

DATA STRUCTURE AND PROGRAM DESIGN LAB – 03

3. Design, Develop and Implement a menu driven Program in C for the following operations on QUEUE of Characters (Array Implementation of Queue with maximum size MAX)

- a. Insert an Element on to QUEUE
- b. Delete an Element from QUEUE
- c. Demonstrate Overflow and Underflow situations on QUEUE
- d. Display the status of QUEUE
- e. Exit

Support the program with appropriate functions for each of the above operations.

SAMPLE OUTPUT

The screenshot shows a terminal window with a dark background and light-colored text. It displays three separate runs of a C program named 'Practical-3.c'. Each run starts with the command 'gcc Practical-3.c' followed by './a.exe'. The program then presents a 'Queue Operations Menu' with five options: 1. Insert an Element into Queue, 2. Delete an Element from Queue, 3. Demonstrate Overflow and Underflow, 4. Display Queue Status, and 5. Exit. In the first run, option 1 is selected, and the user enters '3' as the character to insert. In the second run, another '3' is inserted. In the third run, a '6' is inserted. The terminal also shows the user's directory as 'C:\Users\Ankush\OneDrive\Desktop\DSPD-LAB'.

```
C Practical-3.c
67 int main() {
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Ankush\OneDrive\Desktop\DSPD-LAB> gcc Practical-3.c
PS C:\Users\Ankush\OneDrive\Desktop\DSPD-LAB> ./a.exe

        Queue Operations Menu
1. Insert an Element into Queue
2. Delete an Element from Queue
3. Demonstrate Overflow and Underflow
4. Display Queue Status
5. Exit
Enter your choice: 1
Enter a character to insert: 3
'3' inserted into Queue.

        Queue Operations Menu
1. Insert an Element into Queue
2. Delete an Element from Queue
3. Demonstrate Overflow and Underflow
4. Display Queue Status
5. Exit
Enter your choice: 1
Enter a character to insert: 4
'4' inserted into Queue.

        Queue Operations Menu
1. Insert an Element into Queue
2. Delete an Element from Queue
3. Demonstrate Overflow and Underflow
4. Display Queue Status
5. Exit
Enter your choice: 1
Enter a character to insert: 6
'6' inserted into Queue.
```

5 1 unsaved

cal-4.c

cal-5.c

cal-1B.c

cal-1C.c

cal-2.c

cal-3.c

utput.docx

utput.docx

utput.docx

tput.docx

A.c

B.c

C.c

.c

.c

.c

found in
practical-

C Practical-3.c

```
67 int main() {
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

Enter a character to insert: 6

'6' inserted into Queue.

Queue Operations Menu

1. Insert an Element into Queue
2. Delete an Element from Queue
3. Demonstrate Overflow and Underflow
4. Display Queue Status
5. Exit

Enter your choice: 4

Current Queue elements are:

3 4 6

Queue Operations Menu

1. Insert an Element into Queue
2. Delete an Element from Queue
3. Demonstrate Overflow and Underflow
4. Display Queue Status
5. Exit

Enter your choice: 2

Deleted element: '3'

Queue Operations Menu

1. Insert an Element into Queue
2. Delete an Element from Queue
3. Demonstrate Overflow and Underflow
4. Display Queue Status
5. Exit

Enter your choice: 4

Current Queue elements are:

4 6

```
A_output.docx  
B_output.docx  
C_output.docx  
_output.docx
```

```
al-1A.c  
al-1B.c  
al-1C.c  
al-2.c  
al-3.c  
al-4.c  
al-5.c
```

```
ols found in  
t 'Practical-
```

```
5. Exit  
Enter your choice: 4  
Current Queue elements are:  
4 6  
  
Queue Operations Menu  
1. Insert an Element into Queue  
2. Delete an Element from Queue  
3. Demonstrate Overflow and Underflow  
4. Display Queue Status  
5. Exit  
Enter your choice: 5  
Exiting program. Goodbye!  
PS C:\Users\Ankush\OneDrive\Desktop\DSPD-LAB>
```