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1  #include <stdio.h>
2  #include <stdlib.h>
3  #define SIZE 5
4
5  int items[SIZE];
6  int front = -1, rear = -1;
7
8  int isFull()
9  {
10     if( (front == rear + 1) || (front == 0 && rear == SIZE-1)) return 1;
11     return 0;
12 }
13
14 int isEmpty()
15 {
16     if(front == -1) return 1;
17     return 0;
18 }
19
20 void enqueue(int element)
21 {
22     if(isFull()) printf("\n Queue is full!! \n");
23     else
24     {
25         if(front == -1) front = 0;
26         rear = (rear + 1) % SIZE;
27         items[rear] = element;
28         printf("\n Inserted -> %d \n", element);
29     }
30 }
31
32
33 int dequeue()
34 {
35     int element;
36     if(isEmpty()) {
37         printf("\n Queue is empty !! \n");
38         return(-1);
39     } else {
40         element = items[front];
41         if (front == rear){
42             front = -1;
43             rear = -1;
44         } /* Q has only one element, so we reset the queue after dequeuing it. ? */
45         else {
46             front = (front + 1) % SIZE;
47         }
48         printf("\n Deleted element -> %d \n", element);
49         return(element);
50     }
51 }
52
53
54 void display()
55 {
56     int i;
57     if(isEmpty()) printf(" \n Empty Queue\n");
58     else
59     {
60         printf("\n Front -> %d ", front);
61         printf("\n Items -> ");
62         for( i = front; i!=rear; i=(i+1)%SIZE) {
63             printf("%d ", items[i]);
64         }
65         printf("%d ", items[i]);
66         printf("\n Rear -> %d \n", rear);

```

```

67     }
68 }
69 void main()
70 {
71     int choice,newElement;
72     while (1)
73     {
74         printf("1.Insert element to queue \n");
75         printf("2.Delete element from queue \n");
76         printf("3.Display all elements of queue \n");
77         printf("4.Quit \n");
78         printf("Enter your choice : ");
79         scanf("%d", &choice);
80         switch (choice)
81         {
82             case 1:
83                 printf("enter new element");
84                 scanf("%d", &newElement);
85                 enqueue(newElement);
86                 break;
87             case 2:
88                 newElement = dequeue();
89                 break;
90             case 3:
91                 display();
92                 break;
93             case 4:
94                 exit(1);
95             default:
96                 printf("Wrong choice \n");
97         } /*End of switch*/
98     } /*End of while*/
99 } /*End of main()*/

```