

Structures

● Graded

Student

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Total Points

200 / 200 pts

Autograder Score

200.0 / 200.0

Passed Tests

Test 1 (10/10)

Test 10 (20/20)

Test 11 (20/20)

Test 12 (20/20)

Test 13 (20/20)

Test 14 (20/20)

Test 2 (10/10)

Test 3 (10/10)

Test 4 (10/10)

Test 5 (10/10)

Test 6 (10/10)

Test 7 (10/10)

Test 8 (10/10)

Test 9 (20/20)

Autograder Results

Test 1 (10/10)

Test 10 (20/20)

Test 11 (20/20)

Test 12 (20/20)

Test 13 (20/20)

Test 14 (20/20)

Test 2 (10/10)

Test 3 (10/10)

Test 4 (10/10)

Test 5 (10/10)

Test 6 (10/10)

Test 7 (10/10)

Test 8 (10/10)

Test 9 (20/20)

Submitted Files

```
1  #include<stdio.h>
2  #include<stdlib.h>
3  #define M 1000
4  int s[M],t=-1,q[M],f=0,r=0,c=0,h[M],hs=0;
5
6  void psh(int v,int m){
7      if(t==m-1){
8          printf("-1\n");
9          exit(0);
10     }
11     s[++t]=v;
12 }
13
14 int pp(){
15     if(t==m-1){
16         printf("-1\n");
17         exit(0);
18     }
19     return s[t--];
20 }
21
22 void ps(){
23     for(int i=0;i<=t;i++)
24         printf("%d ",s[i]);
25     printf("\n");
26 }
27
28 void enq(int v,int m){
29     if(c==m-1){
30         printf("-1\n");
31         exit(0);
32     }
33     q[r]=v;
34     r=(r+1)%m;
35     c++;
36 }
37
38 int deq(int m){
39     if(c==0){
40         printf("-1\n");
41         exit(0);
42     }
43     int v=q[f];
44     f=(f+1)%m;
45     c--;
46     return v;
47 }
48
49 void pq(int m){
```

```
50     if(c==0){
51         printf("\n");
52         return;
53     }
54     int i=f;
55     for(int j=0;j<c;j++){
56         printf("%d ",q[i]);
57         i=(i+1)%m;
58     }
59     printf("\n");
60 }
61
62 void swp(int*a,int*b){
63     int t=*a;
64     *a=*b;
65     *b=t;
66 }
67
68 void hf(int i){
69     int sm=i,l=2*i+1,r=2*i+2;
70     if(l<hs&&h[l]<h[sm])
71         sm=l;
72     if(r<hs&&h[r]<h[sm])
73         sm=r;
74     if(sm!=i){
75         swp(&h[i],&h[sm]);
76         hf(sm);
77     }
78 }
79
80 void bh(int v[],int n,int m){
81     if(n>m){
82         printf("-1\n");
83         exit(0);
84     }
85     hs=n;
86     for(int i=0;i<n;i++)
87         h[i]=v[i];
88     for(int i=n/2-1;i>=0;i--)
89         hf(i);
90 }
91
92 void ph(){
93     for(int i=0;i<hs;i++)
94         printf("%d ",h[i]);
95     printf("\n");
96 }
97
98 int em(){
99     if(hs==0){
100         printf("-1\n");
101         exit(0);
```

```

102     }
103     int r=h[0];
104     h[0]=h[--hs];
105     hf(0);
106     return r;
107 }
108
109 void dk(int i,int nv){
110     if(i<0 || i>=hs || h[i]<nv)
111         return;
112     h[i]=nv;
113     while(i!=0&&h[(i-1)/2]>h[i]){
114         swp(&h[i],&h[(i-1)/2]);
115         i=(i-1)/2;
116     }
117 }
118
119 int main(){
120     int o,m;
121     scanf("%d%d",&o,&m);
122     if(o==0){
123         int a,b;
124         while(scanf("%d",&a)!=EOF){
125             if(a==0){
126                 ps();
127             }else if(a==1){
128                 scanf("%d",&b);
129                 psh(b,m);
130             }else if(a==2){
131                 printf("%d\n",pp());
132             }else if(a==3){
133                 break;
134             }
135         }
136     }else if(o==1){
137         int a,b;
138         while(scanf("%d",&a)!=EOF){
139             if(a==0){
140                 pq(m);
141             }else if(a==1){
142                 scanf("%d",&b);
143                 enq(b,m);
144             }else if(a==2){
145                 printf("%d\n",deq(m));
146             }else if(a==3){
147                 break;
148             }
149         }
150     }else if(o==2){
151         int a1,a2,a3;
152         while(scanf("%d",&a1)!=EOF){
153             if(a1==0){

```

```
154     ph();
155 }else if(a1==1){
156     scanf("%d",&a2);
157     int v[M];
158     for(int i=0;i<a2;i++)
159         scanf("%d",&v[i]);
160     bh(v,a2,m);
161 }else if(a1==2){
162     scanf("%d%d",&a2,&a3);
163     dk(a2-1,a3);
164 }else if(a1==3){
165     printf("%d\n",em());
166 }else if(a1==4){
167     break;
168 }
169 }
170 }
171 return 0;
172 }
173
```