

Assignment 4

- In this assignment, you have to implement complex arithmetic which works with numbers having arbitrary precision.
- Basic operations which are needed to be implemented are: Addition, Subtraction, Product, abs and Quotient.
- Your submission should contain a zipped folder whose name is your entry number and should contain the folder having all the .c files and a makefile.
e.g. Your submission will have a zip folder(2018MCS2018.zip) which contains another folder(2018MCS2018) having all codes and makefile
- Your main executable should be named as mainfile which is made by make command.

- mainfile should take two command line arguments i.e. <Name of Input file> <Name of Output file1> <Name of the output plot(png or pdf)>

Your code should run like: *./mainfile input.txt output.txt plot.png*

- **Input.txt** (i.e. the input file) will contain the different queries, corresponding to each arithmetic operations.
- **Query Format:** Each line of input file corresponds to a query which is in the format:
<Operator><SPACE>(R1,C1)<SPACE>(R2,C2)
Where Ri= Real part and Ci=Imaginary part of the complex number.
- Operator can be one of the strings: ADD, SUB, ABS, PROD, QUOT

- Operand will be String(ordered pair) representing a complex number with real and imaginary part.
- For each query, you have to print a single lined output in Output.txt which is also a string(ordered pair).
- You need to handle the cases where the operand or results are negative values.
- Please refer to sample input files with corresponding output files for further details.
- For floating point results the precision should be correct up to 20 digits after decimal point.
- Moreover, you also need to plot the bar graph that shows the comparison of the running times of the complex arithmetic using arbpprecision and the standard C library implementation.

- The comparison has to be shown for each operation in the same graph.