

```

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
9     if ((front == 0 && rear == MAX - 1) || (rear + 1) % MAX == front) {
0         printf("Queue Overflow! Cannot insert %d\n", x);
1         return;
2     }
3     if (front == -1) {
4         front = rear = 0;
5     } else {
6         rear = (rear + 1) % MAX;
7     }
8
9     queue[rear] = x;
0     printf("%d inserted successfully.\n", x);
1 }
2 void dequeue() {
3     if (front == -1) {
4         printf("Queue Underflow! Queue is empty.\n");
5         return;
6     }
7
8     printf("Deleted element: %d\n", queue[front]);
9     if (front == rear) {
0         front = rear = -1;
1     } else {
2         front = (front + 1) % MAX;
3     }
4 }
5
6 void display() {
7     if (front == -1) {
8         printf("Queue is Empty.\n");
9         return;
}
0
1     printf("Circular Queue: ");
2     int i = front;
3
4     while (1) {
5         printf("%d ", queue[i]);
6         if (i == rear)
7             break;
8         i = (i + 1) % MAX;
9     }
0
1     printf("\n");
2 }
3
4 int main() {
5     int choice, value;
6
7     while (1) {
8         printf("\n--- Circular Queue Menu ---\n");
9         printf("1. Insert\n");
0         printf("2. Delete\n");
1         printf("3. Display\n");
2         printf("4. Exit\n");
3         printf("Enter your choice: ");
4         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: []
```