Assignment E-29.

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Q1. Describe queue operations & its usage as Job queue.

Ans: Queue is a linear data structure which follows first in first out principal.
Some basic queue operations are
1. Enqueue operation
2. Dequeue operation.
3. front operation.
4. isEmpty operation.
5. isFull operation.

Enqueue operations is used to insert elements inside queue. new elements are inserted at the back of the queue.
Dequeue operation is used to remove elements from queue. elements are removed from front end.
front operation it returns the value of the element at the front without removing it.
isEmpty operation is used to check whether queue has elements or not.
isFull operation is used to check whether queue size is reached to its maximum or not.

Q2. Describe how to implement queue using stack.

Ans: A queue can be implemented using two stacks. Let queue to be implemented be q & stacks used to implement q be stack1 & stack2. It can be implemented in two ways.

Method 1:

This method makes sure that oldest entered element is always at the top of stack 1, so that dequeue operation just pops from stack 1. To put the elements at top of stack 1, stack 2 is used.

Method 2:

In this method, in en-queue operation, the new element is entered at the top of stack 1. In de-queue operation, if stack 2 is empty then all the elements are moved to stack 2 & finally top of stack 2 is returned.

Q3. What do you mean by linear data structure? Give example on it.

Ans: Data structure where the arrangement of data follows a linear trend. The data element are arranged linearly such that the element is directly linked to its previous & next element. As elements are stored linearly, the structure supports single-level storage of data & hence traversal of the data is achived through a single run.

e.g. Linked list:

The linked list is that type of data structure where seperate objects are stored sequentially. Every object stores in the data structure will have the data and a reference to the next object. The last node has reference to Null.

There are three types of linked list:

1. Singly linked list.
2. Doubly linked list.
3. Circular linked list.

Q4. Why queue is efficient structure to assign job?

Ans: queue can handle multiple client. Queue used when client does not necessarily receive the data at the data at the same time the data is sent. queue is flexible, according to the priority of job job is arranged in queue.