Write a program to stimulate the working of a queue of integers using an array. Provide the following operations :Insert, Delete, 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(rear==MAX-1){
      printf("queue is full\n");
   }
   else{
      if(front==-1){
         front=0;
      }
      rear++;
      queue[rear]=val;
   }
}

void delete(){
   if (front==-1 || front>rear){
      printf("queue is empty\n");
   }
   else{
      printf("deleted element is %d \n",queue[front]);
```

```
        front++;
    }
}

void display(){
    if(front==-1 || front>rear){
        printf("queue is empty\n");
    }
    else{
        printf("queue elements are: \n");
        for(int i=front;i<=rear;i++){
            printf("%d\n",queue[i]);
        }
    }
}

int main(){
    int choice;
    int val;
    while(1){
    printf("Queue operations\n");
    printf(" 1)insert \n 2)delete \n 3)display \n4)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:

```
PS C:\Users\n6787\OneDrive\Desktop\c> cd "c:\Users\n6787\OneDrive\Desktop\c\big.c\" ; if ($?) { gcc queue.c -o queue } ; if ($?) { .\queue }
Queue operations
 1)insert
 2)delete
 3)display
4)exit
Enter your choice:
1
enter value to insert:
2
Queue operations
 1)insert
 2)delete
 3)display
4)exit
Enter your choice:
1
enter value to insert:
3
Queue operations
 1)insert
 2)delete
 3)display
4)exit
Enter your choice:
3
queue elements are:
2
3
Queue operations
 1)insert
 2)delete
 3)display
4)exit
Enter your choice:
2
deleted element is 2
Queue operations
 1)insert
 2)delete
 3)display
```

```
Queue operations
 1)insert
 2)delete
 3)display
4)exit
Enter your choice:
4
Exiting program
```