

```
1 #include<stdio.h>
2 #include<conio.h>
3 #include<process.h>
4 #define qsize 5
5 int f=0,r=-1,ch;
6 int item,q[10];
7
8 int isfull()
9 {
10     return(r==qsize-1)?1:0;
11 }
12 int isempty()
13 {
14     return(f>r)?1:0;
15 }
16 void insert_rear()
17 {
18     if(isfull())
19     {
20         printf("queue overflow\n");
21         return;
22     }
23     r=r+1;
24     q[r]=item;
25 }
26 void delete_front()
27 {
28     if(isempty())
29     {
30         printf("queue empty\n");
31         f=0;
```

```
26 void delete_front()
27 {
28     if(isempty())
29     {
30         printf("queue empty\n");
31         f=0;
32         r=-1;
33         return;
34     }
35     printf("item deleted is %d\n",q[(f++)]);
36 }
37 void insert_front()
38 {
39     if(f!=0)
40     {
41         f=f-1;
42         q[f]=item;
43         return;
44     }
45     else if((f==0) && (r== -1))
46     {
47         q[++(r)]=item;
48         return;
49     }
50     else
51         printf("insertion not possible\n");
52 }
53 void delete_rear()
54 {
55     if(isempty())
56     {
```

```
53 void delete_rear()
54 {
55     if(isempty())
56     {
57         printf("queue is empty\n");
58         f=0;
59         r=-1;
60         return;
61     }
62     printf("item deleted is %d\n",q[(r)--]);
63 }
64 void display()
65 {
66     int i;
67     if(isempty())
68     {
69         printf("queue empty\n");
70         return;
71     }
72     for(i=f;i<=r;i++)
73         printf("%d\n",q[i]);
74 }
75 int main()
76 {
77     for(;;)
78     {
79         printf("1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
80         printf("enter choice\n");
81         scanf("%d",&ch);
82         switch(ch)
83         {
```

```
53 void delete_rear()
54 {
55     if(isempty())
56     {
57         printf("queue is empty\n");
58         f=0;
59         r=-1;
60         return;
61     }
62     printf("item deleted is %d\n",q[(r)--]);
63 }
64 void display()
65 {
66     int i;
67     if(isempty())
68     {
69         printf("queue empty\n");
70         return;
71     }
72     for(i=f;i<=r;i++)
73         printf("%d\n",q[i]);
74 }
75 int main()
76 {
77     for(;;)
78     {
79         printf("1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
80         printf("enter choice\n");
81         scanf("%d",&ch);
82         switch(ch)
83         {
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```
74 }
75 int main()
76 {
77     for(;;)
78     {
79         printf("1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
80         printf("enter choice\n");
81         scanf("%d", &ch);
82         switch(ch)
83         {
84             case 1:printf("enter the item\n");
85                     scanf("%d", &item);
86                     insert_rear();
87                     break;
88             case 2:printf("enter the item\n");
89                     scanf("%d", &item);
90                     insert_front();
91                     break;
92             case 3:delete_rear();
93                     break;
94             case 4:delete_front();
95                     break;
96             case 5:display();
97                     break;
98             default:exit(0);
99         }
100     }
101     return 0;
102 }
103
```

```
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
10
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
2
enter the item
20
insertion not possible
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
20
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
```

enter choice

1

enter the item

20

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

1

enter the item

30

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

1

enter the item

4

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

1

enter the item

50

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

1

enter the item

50

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

1

enter the item

60

queue overflow

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

5

10

20

30

4

50

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

4

item deleted is 10

1.insert_rear

2.insert_front

3.delete_rear

enter choice

4

item deleted is 10

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

3

item deleted is 50

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

5

20

30

4

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

4

item deleted is 20

1.insert_rear

2.insert_front

3.delete_rear

4.delete_front

5.display

6.exit

enter choice

4

```
6.exit
enter choice
4
item deleted is 20
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
4
item deleted is 30
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
4
item deleted is 4
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
4
queue empty
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
```