

The assessment is designed to attain the following:

Course Outcomes:

CLO3 - Demonstrate lifelong learning skills through the development of data structure applications using a data structure programming tool (A3).

Requirements :

This Group Project must be completed in THREE phases, and first, you need to form a group of 3 students for this project.

Phase 1: Proposal

Based on the theme (industry) decided by your instructor: (Example- list of industries in Malaysia: <https://www.sfconsulting.com.my/list-of-industries-in-malaysia/>)

| No. | Theme (industry) |
|-----|------------------------------------------|
| 1 | Medicine/Medical |
| 2 | Transportation and Logistics |
| 3 | Food |
| 4 | Textiles and Mineral |
| 5 | Agriculture: Commodity Crops |
| 6 | Digital service |
| 7 | Entertainment |
| 8 | Agriculture: Farming (Livestock/Fishery) |
| 9 | Tourism |

- Propose a collection of data from the industry chosen by defining the object's class related to your proposal, consisting of the object's attributes and necessary methods. State the processes to be fulfilled at the end of the development.
- Propose at least five processing (should include: removal, searching, updating, and traversing the list). Insertion is compulsory processing other than the 5 processing. The processing should be logical and applicable to your chosen class of objects.

Phase 2: Development & Implementation

Students need to solve each of the processing proposed in the Linked List and Queue data structure. The development of each processing will be in both data structures (Linked List and Queue).

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

CSC248 – Data Structure
Group Project (20%)

- c) Define a queue (ADT) data structure with all the necessary methods.
 - i. Add data at the end of the list (enqueue).
 - ii. Removes data at the beginning of a list (dequeue).
 - iii. Determine the size of the list.
 - iv. Determine whether the list is empty.
- d) Define TWO application classes:
 - i. First is to implement the 5 processing in the Linked List data structure.
 - ii. The second is to implement the 5 processing in Queue data structure.

*The data for processing should be stored and read from an input File (.txt).

Phase 3: Report and Presentation (Week 14)

Present your work as scheduled by your lecturer and submit a report that consists of:

- a. Frontpage
- b. Table of contents.
- c. Introduction of project and group members.
- d. Distribution of work between team members
- e. Complete coding of all classes.
- f. Sample input and output.
- g. Conclusions of your finding: which of the data structures best applied in your case study

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PROPOSAL

List of group members :

| Name | Matric No. |
|------|------------|
| | |
| | |
| | |

Class of objects with attributes and methods :

| |
|--|
| |
|--|

List of processing :

| |
|----|
| 1. |
| 2. |
| 3. |
| 4. |
| 5. |

Name :
ID:

Group Class:

GROUP PROJECT'S EVALUATION (Final Calculated Marks : 20%)

According to the problem given by instructor solve the problem in full program as per requirement.

Total Marks:

Project's proposal (10%)

| Tasks | 0 | 1 | 2 | Weight | Total |
|--------------------|-------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|--------|-------|
| Object's class | The class propose could not be implemented and not relevant | Lack in some area, can be improved but relevant. | Well defined, can be easily implemented and relevant. | 5 | /10 |
| Processing 1 | Not achievable or below expectation. | Achievable but level of complexity is below expectation. | Achievable and acceptable level of complexity. | 5 | /10 |
| Processing 2 | Not achievable or below expectation. | Achievable but level of complexity is below expectation. | Achievable and acceptable level of complexity. | 5 | /10 |
| Processing 3 | Not achievable or below expectation. | Achievable but level of complexity is below expectation. | Achievable and acceptable level of complexity. | 5 | /10 |
| Processing 4 | Not achievable or below expectation. | Achievable but level of complexity is below expectation. | Achievable and acceptable level of complexity. | 5 | /10 |
| Processing 5 | Not achievable or below expectation. | Achievable but level of complexity is below expectation. | Achievable and acceptable level of complexity. | 5 | /10 |
| Data in input file | less than 10 records | less than 20 records | Sufficient with more than 20 records | 5 | /10 |
| TOTAL (70) | | | | | |

Name :
ID:

Group Class:

Project's implementation (60%)

| Tasks | | 0 | 1 | 2 | Weight | Total |
|------------------------------------------|-------------------------------------------------|-----------|--------------------------|--------------------|--------|-------|
| | | not exist | Exist | | | |
| | | | Incorrect/ incomplete | Complete | | |
| Linked List class | Class definition | | | | 3 | /6 |
| Queue | Class definition | | | | 2 | /4 |
| Object Class | Class definition | | | | 2 | /4 |
| Main Class 1 (Linked List) | Data Structure object's declaration | | | | 2 | /4 |
| | Data insertion into the data structure involved | | | | 2 | /4 |
| | Processing 1 | | | | 3 | /6 |
| | Processing 2 | | | | 3 | /6 |
| | Processing 3 | | | | 3 | /6 |
| | Processing 4 | | | | 3 | /6 |
| | Processing 5 | | | | 3 | /6 |
| Main Class 2 (Queue) | Data Structure object's declaration | | | | 2 | /4 |
| | Data insertion into the data structure involved | | | | 2 | /4 |
| | Processing 1 | | | | 3 | /6 |
| | Processing 2 | | | | 3 | /6 |
| | Processing 3 | | | | 3 | /6 |
| | Processing 4 | | | | 3 | /6 |
| | Processing 5 | | | | 3 | /6 |
| Tasks | | 1 | 2 | 3 | Weight | Total |
| | | Poor | Moderate | Executed perfectly | | |
| Overall execution – program run smoothly | | | | | 2 | /6 |

