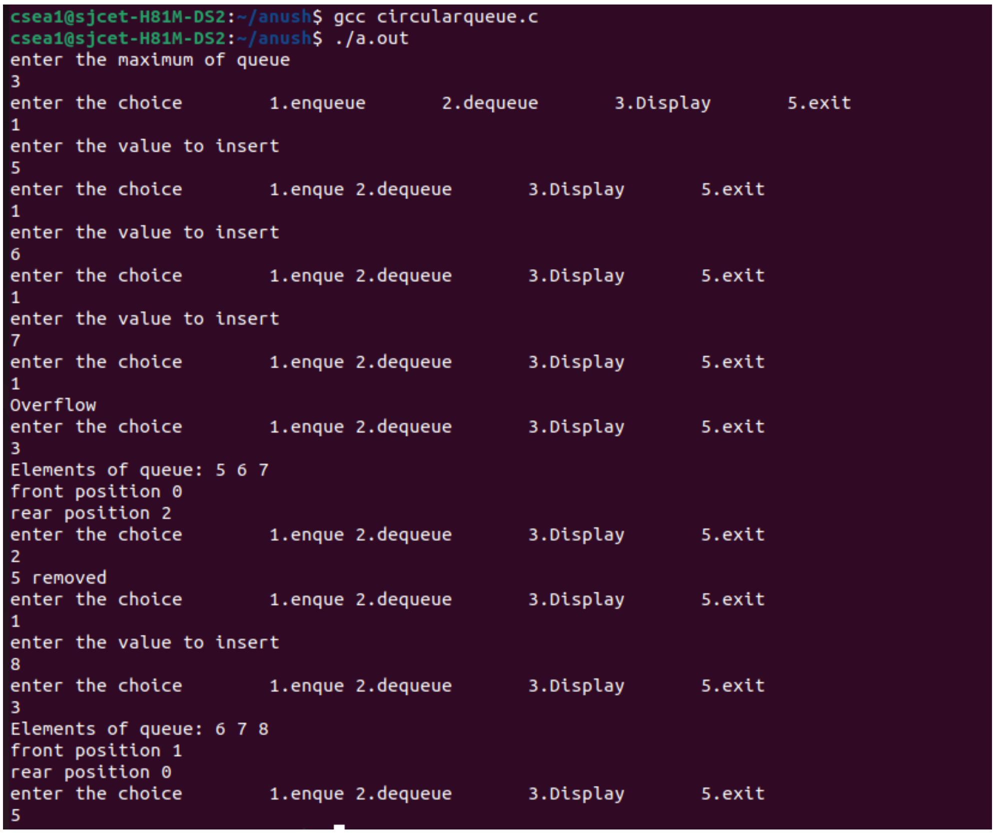
IMPLEMENTATION OF CICULAR QUEUE USING ARRAY

PROGRAM

```
#include<stdio.h>
int arr[50],front=-1,rear=-1,max;
void enqueue();
void dequeue();
void peek();
void display();
void main(){
    int choice;
    printf("enter the maximum of queue\n");
    scanf("%d",&max);
    printf("enter the choice\t1.enqueue\t2.dequeue\t3.Display\t5.exit\n");
    scanf("%d",&choice);
    while(choice!=5){
       switch(choice)
       {
            case 1:
            {
                enqueue();
                 break;
            }
            case 2:
           {
                dequeue();
                break;
             }
            case 3:
            {
               display();
                break;
             }
           case 5:
           {
                 break;
           }
            default :
          {
               printf("invalid choice\n");
          }
     }
    printf("enter the choice\t1.enque\t2.dequeue\t3.Display\t5.exit\n");
    scanf("%d",&choice);
}
void enqueue(){
int value;
if(front==-1&&rear==-1){
printf("enter the value to insert\n");
scanf("%d",&value);
rear=0;
front=0;
arr[rear]=value;
}
else if(front==(rear+1)%max){
printf("Overflow\n");
}
else{
printf("enter the value to insert\n");
scanf("%d",&value);
rear=(rear+1)%max;
arr[rear]=value;
}
}
void dequeue()
   {
    int item;
    if(front==-1&&rear==-1)
    {
    printf("Underflow\n");
    }
    else if(front==rear)
    {
    item=arr[front];
    front=-1;
    rear=-1;
    }
    else
     {
   item=arr[front];
   printf("%d removed\n",item);
   front=(front+1)%max;
     }
  }
void display()
   {
    int i;
    if(front ==-1)
    printf("Empty Circular Queue, no elements to display\n");
    else
       {
   printf("Elements of queue: ");
   for (i = front; i != rear; i = (i + 1) %max)
    {
          printf("%d ", arr[i]);
    }
   printf("%d ", arr[i]);
   printf("\nfront position %d\n",front);
   printf("rear position %d",rear);
      }
  printf("\n");
 }
```

OUTPUT



```
csea1@sjcet-H81M-DS2:~/anush$ gcc circularqueue.c
csea1@sjcet-H81M-DS2:~/anush$ ./a.out
enter the maximum of queue
3
enter the choice        1.enqueue       2.dequeue       3.Display       5.exit
1
enter the value to insert
5
enter the choice        1.enque 2.dequeue       3.Display       5.exit
1
enter the value to insert
6
enter the choice        1.enque 2.dequeue       3.Display       5.exit
1
enter the value to insert
7
enter the choice        1.enque 2.dequeue       3.Display       5.exit
1
Overflow
enter the choice        1.enque 2.dequeue       3.Display       5.exit
3
Elements of queue: 5 6 7
front position 0
rear position 2
enter the choice        1.enque 2.dequeue       3.Display       5.exit
2
5 removed
enter the choice        1.enque 2.dequeue       3.Display       5.exit
1
enter the value to insert
8
enter the choice        1.enque 2.dequeue       3.Display       5.exit
3
Elements of queue: 6 7 8
front position 1
rear position 0
enter the choice        1.enque 2.dequeue       3.Display       5.exit
5
```