entered = 5
Sum of all numbers = 5
Average = 5.00

Example 3:

Enter integers ending with 0:
0

No numbers were entered except 0

Submission

Please save your programs in two Java files, each containing **pseudocode**. You may include your pseudocode in a block comment using `/* ... */`. **10 pts are given to your coding style** (comments – header and in-code comments: up to 4 pts, naming conventions: up to 3 pts, proper indentation/spacing: up to 3 pts). We will run each program several times with our input and verify that the results are correct.

Please place your files in a folder called **hw3-firstname-lastname** and zip it. The zipped file should be named **hw3-firstname-lastname.zip**. Please submit the zipped file to Canvas by the due date.