SAVEETHA
INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES
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Course Code: CSA0886	**Course Name:** Python Programming for Crafting Web Applications	
Branch: CSE	**Slot:** A	**Date:** 17/07/2024

Assignment - 4

Q. No.	Question
1	Given two binary strings a and b, return their sum as a binary string. **Test Case 1:** **Input:** a = "11", b = "1" **Output:** "100" **Test Case 2:** **Input:** a = "1010", b = "1011" **Output:** "10101"
2	Given a non-negative integer x, return the square root of x rounded down to the nearest integer. The returned integer should be non-negative as well. It would help if you did not use any built-in exponent function or operator. **Test Case 1:** **Input:** x = 4 **Output:** 2 **Test Case 2:** **Input:** x = 8 **Output:** 2
3	You are climbing a staircase. It takes n steps to reach the top. Each time, you can climb either 1 or 2 steps. In how many distinct ways can you rise to the top? **Test Case 1:** **Input:** n = 3 **Output:** 3 **Test Case 2:** **Input:** n =5 **Output:** 8
4	Given the head of a sorted list, delete all duplicates so each element appears only once. Return the linked list sorted as well. **Test Case 1:** **Input:** head = [1,1,2] **Output:** [1,2] **Test Case 2:** **Input:** head = [1,1,2,3,3] **Output:** [1,2,3]
5	You are given two integer arrays, nums1, and nums2, sorted in non-decreasing order, and two integers, m, and n, representing the number of elements in nums1 and nums2, respectively. Merge nums1 and nums2 into a single array, num1 sorted in non-decreasing order. **Test Case 1:** **Input:** nums1 = [1,2,3,0,0,0], m = 3, nums2 = [2,5,6], n = 3 **Output:** [1,2,2,3,5,6] **Test Case 2:** **Input:** nums1 = [1], m = 1, nums2 = [], n = 0 **Output:** [1]