# California State University, Fresno

# DEPARTMENT OF COMPUTER SCIENCE

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| Class: | **Algorithms & Data Structures** | | | Semester: | **Fall 2021** |
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| Laboratory number: | **Lab 10** | | |
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**1. Statement of Objectives**

For this lab we will implement LCS. We will implement code for finding longest common subsequence using dynamic programming. We will try a few inputs and check the running of this algorithm

**2. Experimental Procedure**

We have to setup the code in a way that LCS for input list “ABCDGH” and “AEDFHR” is “ADH” of size 3. LCS for input list “AGGTAB” and “GXTXAYB” is “GTAB” of size 4.

We will check the two lists, build L[x+1][y+1] in bottom up method. We will also not he length of array as in x,y.

In the same function we have implement the code to take care of implementation of parentheses on the output.

**3. Analysis**

We are implementing two for loops nested in one another. The times that they run depends on the two factors, that are, x and y therefore the time complexity becomes O(X\*Y). Which can be related to O(N2) for understanding but not exactly equal.

A screenshot of a computer

Description automatically generated

**4. Encountered Problems**

The only problem when coding was that the order of rows and columns was not filled correctly and that kept creating error for some time.

**5. Conclusions**

The time complexity of the the algorithms becomes O(xy)

**6. References**

List the references used in this report.