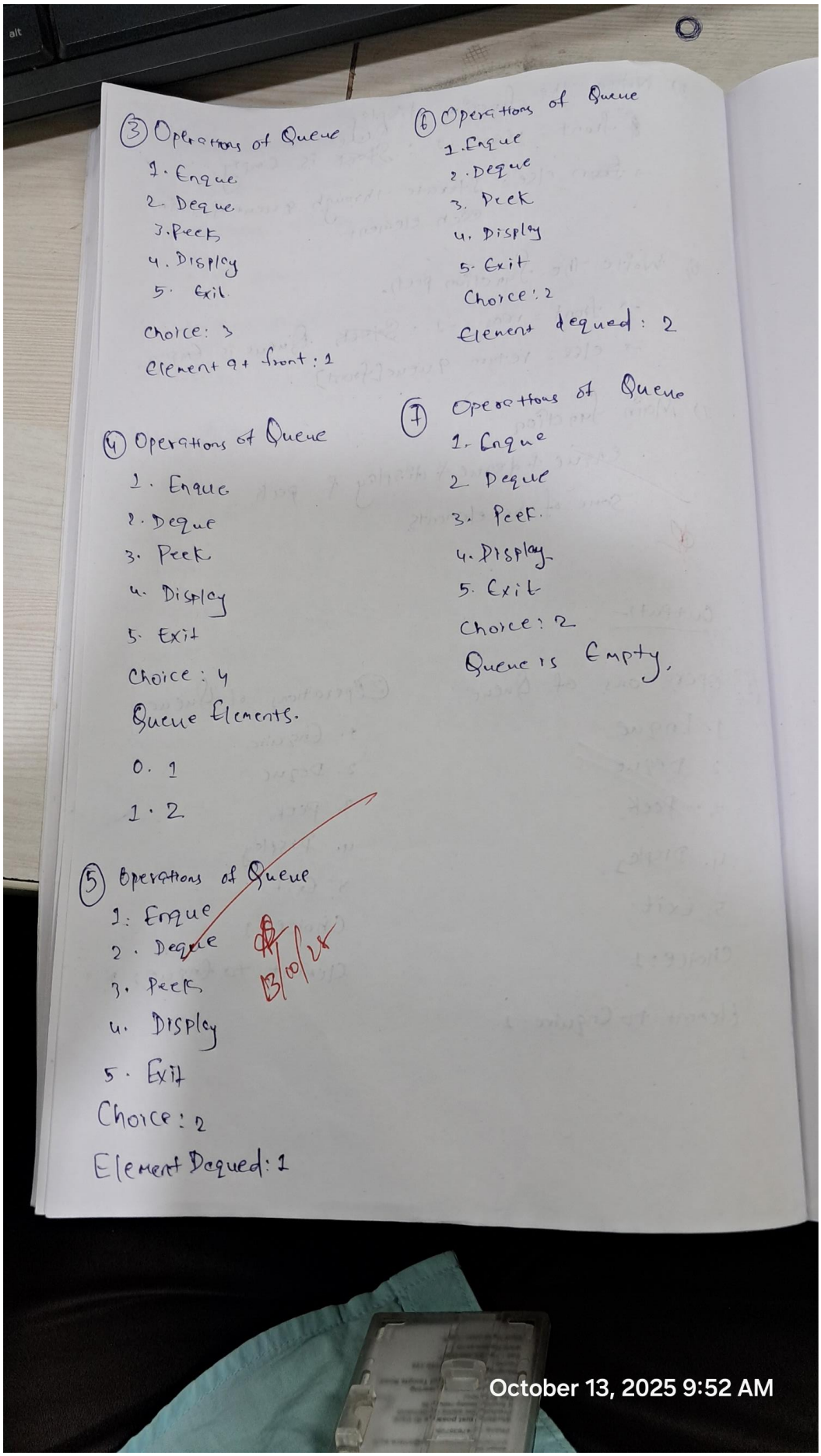
LAB 03 QUEUE OPERATIONS

```
Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 1
Element to Enque: 1


Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 1
Element to Enque: 2


Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 3
Element at front: 1
```

```
Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 4
Queue Elements
0. 1
1. 2


Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 2
Element Dequeued: 1

Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 2
Element Dequeued: 2
```

```
Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 2
Queue is Empty
```



③ Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 3
Element at front: 1

④ Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 4
Queue Elements.
0. 1
1. 2

⑤ Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 2
Element Dequed: 1

⑥ Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 2
Element dequed: 2

⑦ Operations of Queue
1. Enque
2. Deque
3. Peek
4. Display
5. Exit
Choice: 2
Queue is Empty.

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5) Write the function display.

→ if front = rear = -1 : Queue is empty.

→ else: Iterate through queue & print each element

6) Write the function peek.

→ front = rear = -1 : Queue is Empty.

→ else: return queue[front]

7) Main function

enque & deque & display & peek.

Some of the elements,

Output:-

(1) Operations of Queue

1. Enque
2. Deque
3. Peek
4. Display
5. Exit

Choice: 1

Element to Enquire: 1

(2) Operations of Queue

1. Enquire
2. Deque
3. Peek
4. Display
5. Exit

Choice: 1

Element to enque: 2

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```c
#include <stdio.h>

# define N 2

int queue[N];
int front = -1;
int rear = -1;

void enque();
void deque();
void display();
void peek();

int main(void){
    int choice = 0;
    int i = 1;

    while (i == 1){
        printf("\n");
        printf("\n");
        printf("Operations of Queue\n");

        printf("1. Enque\n");
        printf("2. Deque\n");
        printf("3. Peek\n");
        printf("4. Display\n");
        printf("5. Exit\n");

```

```
29
30          printf("Choice: ");
31          scanf("%d", &choice);
32
33          switch(choice){
34              case 1:
35                  enque();
36                  break;
37              case 2:
38                  deque();
39                  break;
40              case 3:
41                  peek();
42                  break;
43              case 4:
44                  display();
45                  break;
46              case 5:
47                  i = 0;
48                  break;
49              default:
50                  printf("Invalid Value Entered");
51                  break;
52          }
53
```

```
55
56      }
57  }
58
59  void enque(){
60
61      if (rear == N - 1)
62          printf("Queue Overflow\n");
63
64      else if (front == -1 && rear == -1) {
65          int x = 0;
66          printf("Element to Enque: ");
67          scanf("%d", &x);
68          front = rear = 0;
69          queue[rear] = x;
70      }
71
72      else {
73          int x = 0;
74          printf("Element to Enque: ");
75          scanf("%d", &x);
76          rear++;
77          queue[rear] = x;
78      }
79  }
```

```c
void deque(){
    if (front == -1 && rear == -1)
        printf("Queue is Empty\n");

    else if (front == rear && front != -1){
        int element = queue[front];
        front = (char [21])"Element Dequeued: %d"
        printf("Element Dequeued: %d", element);
    }

    else{
        int element = queue[front];
        front++;
        printf("Element Dequeued: %d", element);
    }
}


void display(){
    if (front == -1 && rear == -1)
        printf("Queue is empty\n");

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

void peek(){
    if (front == -1 && rear == -1)
        printf("Queue is empty\n");

    else{
        printf("Element at front: %d", queue[front]);
    }
}
```