CSC248 – Data Structure
Group Project (20%)

The question is designed to attain the followings:

Course Outcomes:
CLO3 - *Differentiate between various data structure characteristics using appropriate data structure implementation in problem-solving. (C4)*

Cognitive:
C4 - *Analysis*

Psychomotor:
P3 - *Guided Response*

Achievement of MOHE Learning Outcomes:
LO1 - *Knowledge*
LO2 - *Practical Skills*
LO3 - *Thinking and Scientific Skills*

Achievement of Soft Skills Learning Outcomes:
SS1 - *Critical Thinking and Problem-solving Skills*

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Requirements:

1. Form a group of 2-3 students.
2. Choose between the following themes:
   a. student's club (photography, travel etc).
   b. business (any type of business).

3. Define a class of objects that consists of the object's attributes and necessary methods.
4. Define a linked list and node class that would be able to do the following processing:
   a. insert node at the back of the list.
   b. remove node anywhere in the list.
   c. provide traversal from head until the last node in the list. (`getHead()` and `getNext()`).
   d. determine size of the list.
   e. status of whether the list is empty or has element(s).
   f. a method to display details of all elements in the list.

5. Define a queue data structure with all the necessary methods.
6. Implements at least five processing (inclusive insertion of data into a list). Choose wisely the processing as you need to show your ability to apply the linked list and queue data structure into your project. The processing should be logical and applicable to your chosen class of objects.
7. Linked list data structure is the main data structure of your project.
8. Present your work as scheduled by your lecturer and submit a report that consists:
   a. Introduction of the project and group members.
   b. Complete coding of all classes.
   c. Sample input and output.

9. Deadline of the project is in week 14.

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PROPOSAL

List of group members:

No	Name	Matric No.
1		
2		
3		

Project Title:	

Class of objects with attributes and methods:

List of processing:

1.
2.
3.
4.
5.

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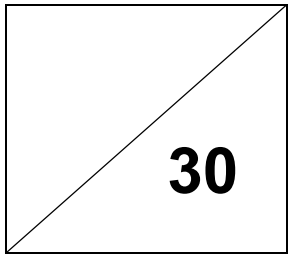
REPORTS OF GROUP PROJECT (Calculated Marks: 20)

SCORING RUBRIC

No.	Name	Student ID	Mark
1			
2			
3			
Group :			
Project Title :			

Attribute	Attribute	1 - Very weak	2 - Weak	3 - Fair	4 - Good	5 - Very good
Problem Solving	Understanding DS Understands the Problem and Requirements	Student's work shows incomplete understanding of problem and/or requirements	Student's work shows slight understanding of problem and requirements	Student's work shows understanding of problem and most requirements	Student's work shows complete understanding of problem and all requirements	Student recognizes potential conflicts between requirements and seeks clarification from client/user
	Algorithm Uses Appropriate Algorithms	Student 'hacks out' program with no thought to algorithm design	Student chooses/ designs algorithm(s) that are incorrect	Student chooses/ designs algorithm(s) that is/are correct but somewhat inefficient	Student chooses/ designs efficient algorithm(s)	Student research trade-offs between different algorithms & implements the results of this research
	Select DS Uses Appropriate Data Structures	No use of ADTs (aggregate data types/structures)	Use of ADTs; but are none are appropriate for task	Use of ADTs; but some are not most appropriate for task	Use of ADTs; all are appropriate for task	Uses advanced ADTs that improves program performance

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Attribute	Attribute	1 - Very weak	2 - Weak	3 - Fair	4 - Good	5 - Very good
Learning Skills	Design Designs Appropriate User Interface	Implements very poor I/O functionality	Only implements basic I/O functionality	Some concepts of 'user-friendly' I/O used	Uses well-designed 'user-friendly' I/O interface appropriate for task and client	'User-friendly' I/O interface with GUI components
	Testing Tests Program for Correctness	No evidence of any testing by student	Evidence of only one case tested	Evidence of a few cases tested	Evidence of "typical cases tested, but only assuming valid inputs	'Robust design' with extensive testing.
	Documentation Documents Program	Absolutely no documentation other than name.	Little or no documentation; few or no internal comments	Some documentation, but sparse internal comments	Complete documentation with numerous internal comments	Thorough documentation;

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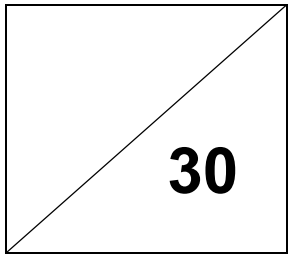
PRESENTATION (Calculated Marks: 10)

SCORING RUBRIC

No.	Name	Student ID	Mark
1			
2			
3			
Group :			
Project Title :			

Attribute	Sub-attribute	1 - Very weak	2 - Weak	3 - Fair	4 - Good	5 - Very good
Verbal Communication	Clear delivery of ideas (content)	Not able to deliver ideas clearly and require major improvements	Able to deliver ideas and require further improvements	Able to deliver ideas fairly clearly and require minor improvements	Able to deliver ideas clearly	Able to deliver ideas with great clarity
	Confident and articulate delivery of ideas (Communicative ability)	Not able to deliver idea confidently and articulate	Able to deliver ideas with limited confidence and effect and require further improvements	Able to deliver ideas fairly confidently and effectively and require minor improvements	Able to deliver ideas confidently effectively and articulately	Able to deliver ideas with great confidence, effect and articulately
	Understand and respond to questions	Not able to understand and respond to a question	Able to understand and answer questions but not able to accurately answer the question	Able to understand and answer questions satisfactorily	Able to respond to questions well	Able to fully understand and respond to questions very well

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Attribute	Sub-attribute	1 - Very weak	2 - Weak	3 - Fair	4 - Good	5 - Very good
Written Communication (Slide)	Clarity and accuracy written academic discourse (Content)	Not able to write ideas with limited clarity and accuracy	Able to write ideas with limited clarity and accuracy	Able to write ideas fairly clearly and accuracy	Able to write ideas clearly and accuracy	Able to write ideas with excellent clarity and accuracy
	Coherently written academic discourse (Communicative ability)	Not able to write ideas coherently	Able to write ideas with limited coherence and require	Able to write ideas fairly coherently but require minor improvements	Able to write ideas coherently	Able to write ideas with excellent coherence
	Systematically written academic discourse (Technicality)	Not able to write ideas systematically	Able to write ideas fairly systematically but require minor improvements	Able to write ideas fairly systematically but require minor improvements	Able to write ideas systematically	Excellent ability to write ideas systematically

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Submission Schedule

No	Item	Submission Dateline
1	Proposal	**5 December 2021, 6.00 pm**
2	Report	**23 Jan 2022, 6.00 pm**
3	Presentation	**26 Jan 2022**