Question:
WAP to simulate the working of a queue of integers
using an array. Provide the following operations: Insert,
Delete, Display
The program should print appropriate messages for queue
empty and queue overflow conditions

Input:

```
#include <stdio.h>
#include <stdlib.h>

#define MAX 5

int queue[MAX];
int front = -1, rear = -1;

void insert() {
    int item;

    if (rear == MAX - 1) {
        printf("Queue Overflow! Cannot insert more elements.\n");
        return;
    }

    printf("Enter the element to insert: ");
    scanf("%d", &item);

    if (front == -1)
        front = 0;

    rear++;
    queue[rear] = item;
    printf("Inserted %d into the queue.\n", item);
}

void delete() {
    if (front == -1 || front > rear) {
        printf("Queue Underflow! Queue is empty.\n");
        return;
    }

    printf("Deleted element: %d\n", queue[front]);
    front++;

    if (front > rear) {
        front = rear = -1;
    }
}
```

```
void display() {
    if (front == -1) {
        printf("Queue is empty.\n");
        return;
    }

    printf("Queue elements are: ");
    for (int i = front; i <= rear; i++) {
        printf("%d ", queue[i]);
    }
    printf("\n");
}

int main() {
    int choice;

    while (1) {
        printf("\n----- Queue Menu -----\n");
        printf("1. Insert\n");
        printf("2. Delete\n");
        printf("3. Display\n");
        printf("4. Exit\n");
        printf("Enter your choice: ");
        scanf("%d", &choice);

        switch (choice) {
            case 1: insert(); break;
            case 2: delete(); break;
            case 3: display(); break;
            case 4: exit(0);
            default: printf("Invalid choice! Try again.\n");
        }
    }

    return 0;
}
```

Output

```
----- Queue Menu -----
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter the element to insert: 1
Inserted 1 into the queue.

----- Queue Menu -----
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter the element to insert: 2
Inserted 2 into the queue.

----- Queue Menu -----
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter the element to insert: 3
Inserted 3 into the queue.

----- Queue Menu -----
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 1
Enter the element to insert: 4
Inserted 4 into the queue.

----- Queue Menu -----
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 3
Queue elements are: 1 2 3 4

----- Queue Menu -----
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 2
Deleted element: 1

----- Queue Menu -----
1. Insert
2. Delete
3. Display
4. Exit
Enter your choice: 3
Queue elements are: 2 3 4
```