

UNIT – I

PRIORITY QUEUE

A Priority Queue is a Collection of Zero or more elements where each element is assigned a priority and the order in which elements are processed is determined 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 accordingly to the order in which they are added to the queue.

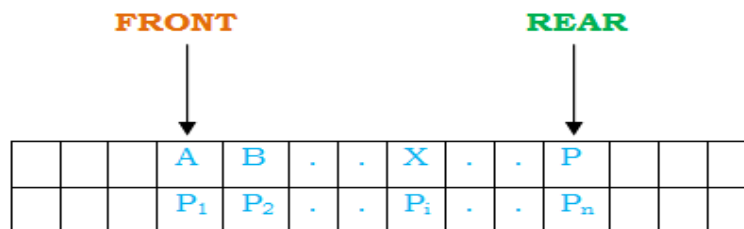


Figure: View of a priority queue

Here A, B, . . . , P are the elements and P₁, P₂, ... P_n are the priorities associated with them.

A priority queue is an important data type in computer science. Major operations supported by priority queues are Inserting and Delete min.

Insert, which does the obvious thing; and Delete min, which finds, returns, and removes the minimum element in the priority queue.

The priority queues are extensive use in.

- Implementing schedulers in OS, and Distributed systems
- Representing event lists in discrete event simulation
- Implementing numerous graph algorithms efficiently
- Selecting kth largest or kth smallest element in lists (order statistics problem)
- Sorting Applications.

Reference Links

1. https://www.tutorialspoint.com/data_structures_algorithms/priority_queue.htm
2. <https://www.programiz.com/dsa/priority-queue>
3. <https://datastructures.maximal.io/priority-queues/>

Video Links

1. <https://www.youtube.com/watch?v=NIEwbC6Nt0c>
2. <https://www.youtube.com/watch?v=IhJS6acLg24>

Questions:

1. Explain the concept of priority queue with suitable example.
2. What is a priority queue? Explain operations performed in priority queue.
3. Discuss the insertion and deletion operations in a priority queue.