Chapter --> 4

QUEUE

Queue:-

Queue is called FIFO(First In First Out) data structure, where the item first inserted is first who gets out first.

Ex:- Fee counter, Vehicles queued up at fuel pumps

A queue is also known as a First Come First Served(FCFS) approach.

A Queue consists of two open ends.

1. Front(Head):- Through where the data is removed or

out.

2. Rear(Tail):- Through where the data enter.

Application of Queue:-

1, Printer Queue:- Queue are very useful in multi-user environments. When we send multiple files from one computer or from multiple computers using a shared printer. The OS(Operating System) put these files in Queue(FIFO) basis for the printer to print.

2. Simulating Wait:- Call center phone systems to use a queue to hold people in line until a customer representative gets free.

Operation of

Queue:-

1. ENQUEUE:- It is used to insert a new element to the queue at the rear end. We can insert elements in the queue till there is space in the queue for adding more elements. If there is no space so it is called overflow.

2. DEQUEUE:- It is used to delete an element from the front of the queue. We can delete the element from the queue until the queue gets empty, when the queue is empty and also we try to delete the element it shows an exception called Underflow.

3. IsEmpty:- It is used to check whether the queue has any element or not, so as to avoid underflow exceptions while performing the dequeue

operation.

4. PEEK:- It is used to view the first element of the queue[lement at the front of the queue] without removing it from the queue.

DEQUE:-

Deque is pronounced as Deck. Deque is an arrangement in which the addition and removal of the elements can happen from any end i.e. front(head) or Rear(tail).

In deque, there is no restriction to add or remove an element. You can add or remove the element from any of the sides.

It is also known as Double ended

queue.

Operation of Deque:-

1. Insert Front:- It is used to insert element to the front(starting) of the deque.

2. Insert Rear: - It is used to insert elements to the rear(back) of the deque.

3. Deletion Front:- It is used to delete element from the front(starting) of the deque.

4. Deletion Rear:- It is used to delete element from the rear(back) of the deque.