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LAB 5 - CIRCULAR QUEUE

```
#include<stdio.h>
#define MAX 5

int cqueue_arr[MAX];
int front = -1;
int rear = -1;

void insert (int item)
{
    if((front == 0 && rear == MAX-1) || (front == rear+1))
    {
        printf("Queue overflow \n");
        return;
    }
    if (front == -1 && rear == -1)
    {
        front = 0;
        rear = 0;
    }
    else
    {
        if (rear == MAX-1)
            rear = 0;
        else
            rear = rear+1;
    }
    cqueue_arr[rear] = item;
}
```

```
void del()
{
    if (front == -1 && rear == -1)
    {
        printf("Queue Underflow \n");
        return;
    }
    printf(" Element deleted from queue is %d", cqueue_arr[front]);
    if (front == rear)
    {
        front = -1;
        rear = -1;
    }
    else
    {
        if (front == MAX-1)
            front = 0;
        else
            front = front+1;
    }
}

void display()
{
    int front_pos = front, rear_pos = rear;
    if (front == -1)
    {
        printf("Queue is Empty \n");
        return;
    }
```

```
printf ("Queue elements : \n");
if (front_pos <= rear_pos)
    while (front_pos <= rear_pos)
    {
        printf ("%d", cqueue_arr[front_pos]);
        front_pos++;
    }
else
{
    while (front_pos <= MAX-1)
    {
        printf ("%d", cqueue_arr[front_pos]);
        front_pos++;
    }
    front_pos = 0
    while (front_pos <= rear_pos)
    {
        printf ("%d", cqueue_arr[front_pos]);
        front_pos++;
    }
}
printf ("\n");
}

int main()
{
    int choice, item;
    do
    {
        printf (" 1. Insert \n");
```

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```
printf("3. Display \n");
printf("4. Exit \n");
printf("Enter your choice:");
scanf("%d", &choice);
switch(choice)
{
    case 1:
        printf("Input the element for insertion in queue:");
        scanf("%d", &item);
        insert(item);
        break;
    case 2:
        del()
        break;
    case 3:
        display();
        break;
    case 4:
        break;
    default:
        printf("Wrong choice \n");
    }
} while(choice!=4);

return 0;
}
```