Queue

STUDY NOTES

- Like Stack, Queue is also a data structure that works on First-In-First-Out (FIFO) principle.
- Queue works on the principle of First In First Out (FIFO). This means the element that enters the queue first will be the first one to be retrieved.
- FIFO is also known as a First Come First Served (FCFS) approach.
- In a queue, the objects are added from the REAR or TAIL and removed from the HEAD or FRONT.
- Following the FIFO approach queue supports the following functions:
  - ❖ **Enqueue:** for inserting new elements.
  - ❖ **Dequeue:** for removing elements from queue.
  - ❖ **Is Empty:** to check if the queue has any elements left.
  - ❖ **Peek:** to view element in front of the queue.
  - ❖ **Is Full:** to check if more elements can be added to the queue.
- Deque is an arrangement in which addition and removal of element(s) can happen from any end, i.e. head/front or tail/rear.
- Deque supports following functions:
  - ❖ **Insertfront:** inserts a new element at the front of the deque.
  - ❖ **Insertrear:** inserts a new element at the rear of the deque.
  - ❖ **Deletionfront:** to remove an element from the front of the deque.
  - ❖ **Deletionrear:** removes one element at a time from the rear of the deque.