CS 110 A – Creative Problem Solving in Computer Science

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Homework 9

Instructor: Adriana Compagnoni

This homework is about Recursion and the Use It or Lose It strategy. The material for this homework appears in CFB chapter 6 and CS for All 2.6 and 2.7.

Exercises

1. (30 points)
   (a) (5 out of 30 points) Write the code for `subset`.
   (b) (25 out of 30 points) Write an evaluation tree for `subset(15, [2, 3, 4, 7, 10, 42])`
   (c) (5 out of 30 points) What is the output?
2. (35 points) Longest Common Subsequence
   (a) (5 out of 35 points) Write the code for `LCS`.
   (b) (25 out of 35 points) Write an evaluation tree for `LCS('AACTGGA', 'TAACTGA')`
   (c) (5 out of 35 points) What is the answer?
3. (35 points) Edit Distance
   (a) (5 out of 35 points) Write the code for `ED`.
   (b) (25 out of 35 points) Write an evaluation tree for `ED('soap', 'supper')`
   (c) (5 out of 35 points) What is the answer?

This homework is an assessment instrument for Course Outcome 3.
Course Outcome 3: Execution - Demonstrate the dynamic behavior of programs that include conditional execution, looping, and recursion by describing their behavior and output. (BS-CS A apply)