Write a program to stimulate the working of a circular queue of integers using an array. Provide the following operations Insert, delete, and display. The program should print appropriate messages for queue empty and queue overflow conditions.

```
# include <stdio.h>
# define MAX 5
int queue[MAX];
int front=-1;
int rear=-1;

void insert(int val){
   if((front==0 && rear==MAX-1) || (front==(rear+1)%MAX)){
      printf("queue is full \n");
   }
   else{
      if(front==-1){
        front=0;
        rear=0;
      }else{
         rear=(rear+1)%MAX;
      }
      queue[rear]=val;
   }

}

void delete(){
   if(front==-1){
      printf("queue is empty \n");
```

```
    }
    else{
        if(rear==front){
            front=-1;
            rear=-1;
        }
        else{
            front=(front+1)%MAX;
        }
    }
}

void display(){
    if(front==-1){
        printf("queue is empty \n");
    }
    else{
        printf("Queue elements are: \n");
        int i=front;
        while(1){
            printf("%d \n",queue[i]);
            if(i==rear){
                break;
            }
            i=(i+1)%MAX;
        }
    }
}
```

```
int main(){
    int choice;
    int val;
    while(1){
    printf("Circular Queue operations \n");
    printf(" 1)insert \n 2)delete \n 3)display \n 4)exit\n");
    printf("Enter your choice \n");
    scanf("%d",&choice);
    switch(choice){
        case 1:
        printf("enter value to insert: \n");
        scanf("%d",&val);
        insert(val);
        break;

        case 2:
        delete();
        break;

        case 3:
        display();
        break;

        case 4:
        printf("Exiting program \n");
        return 0;
```

```
        default:
        printf("Invalid choice \n");
    }


}
return 0;
}
```

Output: