



CL-210

Data Structures 07

Objectives:

- Array based queue
- Linked List based Queue
- Stacks(Infix,Postfix,Prefix)

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. There must be a block of comments at start of every question's code by students; the block should contain brief description about functionality of code.
2. Comment on every function and about its functionality.
3. Mention comments where necessary such as comments with variables, loop, classes etc to increase code understandability.
4. Use understandable name of variables.
5. Proper indentation of code is essential.
6. Write a code in C++ language.
7. Make a Microsoft Word file and paste all of your C++ code with all possible screenshots of every task **outputs in Microsoft Word and submit word file. Do not submit .cpp file.**
8. First think about statement problems and then write/draw your logic on copy.
9. After copy pencil work, code the problem statement on MS Studio C++ compiler.
10. At the end when you done your tasks, attached C++ created files in MS word file and make your submission on Google Classroom. (Make sure your submission is completed).
11. Please submit your file in this format **19F1234_L7**.
12. **Do not submit your assignment after deadline. Late and email submission is not accepted.**
13. **Do not copy code from any source otherwise you will be penalized with negative marks.**



Task 1 : |

Provide Linked list base implementation of queue. Also create a driver functions.

Functions:

- Enqueue()
- Dequeue()
- Isempty()
- Isfull()

Task 2 : |

Provide array base implementation of queue. Also create a driver functions.

Functions:

- Enqueue()
- Dequeue()
- Isempty()
- Isfull()

Task 3 : |

Write a code to change the following postfix notation to Infix notation. Check for the following input.

Run:

abc++

Task 4 : |

write a C++ program to convert the following prefix notation to postfix notation .Run the code on the following input.

Run:



*+AB-CD

Task 5: |

Write a complete program that should exhibit the QUEUE capability by using STACK data structures.

- You have to use Linked List based implementation of Stack Data Structure i.e. (Singly Linked List)
Class based implementation of Linked List & Stack will be preferred
- Use one primary and one secondary stack to exhibit the QUEUE functionality. You are only allowed to use primary Stack for enqueue and dequeue operations.
- Use Recursion to traverse the whole stack data structure (while loop isn't allowed for traversing)

You marks will be based upon individual VIVA only.