C, C++, DSA in depth

# Deque

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# Agenda

1. Variations of queue
2. deque
3. operations on deque
4. ways to implement deque

# Queue

A queue is an ordered list in which insertions are done at one end (rear or back) and deletions are done at other end (front)

Working principle is First In First Out

# Variations of Queue

- Insertion restricted

- Deletion restricted

# Deque

- Deque is another variation of queue
- Both ends can be used for insertion and deletion

# Operations on deque

insert at front
insert at back
delete at front
delete at back
front
back
Constructor
Destructor
Copy constructor
copy assignment operator

# Deque Implementation

1. Using Array
2. Using Dynamic Array
3. Using Linked List

# Another variation

- **Priority Queue**

A priority queue is a collection of elements such that each element has been assigned a priority. The order of elements are deleted and processed comes from the following rules

- An element of higher priority is processed before any element of lower priority.
- Two elements with the same priority are processed according to the order in which they were added in the queue.

# Implementation

- using linked list
- using Arrays
- using Dynamic Arrays
- using heap (preferred)

# PQ. using Linked list

# PQ using Arrays