

double_end_q.cpp

```
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         return;
32     }
33     printf("item deleted is %d\n", q[(f)++]);
34     if(f>r)
35     {
36         f=0;
37         r=-1;
38     }
```

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```
38 | }
39 | }
40 | void insert_front()
41 | {
42 |     if (f != 0)
43 |     {
44 |         f = f - 1;
45 |         q[f] = item;
46 |         return;
47 |     }
48 |     else if ((f == 0) && (r == -1))
49 |     {
50 |         q[++(r)] = item;
51 |         return;
52 |     }
53 |     else
54 |         printf("insertion not possible\n");
55 | }
56 | void delete_rear()
57 | {
58 |     if (is_empty())
59 |     {
60 |         printf("queue is empty\n");
61 |         return;
62 |     }
63 |     printf("item deleted is %d\n", q[(r) - -]);
64 |     if (f > r)
65 |     {
66 |         f = 0;
67 |         r = -1;
68 |     }
69 | }
70 | void display()
71 | {
72 |     int i;
73 |     if (is_empty())
74 |     {
75 |         printf("queue empty\n");
```

```
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75 |     printf("queue empty\n");
76 |     return;
77 | }
78 | for(i=f; i <=r; i++)
79 |     printf("%d\n", q[i]);
80 | }
81 | int main()
82 | {
83 |
84 |     system("cls");
85 |     for(;;)
86 |     {
87 |         printf("1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
88 |         printf("enter choice\n");
89 |         scanf("%d", &ch);
90 |         switch(ch)
91 |         {
92 |             case 1: printf("enter the item\n");
93 |                     scanf("%d", &item);
94 |                     insert_rear();
95 |                     break;
96 |             case 2: printf("enter the item\n");
97 |                     scanf("%d", &item);
98 |                     insert_front();
99 |                     break;
100 |            case 3: delete_rear();
101 |                    break;
102 |            case 4: delete_front();
103 |                    break;
104 |            case 5: display();
105 |                    break;
106 |            default: exit(0);
107 |         }
108 |     }
109 |     getch();
110 |     return 0;
111 | }
```

C:\Users\sohan\Desktop\C Programs\Data Structures Lab\double end queue\double_end_q.exe

```
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
21
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
2
enter the item
43
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
13
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
2
enter the item
33
insertion not possible
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
4
```



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