Assignment 1 - Longest palindrome subsequence

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1 Objectives

A palindrome is a nonempty string over some alphabet that reads the same forward and backward. Examples of palindromes are all strings of length 1, civic, racecar, and aibohphobia (fear of palindromes).

- Give an efficient algorithm to find the longest palindrome that is a subsequence of a given input string. For example, given the input character, your algorithm should return carac.
- What is the running time of your algorithm?

Use Python for the implementation for your Algorithm. Adhere to the code guidelines mentioned below.

2 Running Time

Running time here is $O(n^2)$

3 Dynamic Programming in Finance

The first application that comes to mind is pricing American options (Option style), for which there is no exact closed form solution like the Black-Scholes formula (Black–Scholes model) for European options. The most common dynamic programming method used in this case is described here.

There are lots of more obscure applications: everything that calls for dynamic optimization of portfolios, e.g. when Utility functions are involved (this is outside of the mainstream option pricing techniques that are used in real life, but there is a prodigious amount of academic research in quantitative finance which revolves around that).