Finding a Longest Increasing Substring

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

Suppose X is your arbitrary input.

How can we answer these two questions:

1. If we knew $M[1], M[2], \ldots, M[n]$ (where n is the length of the array), what would be the length of the longest incrasing substring for X? Would it be $M[n]$ or something else?
2. Can we use $M[1], M[2], \ldots, M[j-1]$ to compute $M[j]$?