

DAY-7 ASSIGNMENT | 31st December, 2020

1.Problem Statement:

Write a program implementing insert, delete and display operation of Circular Queue.

Program in C:

```
#include <stdio.h>
# define max 6
int queue[max];
int front=-1;
int rear=-1;
void enqueue(int element)
{
    if(front== -1 && rear== -1)
    {
        front=0;
        rear=0;
        queue[rear]=element;
    }
    else if((rear+1)%max==front)
    {
        printf("Queue is overflow.");
    }
    else
    {
        rear=(rear+1)%max;
        queue[rear]=element;
    }
}
int dequeue()
{
    if((front== -1) && (rear== -1))
    {
        printf("Queue is underflow.");
    }
    else if(front==rear)
    {
        printf("\nThe dequeued element is %d", queue[front]);
        front=-1;
        rear=-1;
    }
    else
    {
        printf("The dequeued element is %d", queue[front]);
        front=(front+1)%max;
    }
}
```

```
void display()
{
    int i=front;
    if(front== -1 && rear== -1)
    {
        printf("Queue is empty..");
    }
    else
    {
        printf("Elements in a Queue are :");
        while(i<=rear)
        {
            printf("%d,", queue[i]);
            i=(i+1)%max;
        }
    }
}

int main()
{
    int choice=1,x;
    while(choice<4 && choice!=0)
    {
        printf("\n1.Insert an element");
        printf("\n2.Delete an element");
        printf("\n3.Display the element");
        printf("\nEnter your choice: ");
        scanf("%d", &choice);
        switch(choice)
        {
            case 1:
                printf("Enter the element which is to be inserted: ");
                scanf("%d", &x);
                enqueue(x);
                break;
            case 2:
                dequeue();
                break;
            case 3:
                display();
        }
    }
    return 0;
}
```

Output:

```
1.Insert an element
2.Delete an element
3.Display the element
Enter your choice: 1
Enter the element which is to be inserted: 25

1.Insert an element
2.Delete an element
3.Display the element
Enter your choice: 1
Enter the element which is to be inserted: 74

1.Insert an element
2.Delete an element
3.Display the element
Enter your choice: 3
Elements in a Queue are :25,74,
1.Insert an element
2.Delete an element
3.Display the element
Enter your choice: 2
The dequeued element is 25
1.Insert an element
2.Delete an element
3.Display the element
Enter your choice: 4
```