

# CS19001: Programming and Data Structures Laboratory

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[http://cse.iitkgp.ac.in/~aritrah/course/lab/PDS/Autumn2018/CS19101\\_PDS-Lab\\_Autumn2018.html](http://cse.iitkgp.ac.in/~aritrah/course/lab/PDS/Autumn2018/CS19101_PDS-Lab_Autumn2018.html)

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# Programming Assignments

Complete and submit during lab

# Assignment 1

Read from user input the real coefficients  $a$ ,  $b$ ,  $c$  for the quadratic equation  $ax^2 + bx + c = 0$ . Print out the roots of the equation in all three possible cases (real, imaginary and complex).

## Assignment 2

The *distance* between two integers can be calculated by subtracting the smaller number from the bigger number.

Ex: Let two numbers be  $-27$  and  $16$ .

Then, distance =  $16 - (-27) = 43$ , since  $16 > -27$ .

Write a C program to perform the following actions:

- Read from user input two integers within  $-50$  to  $50$ .
- If the input numbers are not within the mentioned range  $[-50, 50]$ , print a message: **Error: Out-of-Range!**
- Calculate the distance.
- Print the result both in Numbers and English Words.

Output:  $\langle 43, \text{Forty Three} \rangle$

## Assignment 3

Write a C-program to perform the following:

- Read from user input four integers  $m, n, o, p$ .
- If  $m$  is not smaller than  $n$  and  $o$  is not smaller than  $p$ , output the message "Inputs are not Ok"
- Otherwise, consider the following arithmetic

$$[m, n] + [o, p] = [m + o, n + p]$$

$$[m, n] - [o, p] = [m - p, n - o]$$

- Compute and output the above two quantities.

**Think (the logic!):** What is  $[m, n] * [o, p]$  and  $[m, n]/[o, p]$  ?

**Reference:** [https://en.wikipedia.org/wiki/Interval\\_arithmetic](https://en.wikipedia.org/wiki/Interval_arithmetic)

# Thank You