Assignment-1: Recursion

1. Count the Number of Digits in a Number

- Write a recursive function that takes an integer as input and returns the total number of digits.
  Example: Input: 12345 -> Output: 5

2. Find the Maximum Element in an Array using Recursion

- Write a recursive function to find and return the maximum element from a given array.
  Example: Input: [2, 5, 1, 8, 3] -> Output: 8

3. Check if an Array is Sorted (Strictly Increasing) using Recursion

- Example: Input: [1, 2, 3, 4, 5] -> Output: True

4. Check if a String contains only Digits using Recursion

- Example: Input: '12345' -> Output: True

5. Count the Number of Zeros in a Number using Recursion

- Example: Input: 102030 -> Output: 3

6. Convert a Decimal Number to Binary using Recursion

- Example: Input: 10 -> Output: 1010

7. Reverse the Digits of a Number using Recursion

- Example: Input: 1234 -> Output: 4321

8. Reverse a Linked List using recursion

9. Reverse an Array using recursion

10. Merge Two Sorted Lists using recursion

Instructions:

- Avoid loops; use recursion only.
- Clearly define the base and recursive cases.
- Ensure your code handles edge cases such as 0, single-digit numbers, and negative numbers.