

## LAB 3

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**Write a program to simulate working of linear queue**

```
#include<stdio.h>
#include<conio.h>
#define max 3
int q[max],front=-1,rear=-1,ch,item,x;
void insert(int);
int del();
void display();
void main()
{
while(1){
printf("\nQueue Implementation");
printf("\n1.Insert");
printf("\n2.Delete");
printf("\n3.Display");
printf("\n4.Exit");

printf("\nEnter Your Choice: ");
scanf("%d",&ch);
switch(ch)
{
case 1:printf("Enter Element to Insert:\n");
scanf("%d",&item);
insert(item);
```

```

    /*if(x==1)
    printf("Queue is Full");*/
    break;

case 2:x=del();
    printf("The Element Deleted from Queue is %d",x);
    /*if(x==1)
    printf("Queue is Empty");*/
    break;

case 3:display();
    break;

case 4:exit(0);
    break;
default:printf("INVALID Choice\n");
}
}
}

void insert(x)
{
if(rear==max-1)
printf("Queue is OVERFLOW(full) \n");
else if(rear==max-1)
{
    front=0;rear=0;
    q[rear]=x;
}
}

```

```
else
```

```
{
```

```
rear++;
```

```
q[rear]=x;
```

```
}
```

```
}
```

```
int del()
```

```
{
```

```
if(front==-1)
```

```
printf("Queue is UNDERFLOW(empty) \n");
```

```
else if(front==rear)
```

```
{
```

```
x=q[front];
```

```
front=-1;
```

```
rear=-1;
```

```
return(x);
```

```
}
```

```
else
```

```
{
```

```
x=q[front];
```

```
front++;
```

```
return(x);
```

```
}
```

```
}
```

```
void display()
```

```
{
```

```
int i;
```

```

if(rear== -1)

printf("\n Queue is Empty");

else

{

for(i=front;i<=rear;i++)

printf("%d\t",q[i]);

}

}

```

## Output

```

Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 1
Enter Element to Insert:
5

Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 1
Enter Element to Insert:
10

Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 3
5      10
Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 2
The Element Deleted from Queue is 5
Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 3
10
Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 1
Enter Element to Insert:
15

```

```

Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 3
10      15
Queue Implementation
1.Insert
2.Delete
3.Display
4.Exit
Enter Your Choice: 4

Process returned 0 (0x0)   execution time : 44.674 s
Press any key to continue.
|

```