

DS LAB PROGRAM 3A

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Start here X Labprogram3A.c X
1  #include <stdio.h>
2  #define MAX 5 // maximum size of the queue
3  int queue[MAX];
4  int front = -1, rear = -1;
5  // Function to insert an element in the queue
6  void insert(int value)
7  {
8      if (rear == MAX - 1)
9      {
10         printf("Queue Overflow! Cannot insert %d\n", value);
11     }
12     else
13     {
14         if (front == -1)
15         {
16             front = 0; // first insertion
17         }
18         rear++;
19         queue[rear] = value;
20         printf("%d inserted into the queue.\n", value);
21     }
22 }
23 // Function to delete an element from the queue
24 void delete()
25 {
26     if (front == -1 || front > rear){
27         printf("Queue Underflow! Queue is empty.\n");
28     }
29     else
30     {
31         printf("Deleted element: %d\n", queue[front]);
32         front++;
33     }
34 }
35 // Function to display the elements of the queue
36 void display()
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36 void display()
37 {
38     if (front == -1 || front > rear)
39     {
40         printf("Queue is empty.\n");
41     }
42     else
43     {
44         printf("Queue elements: ");
45         for (int i = front; i <= rear; i++)
46         {
47             printf("%d ", queue[i]);
48         }
49         printf("\n");
50     }
51 }
52 int main()
53 {
54     int choice, value; while (1)
55     {
56         printf("\nQueue Operations:\n");
57         printf("1. Insert\n");
58         printf("2. Delete\n");
59         printf("3. Display\n");
60         printf("4. Exit\n");
61         printf("Enter your choice: ");
62         scanf("%d", &choice);
63         switch (choice)
64         {
65             case 1:
66                 printf("Enter value to insert: ");
67                 scanf("%d", &value);
68                 insert(value);
69                 break;
70             case 2:
71                 delete();
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69     break;
70     case 2:
71         delete();
72         break;
73     case 3:
74         display();
75         break;
76     case 4:
77         printf("Exiting program.\n");
78         return 0;
79     default:
80         printf("Invalid choice! Please try again.\n");
81     }
82 }
83 return 0;
84 }
85
```

Queue Operations:

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

Enter your choice: 1

Enter value to insert: 10

10 inserted into the queue.

Queue Operations:

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

Enter your choice: 1

Enter value to insert: 20

20 inserted into the queue.

Queue Operations:

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

Enter your choice: 1

Enter value to insert: 30

30 inserted into the queue.

Queue Operations:

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

Enter your choice: 1

Enter value to insert: 40

40 inserted into the queue.

Queue Operations:

1. Insert
2. Delete
3. Display

Enter your choice: 1
Enter value to insert: 50
50 inserted into the queue.

Queue Operations:

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

Enter your choice: 3
Queue elements: 10 20 30 40 50

Queue Operations:

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

Enter your choice: 2
Deleted element: 10

Queue Operations:

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

Enter your choice: 2
Deleted element: 20

Queue Operations:

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

Enter your choice: 3
Queue elements: 30 40 50

Queue Operations:

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

Queue Operations:

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

Enter your choice: 3

Queue elements: 30 40 50

Queue Operations:

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

Enter your choice: 1

Enter value to insert: 10

Queue Overflow! Cannot insert 10

Queue Operations:

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

Enter your choice: 20

Invalid choice! Please try again.

Queue Operations:

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

Enter your choice: 4

Exiting program.

Process returned 0 (0x0) execution time : 59.087 s