Finding a Longest Increasing Subsequence

Input: sequence $X = x_1, x_2, \ldots, x_n$ of integers
Output: longest subsequence of X that is strictly increasing

Example: $X = 7, 1, 4, 3, 5, 2, 4, -1, 6, 1, 2, 5, 6, 7$

Some increasing subsequences:

- 3,5
- -1,2,5
- 1,3,5,6,7
- -1,1,2,5,6,7

Maybe the last one is the longest?

Finding the longest increasing subsequence in a sequence can be done in polynomial time using dynamic programming.

We will solve the *simpler* problem of finding the longest increasing substring.