

CSCE 111 – Homework 2

Due date 09/21 end of day

Submit a .zip file with your answers to eCampus, file name should be in the format LastName_FirstName_hw2.zip.

1 – **(Report only)** Explain the three types of loops in Java and their differences (10 points).

2 – **(Code only)** Write a program that reads 2 positive numbers from the user and outputs the number that is closer to 10. (15 points)

If they are the same distance, output that they are the same. If the user enters negative numbers, show an error message and quit the program.

Hint: You can find the absolute value of a number x by using `Math.abs(x)`
Example Output:

Enter first number: 32

Enter second number: 57

The number 32 is closer to 10

Name your class `Hw2pr2` and your file `Hw2pr2.java`

3 – **(Code only)** Write a program that sorts three names provided by the user.

Note: You should **NOT** use Java API library functions to sort the names.
Example Output: (15 points)

Enter first name: Shaquille Enter second name: Kobe

Enter third name: Derek Sorted names: Derek, Kobe, Shaquille

Name your **class** `Hw2pr3` and your file `Hw2pr3.java`

4 – **(Code only)** Write a program that asks the user to enter a number from 1 to 10, and outputs the roman numeral that represents it. (15 points)

Example Output:

Enter number from 1 to 10: 5 Roman numeral: V

Name your **class** Hw2pr4 and your file Hw2pr4.java

5 – **(Code only)** Write a program that reads input numbers until the user types -1 to stop providing new numbers. Then, the program should output the smallest and the largest numbers provided by the user.

Example Output:

Enter number: 5

Enter number: 6

Enter number: 100

Enter number: -5

Enter number: 60

Enter a number: -1

Smallest number is -5 and largest is 100.

Name your **class** Hw2pr5 and your file Hw2pr5.java

6 – **(Code only)** You were driving a little too fast and have been caught speeding by a police officer. (15 points)

The officer is a bit of a geek and offers you 3 options to calculate your fine:

Option 1: Base fine of \$50, +\$7 for each mph you were over the limit. Option 2: Base fine of \$70, +\$3 for each mph you were over the limit. Option 3: Base fine of \$100, +\$1 for each mph you were over the limit.

Write a program that takes as input the speeding limit and the speed clocked by the officer. Check that the input is valid. Then output the option that gives you the lowest fine, as well as the fine amount. If 2 options produce the same result, you can output any one of the options.

Name your class Hw2pr6 and your file Hw2pr6.java

7 – **(Code only)** Write a program that counts the number of occurrences of a specific letter in a text file. Suppose you have a text file named input.txt with the following text: (15 points)

Hello
World

Count program Example Output:

Filename: input.txt

Letter to count: o

Number of occurrences: 4

Name your **class** Hw2pr7 and your file Hw2pr7.java