Name :
ID:

Group Class:

| Tasks | 0 | | 1 | | 2 | Weight | Total |
|-------------------------|-------------------------------------|---------------------------------------|-------------------------------------|---------------------------|--------|--------|-------|
| | not exist | Exist | | | | | |
| | | Incorrect/ incomplete | | Complete | | | |
| Logic on data structure | | | | | | 3 | /6 |
| Data Casting ability | | | | | | 2 | /4 |
| Tasks | 0 | 1 | 2 | 3 | Weight | Total | |
| | None of the problem Solved | Poor problem -solving skills | Able to solve some problem | All problems Solved | | | |
| Problem Solving | | | | | 3 | /9 | |
| TOTAL (115) | | | | | | | |

Name :
ID:

Group Class:

Report and Presentation (30%)

| Tasks | | 1 | 2 | 3 | Weight | Total |
|-----------------------------------|--------------------------------------------------------------------|------|----------|-----------|--------|-------|
| | | Poor | Moderate | Very Good | | |
| Verbal Communication (Individual) | Clear delivery of ideas (content) | | | | 3 | /9 |
| | Confident and articulate delivery of ideas (Communicative ability) | | | | 2 | /6 |
| | Understand and respond to questions | | | | 2 | /6 |
| Written Communication (report) | Clarity and accuracy written academic discourse (Content) | | | | 2 | /6 |
| | Coherently written academic discourse (Communicative ability) | | | | 3 | /9 |
| | Systematically written academic discourse (Technicality) | | | | 3 | /9 |
| TOTAL (45) | | | | | | |

Teamwork (Individual evaluation)

| Goal | 1 point | 2 points | 3 points | 4 points | Total |
|---------------|---------------------------------------------------------|-------------------------------------------|-------------------------------------------------------|-----------------------------------------------|-------|
| Equal work | Did little or no work | Did almost as much work as others | Did an equal share of work | Did a full share of work or more | /4 |
| Cooperation | Did not cooperate | Could be persuaded to cooperate | Work agreeably with others | Took an initiative to get the group organized | /4 |
| Participation | Not participated in discussions and made no suggestion. | Listen to others but made few suggestions | Participated in discussions and made some suggestions | Provided many ideas | /4 |
| Support | Took little interest in the project | Seemed pre-occupied with other projects | Offered encouragement to other partners | Assisted other partners | /4 |
| Communication | Never expressed ideas | Rarely expressed ideas | Usually shares ideas | Clearly communicated ideas | /4 |
| TOTAL (20) | | | | | |

Name :
ID:

Group Class:

Team member 1:

| Evaluation | Total Marks | Percentage counted | Marks calculated |
|--------------------------|-------------|--------------------|------------------|
| Proposal | 70 | 10% | |
| Project's implementation | 115 | 60% | |
| Report and presentation | 45 | 20% | |
| Teamwork | 20 | 10% | |
| Total | | | /100 |

Team member 2:

| Evaluation | Total Marks | Percentage counted | Marks calculated |
|--------------------------|-------------|--------------------|------------------|
| Proposal | 70 | 10% | |
| Project's implementation | 115 | 60% | |
| Report and presentation | 45 | 20% | |
| Teamwork | 20 | 10% | |
| Total | | | /100 |

Team member 3:

| Evaluation | Total Marks | Percentage counted | Marks calculated |
|--------------------------|-------------|--------------------|------------------|
| Proposal | 70 | 10% | |
| Project's implementation | 115 | 60% | |
| Report and presentation | 45 | 20% | |
| Teamwork | 20 | 10% | |
| Total | | | /100 |

Team member 4:

| Evaluation | Total Marks | Percentage counted | Marks calculated |
|--------------------------|-------------|--------------------|------------------|
| Proposal | 70 | 10% | |
| Project's implementation | 115 | 60% | |
| Report and presentation | 45 | 20% | |
| Teamwork | 20 | 10% | |
| Total | | | /100 |

Team member 5:

| Evaluation | Total Marks | Percentage counted | Marks calculated |
|--------------------------|-------------|--------------------|------------------|
| Proposal | 70 | 10% | |
| Project's implementation | 115 | 60% | |
| Report and presentation | 45 | 20% | |
| Teamwork | 20 | 10% | |
| Total | | | /100 |