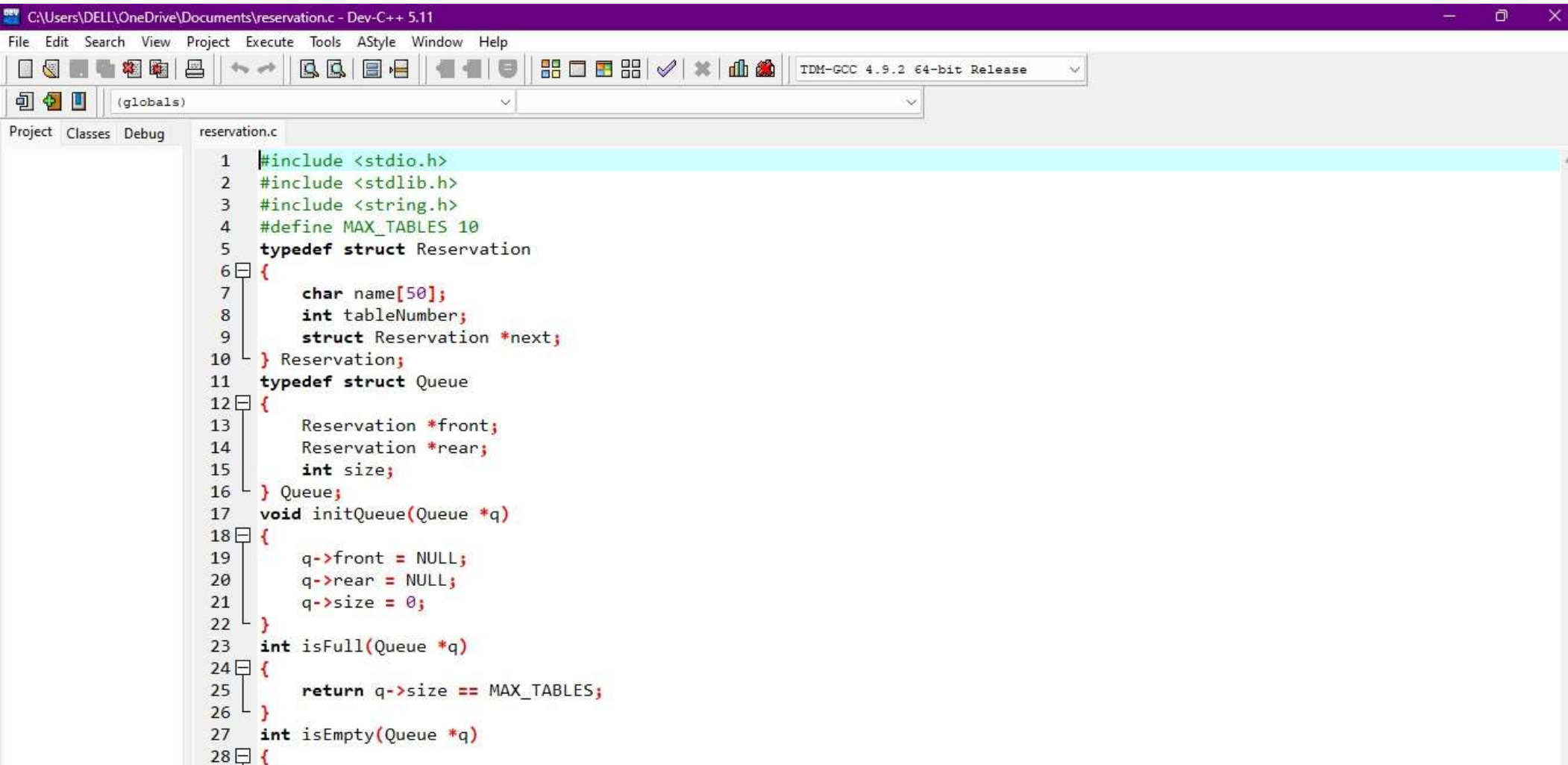


2.IMPLEMENTATION OF RESTAURANT TABLE RESERVATION



```
C:\Users\DELL\OneDrive\Documents\reservation.c - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globals)
Project Classes Debug reservation.c
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <string.h>
4 #define MAX_TABLES 10
5 typedef struct Reservation
6 {
7     char name[50];
8     int tableNumber;
9     struct Reservation *next;
10 } Reservation;
11 typedef struct Queue
12 {
13     Reservation *front;
14     Reservation *rear;
15     int size;
16 } Queue;
17 void initQueue(Queue *q)
18 {
19     q->front = NULL;
20     q->rear = NULL;
21     q->size = 0;
22 }
23 int isFull(Queue *q)
24 {
25     return q->size == MAX_TABLES;
26 }
27 int isEmpty(Queue *q)
28 {
```

