Institute of Computer Technology
B. Tech Computer Science and Engineering
Subject: DS (2CSE302)

PRACTICAL-11

AIM: - Implement the scenario based on Queue using array.

Ques. A queue of people is waiting for a ticket at IRCTC ticket counter at Ahmedabad railway station. Any new person is joining at one end of the queue, you can call it as the rear end. When the chance arrives the person at the other end first buys the ticket, you can call it as the front end of the queue. A person who got the ticket leave the queue.

If there is a maximum capacity of the queue is 10. Implement the below queue operation in menu-driven program using C language:

- **insert (ENQUEUE)**
- **delete (DEQUEUE),**
- **display (TRACING)**
- **exit.**

Input: 73 85 49 67
(Hint: Input is the age of the person)
Output:

```
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 1
Inset the element in queue : 73
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 1
Inset the element in queue : 85
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 1
Inset the element in queue : 49
1.Insert element to queue
```

2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 3
Queue is :
73 85 49
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 1
Inset the element in queue : 67
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 3
Queue is :
73 85 49 67
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 2
Element deleted from queue is : 73
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 3
Queue is :
85 49 67
1.Insert element to queue
2.Delete element from queue
3.Display all elements of queue
4.Quit
Enter your choice : 4

SOLUTION

```
#include <stdio.h>
#include <stdlib.h>

int yash[10];
int rear = -1;
int front = -1;

void insert()
{
   int add_item;
   if(rear == 9)
   {
                printf("Queue Overflow !\n");
        }
   else
   {
      if(front == -1)
                {
        front = 0;
                }
      printf("Inset the element in queue : ");
      scanf("%d", &add_item);
      rear = rear+1;
      yash[rear] = add_item;
   }
}

void delete()
{
   if(front == -1 || front>rear)
   {
      printf("Queue Underflow!\n");
      return ;
   }
   else
   {
      printf("Element deleted from queue is: %d\n", yash[front]);
      front=front+1;
   }
}

void display()
{
```

```
    int i;
    if (front == -1)
        printf("Queue is empty!\n");
    else
    {
        printf("Queue is: \n");
        for (i = front; i <= rear; i++)
            printf("%d ", yash[i]);
        printf("\n");
    }
}

int main()
{
    int ch;
    while(1)
    {
        printf("1. Insert element to queue\n");
        printf("2. Delete element from queue\n");
        printf("3. Display all elements of queue\n");
        printf("4. Quit\n\n");
        printf("Enter your choice: ");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1:
            insert();
            break;
            case 2:
            delete();
            break;
            case 3:
            display();
            break;
            case 4:
            exit(0);
            default:
            printf("Invalid choice!!\n");
        }
    }
}
```

OUTPUT