UCS415 – Design and Analysis of Algorithms

Lab Assignment 3

Write a program to implement the following using dynamic programming approach:

- Find the length of the Longest Common Subsequence in

  Input: S1 = “AGGTAB”, S2 = “GXTXAYB”
- There are 3 matrices of dimensions 2×1, 1×3, and 3×4, using Matrix Chain Multiplication find the most efficient way to multiply these matrices together such that the total number of element multiplications is minimum
- Given N = 3 items where each item has some weight and profit associated with it profit[] = {1, 2, 3}, weight[] = {4, 5, 1}and also given a bag with capacity W=4, [i.e., the bag can hold at most W weight in it]. Put the items into the bag such that the sum of profits associated with them is the maximum possible with the constraint either put an item completely into the bag or cannot put it at all.
- Given Input: keys[] = {10, 12}, freq[] = {34, 50} Construct a binary search tree of all keys such that the total cost of all the searches is as small as possible. Use Optimal Binary Search Tree (OBST) to minimize the expected search cost.