DP Algorithm for Longest Increasing Subsequence

Input: $X = x_1, x_2, \ldots, x_n$

Suppose we want to find the length of the longest increasing subsequence (rather than substring).

Recall $M[i]$ was the length of the longest increasing substring that ends at x_i.

Let's let $Q[i]$ denote the length of the longest increasing subsequence that ends at x_i.

Recall the difference between substrings and subsequences!