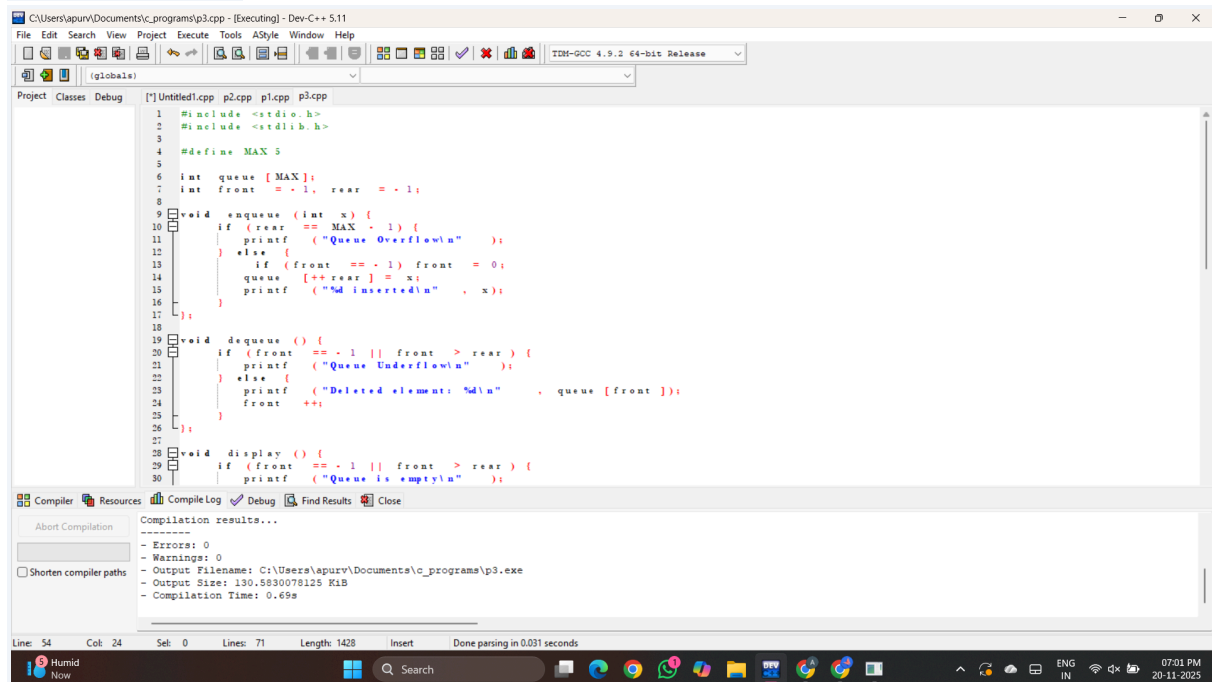


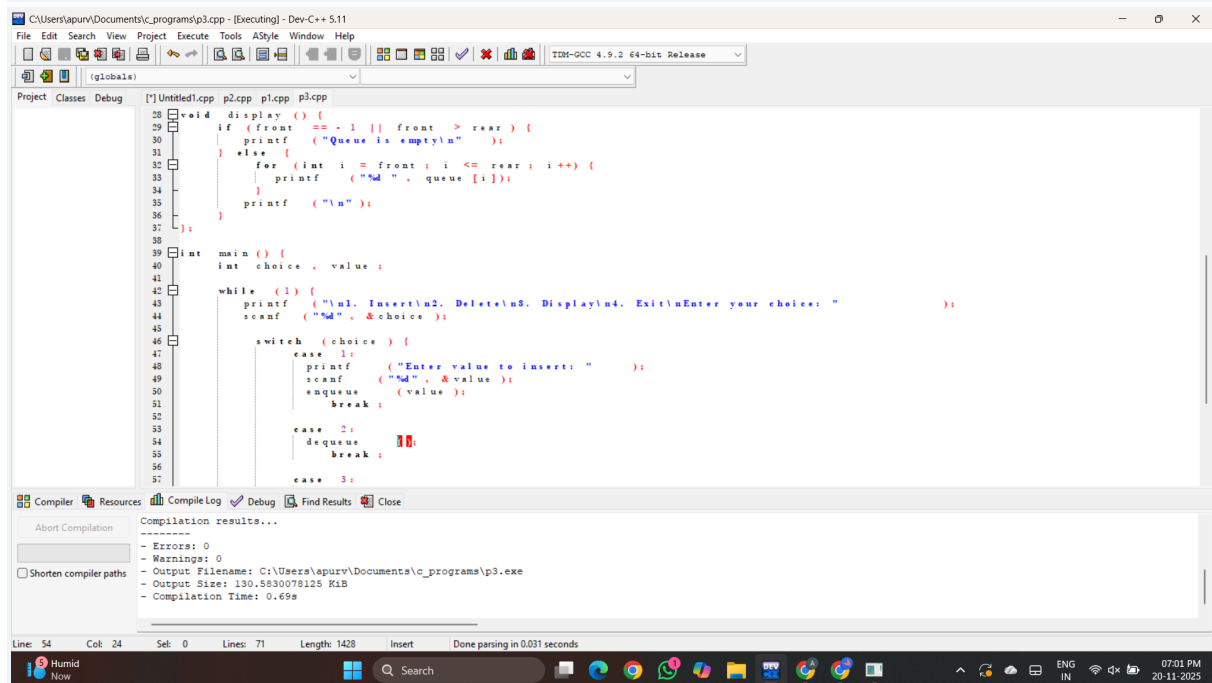
3a) WAP to simulate the working of a queue of integers using an array.

Provide the following operations: Insert, Delete, Display

The program should print appropriate messages for queue empty and queue overflow conditions



```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 #define MAX 5
5
6 int queue [MAX];
7 int front = -1, rear = -1;
8
9 void enqueue (int x) {
10     if (rear == MAX - 1) {
11         printf ("Queue Overflow\n");
12     } else {
13         if (front == -1) front = 0;
14         queue [++rear] = x;
15         printf ("%d inserted\n", x);
16     }
17 }
18
19 void dequeue () {
20     if (front == -1 || front > rear) {
21         printf ("Queue Underflow\n");
22     } else {
23         printf ("Deleted element: %d\n", queue [front]);
24         front++;
25     }
26 }
27
28 void display () {
29     if (front == -1 || front > rear) {
30         printf ("Queue is empty\n");
31     }
```



```
31     } else {
32         for (int i = front; i <= rear; i++) {
33             printf ("%d ", queue [i]);
34         }
35         printf ("\n");
36     }
37 }
38
39 int main () {
40     int choice, value;
41
42     while (1) {
43         printf ("\n1. Insert\n2. Delete\n3. Display\n4. Exit\nEnter your choice: ");
44         scanf ("%d", &choice);
45
46         switch (choice) {
47             case 1:
48                 printf ("Enter value to insert: ");
49                 scanf ("%d", &value);
50                 enqueue (value);
51                 break;
52
53             case 2:
54                 dequeue ();
55                 break;
56
57             case 3:
58                 display ();
59                 break;
60
61             case 4:
62                 return 0;
63             default:
64                 printf ("Invalid choice\n");
65         }
66     }
67 }
```

