

Operating System (Lab)

Midterm 2024

Time allowed: 90 Minutes (1 Hour and 30 Minutes)

Total Marks: 40

Instructions

Understanding the problem is part of the paper.

Attach the screenshots of your terminal /output screen. It carries 3 marks.

Submission should be done on the portal contains zip file with c files and screenshots of terminal.

Problem 1

Write a C program that takes a list of N numbers through command-line argument and passes it to each of its three child processes using pipe. The child process 1 will find the second smallest number in their list, the child process 2 will find second largest number in their list and the child process 3 will find the average of array elements, and return their respective results back to parent process using separate pipes. The parent processes will print min, max and average value on the terminal.

Example: > ./Prog 100 2 5 9 50 30 36 90

Output:

The smallest number is 5

The largest number is 90

The average of list is 40.25

Problem 2

Write a C program to implement the following Linux command using fork (), exec () and dup2 ().

```
$ grep "m" < input.txt | sort > output.txt
```