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1 #include <stdio.h>
2 #define MAX 5
3
4 int queue[MAX];
5 int front = -1, rear = -1;
6
7 void insert(int x) {
8     if ((front == 0 && rear == MAX - 1) || (rear + 1) % MAX == front) {
9         printf("Queue Overflow! Cannot insert %d\n", x);
10        return;
11    }
12    if (front == -1) {
13        front = rear = 0;
14    } else {
15        rear = (rear + 1) % MAX;
16    }
17
18    queue[rear] = x;
19    printf("%d inserted successfully.\n", x);
20 }
21
22 void dequeue() {
23     if (front == -1) {
24         printf("Queue Underflow! Queue is empty.\n");
25         return;
26     }
27
28     printf("Deleted element: %d\n", queue[front]);
29     if (front == rear) {
30         front = rear = -1;
31     } else {
32         front = (front + 1) % MAX;
33     }
34 }
35
36 void display() {

```

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37     if (front == -1) {
38         printf("Queue is Empty.\n");
39         return;
40     }
41
42     printf("Circular Queue: ");
43     int i = front;
44
45     while (1) {
46         printf("%d ", queue[i]);
47         if (i == rear)
48             break;
49         i = (i + 1) % MAX;
50     }
51
52     printf("\n");
53 }
54
55 int main() {
56     int choice, value;
57
58     while (1) {
59         printf("\n--- Circular Queue Menu ---\n");
60         printf("1. Insert\n");
61         printf("2. Delete\n");
62         printf("3. Display\n");
63         printf("4. Exit\n");
64         printf("Enter your choice: ");
65         scanf("%d", &choice);

```

```
scanf("%d", &choice);

switch (choice) {
    case 1:
        printf("Enter value to insert: ");
        scanf("%d", &value);
        insert(value);
        break;

    case 2:
        dequeue();
        break;

    case 3:
        display();
        break;

    case 4:
        return 0;

    default:
        printf("Invalid choice! Please try again.\n");
}

return 0;
}
```

--- Circular Queue Menu ---

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice: 1
Enter value to insert: 4
4 inserted successfully.

--- Circular Queue Menu ---

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice: 1
Enter value to insert: 6
6 inserted successfully.

--- Circular Queue Menu ---

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice: 1
Enter value to insert: 8
8 inserted successfully.

--- Circular Queue Menu ---

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice: 2
Deleted element: 4

--- Circular Queue Menu ---

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice: 3
Circular Queue: 6 8

--- Circular Queue Menu ---

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice: