Deadline

Each group will be assigned 10 minutes for Q/A about your project and the assigned time will be shared with you before the mentioned dates below.
Section 1: October 3 (8:00 AM – 11:00 AM)
Section 3: October 3 (12: 00 PM – 3:00 AM)
Section 4: October 4 (8:00 AM – 11:00 AM)

Mini Project 1

1. Using C program randomly generate a directed graph represented by adjacency matrix with n = 1000 vertices (You may use rand function for this purpose)

2. Determine in-degrees and out-degrees of all vertices and show that sum of in-degrees and sum of out-degrees are equal.
   Determine the computational time in this step (except printing time) in ns (nanoseconds)

3. Repeat step 1 and 2 for n = 2000, 3000, 4000, 5000

4. Draw a graph showing computational time vs n. From that graph, determine the approximate time complexity of your program as a function of n

5. Theoretically determine the computational time complexity of your program as a function of n and compare with the time complexity found in step 4. (Find the Big O Notation of your code)

6. Show task 4 and 5 in a report.

Mini Project 2

1. Using C program randomly generate an undirected graph represented by adjacency matrix with n = 1000 vertices. (You may use rand function for this purpose)

2. Determine number of edges in the graph. Determine the degree of all vertices. Show that Handshaking theorem holds.
   Determine the computational time in this step (except printing time) in ns (nanoseconds)

3. Repeat step 1 and 2 for n = 2000; 3000; 4000; 5000

4. Draw a graph showing computational time vs n. From that graph, determine the approximate time complexity of your program as a function of n

5. Theoretically determine the computational time complexity of your program as a function of n and compare with the time complexity found in step 4 (Find the Big O Notation of your code)

6. Show task 4 and 5 in a report.

Submission

You have to submit your code and report to the link provided in Google Classroom. Rename your .c file and report .pdf file to your_group_id and then submit. (e.g. If your group ID is 1 your c fie name should be 1.c and report name should be 1.pdf)

Collaboration

It is expected that each and every member of your group must participate actively in coding, preparing report. Even though this is a group project each person will be evaluated individually.

Any sort of plagiarism (Copying code from senior students, classmates) is strictly prohibited and will result in a straight zero. Of course, you can share ideas but in no way you are to share your code with others.