GROUP - E

Practical No: 13(E-29)

Title: Write C++ Code to implement queue operations.

Objectives :

- To accept element from user
- To perform insert and delete operation in queue
- To display queue elements after insertion or deletion

Problem Statement: - Queues are frequently used in computer programming, and a typical example is the creation of a job queue by an operating system. If the operating system does not use priorities, then the jobs are processed in the order they enter the system. Write C++ program for simulating job queue. Write functions to add job and delete job from queue.

Outcome :

- Result of addition of job operation on queue.
- Result of deletion of job operation on queue.
- Display elements after insertion or deletion

Operating System recommended :- 64-bit Open source Linux or its derivative

Programming tools recommended :- Open Source , G++/GCC , Code block or any free software for C/++

Hardware Requirements :

i3 or above processor , 2 GB or above RAM, 512 GB or above Hard-disk etc

Reference for theory : https://www.geeksforgeeks.org/queue-data-structure/

Theory :

- **Explain Simple Queue with Representation , Examples, Advantages, Disadvantages, Time Complexity.**
- **Explain Queue as an ADT(with c++ function)?**
- **Difference between Stack and Queue.(atleast 6 points)**
- **Solve example of Queue :**

Consider the following queue of characters, implemented as array of six locations :-
Front = 2 , Rear = 3
Queue : -- , A , D , -- , -- , --
Where – denotes empty cell. Describe the queue as following operations take place:
1) Add S
2) Add J
3) Delete two letters
4) Shift towards left to bring all free spaces to the right side
5) Insert M, H, I and delete a letter

NOTE : just write heading and try to explain in details with examples. Some websites are provided as reference(don't write reference). You can use other website also.

Write algorithm/pseudo code for each function :

a) To check queue is empty.

b) To check queue is full

c) To insert element in queue

d) To delete element from queue

e) To display elements of queue.

Algorithm:

Write Algorithms for program/code which you have implemented.

Flowchart :

Draw flowchart for above algorithm

Conclusion:

Thus, We have successfully performed insert, delete and display operation for Queue.

Continuous Assessment of Student:

TS	PR	UC	VA	RN	Total Marks	Faculty Signature
(2)	(2)	(2)	(2)	(2)	(10)	

- TS – Timely Submitted, PR- Performance, UC- Understanding of Code, VA- Viva Answered, RN- Regularity and Neatness

Practical No: 14(E-31)

Title: Write C++ Code to implement Dequeue operations.

Objectives :

- To accept element from user
- To perform insert and delete operation in queue either from Front or Rear
- To display queue elements after insertion or deletion

Problem Statement: - A double-ended queue(deque) is a linear list in which additions and deletions may be made at either end. Obtain a data representation mapping a deque into a one-dimensional array. Write C++ program to simulate deque with functions to add and delete elements from either end of the deque.

Outcome :

- Result of insertion of elements either front or read on queue.
- Result of deletion of elements either front or read on queue.
- Display elements after insertion or deletion

Operating System recommended :- 64-bit Open source Linux or its derivative

Programming tools recommended :- Open Source , G++/GCC , Code block or any free software for C/++

Hardware Requirements :

i3 or above processor , 2 GB or above RAM, 512 GB or above Hard-disk etc

Reference for theory : https://www.javatpoint.com/ds-deque

Theory :

- **Explain Dequeue with Representation , Examples, Advantages, Disadvantages, Time Complexity.**
- **Explain DeQueue as an ADT(with c++ function)?**
- **Difference between Queue and DeQueue.(atleast 6 points)**

NOTE : just write heading and try to explain in details with examples. Some websites are provided as reference(don't write reference). You can use other website also.

Write algorithm/pseudo code for each function :

a) To check queue is empty.

b) To check queue is full

c) To insert element in queue from Rear

d) To insert element in queue from Front

e) To delete Front element from queue

f) To delete Front element from queue

g) To display elements of queue.

Algorithm:

Write Algorithms for program/code which you have implemented.

Flowchart :

Draw flowchart for above algorithm

Conclusion:

Thus, We have successfully performed insert, delete and display operation for DeQueue.

Continuous Assessment of Student:

TS	PR	UC	VA	RN	Total Marks	Faculty Signature
(2)	(2)	(2)	(2)	(2)	(10)	

- TS – Timely Submitted, PR- Performance, UC- Understanding of Code, VA- Viva Answered, RN- Regularity and Neatness

Practical No: 15(E-32)

Title: Write C++ Code to implement Circular Queue Operations.

Objectives :

- To accept element from user
- To perform insert and delete operation on Circular queue.
- To display queue elements after insertion or deletion

Problem Statement: - Pizza parlor accepting maximum M orders. Orders are served in first come first served basis. Order once placed cannot be cancelled. Write C++ program to simulate the system using circular queue using array

Outcome :

- Result of insertion of elements on circular queue.
- Result of deletion of elements on circular queue.
- Display elements after insertion or deletion.

Operating System recommended :- 64-bit Open source Linux or its derivative

Programming tools recommended :- Open Source , G++/GCC , Code block or any free software for C/++

Hardware Requirements :

i3 or above processor , 2 GB or above RAM, 512 GB or above Hard-disk etc

Reference for theory : https://www.programiz.com/dsa/circular-queue

Theory :

- **Explain Circular Queue with Representation , Examples, Advantages, Disadvantages, Time Complexity.**
- **Explain Circular queue as an ADT(with C++ function)?**
- **Difference between Queue and Circular Queue.(atleast 6 points)**
- **Solve example of Circular Queue :**

  Consider the following queue where queue is circular queue having 6 memory cells
  Front = 2 , Rear = 4
  Queue : -- , A , C , D , -- , --
  Describe the queue as following operation take place :
  1) F is added
  2) Two letters are deleted
  3) R is added to the queue
  4) S is added to the queue
  5) One letter is deleted.

NOTE : just write heading and try to explain in details with examples. Some websites are provided as reference(don't write reference). You can use other website also.

Write algorithm/pseudo code for each function :

a) To check queue is empty.

b) To check queue is full

c) To insert element in queue from Rear

d) To delete Front element from queue

f) To display elements of queue.

Algorithm:

Write Algorithms for program/code which you have implemented.

Flowchart :

Draw flowchart for above algorithm

Conclusion:

Thus, We have successfully performed insert, delete and display operation for Circular Queue.

Continuous Assessment of Student:

TS	PR	UC	VA	RN	Total Marks	Faculty Signature
(2)	(2)	(2)	(2)	(2)	(10)	

- TS – Timely Submitted, PR- Performance, UC- Understanding of Code, VA- Viva Answered, RN- Regularity and Neatness