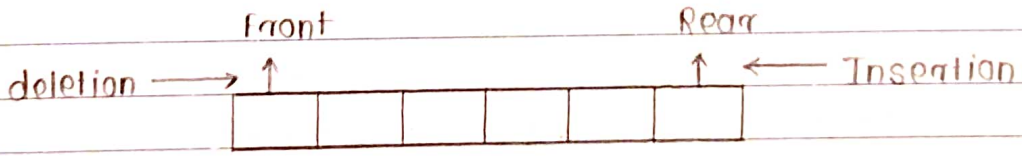
Practical No. 11

Title :-
Write a c++ program to simulating job queue by using array and linked list.

Objective :-
1. To study queue using array
2. To study queue using linked list

Problem Statement :-
Queues are frequently used in computer programming and a typical example is the creation of a job queue by an operating system.

Theory and Concept :-
1. Queue :
It is a special kind of list, where items are inserted at one end (the rear) and deleted from the other end (front). Queue is a FIFO (First In First out) list
We come across the term queue in our day to day life. We see a queue at a railway reservation counter or a movie theater ticket counter. Before getting the service one has to wait in the queue After receiving the service, one leaves the queue. Services is provided at one end (the front) and people join the other end (rear).



2. Queue Using Array :
An array representation of queue requires three entities
a. An array to hold queue elements
b. A variable to hold the index of the front element

c. A variable to hold the index of the rear element.

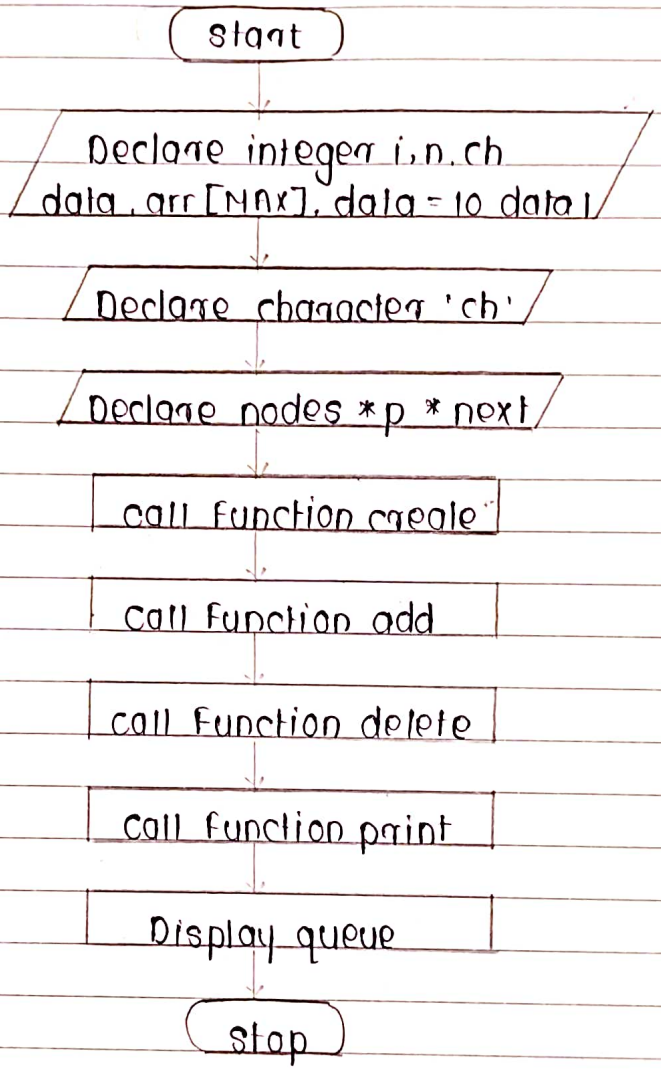
A queue datatype may be defined formally as follows:

```
    # define MAX 30
  typedef struct queue
        {
   int data [MAX];
   int front , rear ;
   } queue
```

Algorithm :-

Step 1 : Start
Step 2 : Declare integers i,n, ch, data, arr [MAX], data = 10, data1
Step 3 : Declare character ch
Step 4 : Declare nodes * p * next
Step 5 : call function create
Step 6 : call function add
Step 7 : call function delete.
Step 8 : call function print.
Step 9 : Display queue
Step 10 : Stop

Flowchart :-



Conclusion :-

Here with the help of queue using array and queue using linked list we successfully simulate a job queue.