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(globals)

Project Classes Debug

reservation.c

```
28 {
29     return q->size == 0;
30 }
31 void enqueue(Queue *q, char *name, int tableNumber)
32 {
33     if (isFull(q))
34     {
35         printf("All tables are currently reserved.\n");
36         return;
37     }
38     Reservation *newReservation = (Reservation *)malloc(sizeof(Reservation));
39     strcpy(newReservation->name, name);
40     newReservation->tableNumber = tableNumber;
41     newReservation->next = NULL;
42     if (isEmpty(q))
43     {
44         q->front = newReservation;
45         q->rear = newReservation;
46     }
47     else
48     {
49         q->rear->next = newReservation;
50         q->rear = newReservation;
51     }
52     q->size++;
53     printf("Reservation added for %s at table %d.\n", name, tableNumber);
54 }
55 void dequeue(Queue *q)
```

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(globals)

Project Classes Debug

reservation.c

```
53     printf("Reservation added for %s at table %d.\n", name, tableNumber);
54 }
55 void dequeue(Queue *q)
56 {
57     if (isEmpty(q))
58     {
59         printf("No reservations to cancel.\n");
60         return;
61     }
62     Reservation *temp = q->front;
63     q->front = q->front->next;
64     if (q->front == NULL)
65     {
66         q->rear = NULL;
67     }
68     printf("Reservation cancelled for %s at table %d.\n", temp->name, temp->tableNumber);
69     free(temp);
70     q->size--;
71 }
72 void displayReservations(Queue *q)
73 {
74     if (isEmpty(q))
75     {
76         printf("No reservations currently.\n");
77         return;
78     }
79     Reservation *temp = q->front;
80     while (temp != NULL)
```

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(globals)

Project Classes Debug reservation.c

```
82     printf("Reservation for %s at table %d.\n", temp->name, temp->tableNumber);
83     temp = temp->next;
84 }
85 }
86 void displayFreeTables(Queue *q)
87 {
88     int freeTables = MAX_TABLES - q->size;
89     printf("Number of free tables: %d\n", freeTables);
90 }
91 int main()
92 {
93     Queue queue;
94     initQueue(&queue);
95     int choice, tableNumber;
96     char name[50];
97     while (1)
98     {
99         printf("\nMenu:\n");
100         printf("1. Add reservation\n");
101         printf("2. Cancel reservation\n");
102         printf("3. Display reservations\n");
103         printf("4. Display free tables\n");
104         printf("5. Exit\n");
105         printf("Enter your choice: ");
106         scanf("%d", &choice);
107         switch (choice)
```

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{globals}

Project Classes Debug reservation.c

```
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    case 1:
        if (isFull(&queue))
        {
            printf("All tables are currently reserved.\n");
        }
        else
        {
            printf("Enter name: ");
            scanf("%s", name);
            printf("Enter table number: ");
            scanf("%d", &tableNumber);
            enqueue(&queue, name, tableNumber);
        }
        break;
    case 2:
        dequeue(&queue);
        break;
    case 3:
        displayReservations(&queue);
        break;
    case 4:
        displayFreeTables(&queue);
        break;
```

```
132 |  
133 |  
134 |  
135 |  
136 |  
137 |  
138 |  
139 |  
140 |  
    case 5:  
        printf("Exiting the reservation system...\n");  
        return 0;  
    default:  
        printf("Invalid choice.\n");  
    }  
}  
return 0;  
}
```


C:\Users\DELL\OneDrive\Documents\reservation.exe

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 1

Enter name: Srujan

Enter table number: 3

Reservation added for Srujan at table 3.

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: Raghu

Enter name: Enter table number: 8

Reservation added for Raghu at table 8.

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 1

Enter name: Harsha

Enter table number: 7

Reservation added for Harsha at table 7.

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 1

Enter name: Dhanush

Enter table number: 2

Reservation added for Dhanush at table 2.

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Reservation added for Dhanush at table 2.

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 1

Enter name: Raju

Enter table number: 4

Reservation added for Raju at table 4.

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 2

Reservation cancelled for Srujan at table 3.

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 3

Reservation for Raghu at table 8.

Reservation for Harsha at table 7.

Reservation for Dhanush at table 2.

Reservation for Raju at table 4.

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 4

Number of free tables: 6

C:\Users\DELL\OneDrive\Documents\reservation.exe

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 4

Number of free tables: 6

Menu:

1. Add reservation
2. Cancel reservation
3. Display reservations
4. Display free tables
5. Exit

Enter your choice: 5

Exiting the reservation system...

Process exited after 168.1 seconds with return value 0

Press any key to continue . . .