

## DEQUE Practice program:28/10/2020

For input restricted insert\_front is to be commented out and for output restricted delete\_rear is to be commented out

```
1  #include<stdio.h>
2  #define qsize 5
3  int f=0,r=-1,ch;
4  int item,q[10];
5
6  int isfull()
7  {
8      return(r==qsize-1)?1:0;
9  }
10 int isempty()
11 {
12     return(f>r)?1:0;
13 }
14 void insert_rear()
15 {
16     if(isfull())
17     {
18         printf("queue overflow\n");
19         return;
20     }
21     r=r+1;
22     q[r]=item;
23 }
24 void delete_front()
25 {
26     if(isempty())
27     {
28         printf("queue empty\n");
29         return;
30     }
31     printf("item deleted is %d\n",q[(f)++]);
32     if(f>r)
33     {
34         f=0;
35         r=-1;
36     }
37 }
38 void insert_front()
39 {
40     if(f!=0)
41     {
42         f=f-1;
43         q[f]=item;
44         return;
45     }
46     else if((f==0) && (r== -1))
47     {
48         q[++(r)] =item;
49         return;
50     }
```

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```

52     printf("insertion not possible\n");
53 }
54 void delete_rear()
55 {
56     if(isempty())
57     {
58         printf("queue is empty\n");
59         return;
60     }
61     printf("item deleted is %d\n",q[(r)--]);
62     if(f>r)
63     {
64         f=0;
65         r=-1;
66     }
67 }
68 void display()
69 {
70     int i;
71     if(isempty())
72     {
73         printf("queue empty\n");
74         return;
75     }
76     for(i=f;i<=r;i++)
77         printf("%d\n",q[i]);
78 }
79 void main()
80 {
81     for(;;)
82     {
83         printf("\n1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
84         printf("enter choice\n");
85         scanf("%d",&ch);
86         switch(ch)
87         {
88             case 1:printf("enter the item\n");
89                     scanf("%d",&item);
90                     insert_rear();
91                     break;
92             case 2:printf("enter the item\n");
93                     scanf("%d",&item);
94                     insert_front();
95                     break;
96             case 3:delete_rear();
97                     break;
98             case 4:delete_front();
99                     break;
100             case 5:display();
101                     break;
102             case 6:exit(0);
103                     break;
104             default:exit(0);
105         }
106     }
107 }

```

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```
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
60
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
50
queue overflow
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
3
```

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```
6.exit
enter choice
3
item deleted is 60
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
5
10
30
40
50
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
```