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\\\Created by Ritwik Chandra Pandey on 24/02/21
\\\183215
\\\Circular Queue using Arrays

#include<stdio.h>
#define MAX 5

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

/*Begin of insert*/
void insert(int item)
{
    if((front == 0 && rear == MAX-1) || (front == rear+1))
    {
        printf("Queue Overflow \n");
        return;
    }
    if (front == -1)  /*If queue is empty */
      front = 0;

    rear = rear+1 % MAX;

    cqueue_arr[rear] = item ;
  printf("Successfully Inserted.\n");
}
/*End of insert*/

/*Begin of del*/
void del()
{
    if (front == -1)
    {
        printf("Queue Underflow\n");
        return ;
    }
```

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    printf("Element deleted from queue is : %d\n",cqueue_arr[front]);
    if(front == rear) /* queue has only one element */
    {
        front = -1;
        rear=-1;
    }
    else
    {
        if(front == MAX-1)
            front = 0;
        else
            front = front+1;
    }
}
/*End of del() */

/*Begin of display*/
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");
}
/*End of display*/

/*Begin of main*/
int main()

{printf("\tCircular Queue using Arrays\n\n\tMax Size of Queue is 5\n");
    int choice,item;
    do
    {
        printf("1.Insert\n");
        printf("2.Delete\n");
        printf("3.Display\n");
        printf("4.Quit\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();
```

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            break;
        case 4:
            break;
        default:
            printf("Wrong choice\n");
      }
   }while(choice!=4);

   return 0;
}
/*End of main*/
```