

## *Project*

### *Milestone 01 Description*

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#### *Milestone 01 Overview*

In this milestone, you will be asked to implement a foundation for the upcoming milestones. You are asked to implement threads and experiment with different scheduling algorithms. See below sections for more details.

#### *Detailed Description*

##### **Threads**

You need to implement 3 threads using the pthreads library in C.

- Thread 1: prompts the user to input two alphabetic characters, then displays all the letters of the alphabet between and including the two given characters.
- Thread 2: it includes a minimum of 3 print statements. You are free to choose the specifics. However, make sure to output the thread ID as a way of identifying the thread.
- Thread 3: It prompts the user to input two integers, then calculates the sum, average, and product of all integers between and including those two numbers. The results are displayed on the screen.

##### **Scheduling**

A scheduling Algorithm is an algorithm that chooses the process (in this case the threads) that gets to execute. In this milestone, you can experiment with the pre-defined scheduling algorithms and observe how the outputs change. Use at least two different algorithms.

##### **performance metrics**

In your report, provide a detailed analysis of the following performance metrics for the scheduling algorithm(s) you have used:

Execution time, release time (inputs at the beginning of the schedulers), start time, finish time, waiting time, response time, turnaround time, CPU useful work, CPU Utilization, memory consumption.

#### *Submission Guidelines*

- The deadline for submission is **13 March, 2025 at 11:59 PM**
- You are requested to submit the following documents:
  1. the working code (please narrate and comment on the results)  
→ **name the Video (MS\_01\_Team\_m\_Video.mp4)**
  2. The required project description report

→ name the report (**MS\_01\_Team\_m\_Report.pdf**)

3. The developed C code of the experiment and the CMakeLists.txt, and any additional library used in a single zip folder in a single zip folder

→ name the Code (**MS\_01\_Team\_m\_Code.zip**)

- Please upload your milestone deliverables to your drive as a .zip file with the following naming format:

(Ex.: CSEN602\_S25\_MS\_0n\_Team\_m.zip)

where m is your team number and n is the milestone number you are currently submitting.

- Submit **ONLY** the sharing link through the below form and **Make sure that you give permission to access**
  - <https://docs.google.com/forms/d/e/1FAIpQLSdU4xMPGar5QliA4wKGdwmrJKfwPYug-vpJHOAEK7Ce2WCMjA/viewform?usp=header>