

NAME:IQRA NAWAZ

ROLL NUMBER:DT-22005

LAB:04

QUESTION:1

OUTPUT:

```
1. Produce      2. Consume      3. Exit
Enter your choice: 1

Enter the value to produce: 4

1. Produce      2. Consume      3. Exit
Enter your choice: 2

The consumed value is 4

1. Produce      2. Consume      3. Exit
Enter your choice: 3

Exiting the program.

-----
Process exited after 19.22 seconds with return value 0
Press any key to continue . . .
```

QUESTION:2

OUTPUT:

```

1. Produce      2. Consume      3. Display      4. Exit
Enter your choice: 1
Enter the value to produce: 5

Produced: 5

1. Produce      2. Consume      3. Display      4. Exit
Enter your choice: 2

Consumed: 5

1. Produce      2. Consume      3. Display      4. Exit
Enter your choice: 3

Buffer is Empty

1. Produce      2. Consume      3. Display      4. Exit
Enter your choice: 4

Exiting the program.

-----
Process exited after 43.1 seconds with return value 0
Press any key to continue . . .

```

QUESTION:03

In the **producer-consumer problem**, using a **stack** instead of an **array** changes the way items are consumed:

- **Array (FIFO):** The first item produced is the first one consumed (First In, First Out). This is typical for producer-consumer problems.
- **Stack (LIFO):** The last item produced is the first one consumed (Last In, First Out). This means items are consumed in reverse order.

Impact:

- **Array:** Items are processed in the order they were produced.
- **Stack:** The most recent item is consumed first, which may not be suitable if the order matters.