

1. Reverse Elements Using Stack

Characters given in a queue are stored in ascending order. Write a Java program to reverse the order of characters in the same queue using a stack.

Example:

- **Before:** A -> B -> C -> D
- **After:** D -> C -> B -> A

2. Palindrome Check Using Stack and Queue

Write a Java program that reads a string from the keyboard and checks if it is a palindrome using both a stack and a queue.

Example:

- **Input:** RADAR
- **Output:** Palindrome
- **Input:** HELLO
- **Output:** Not a Palindrome

3. Sort Queue Using Stack

Given a queue with unsorted integer values, write a Java program to sort the queue in ascending order using a stack.

Example:

- **Before:** 3 -> 1 -> 4 -> 2
- **After:** 1 -> 2 -> 3 -> 4

4. Merge Two Queues Using Stack

Given two queues with integers in ascending order, write a Java program to merge them into a single queue in descending order using a stack.

Example:

- **Queue 1:** 1 -> 3 -> 5
- **Queue 2:** 2 -> 4 -> 6
- **Output Queue:** 6 -> 5 -> 4 -> 3 -> 2 -> 1

5. Reverse First K Elements of Queue Using Stack

Write a Java program to reverse the first k elements of a queue using a stack. The rest of the elements should remain in the same order.

Example:

- **Queue:** 1 -> 2 -> 3 -> 4 -> 5 -> 6

- **K: 3**
- **After Reversal:** 3 -> 2 -> 1 -> 4 -> 5 -> 6

6. Interleave Elements of a Queue Using Stack

Given a queue with an even number of elements, write a Java program to interleave the first half of the queue with the second half using a stack.

Example:

- **Before:** 1 -> 2 -> 3 -> 4 -> 5 -> 6
- **After:** 1 -> 4 -> 2 -> 5 -> 3 -> 6