

## Computing $M[i]$

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

Then how we set  $M[i]$  depends on the value of  $i$ :

1. If  $i = 1$  then  $M[i] = 1$
2. If  $i \geq 2$  then:
  - ▶  $M[i] = 1$  if  $x_{i-1} \geq x_i$
  - ▶  $M[i] = 1 + M[i - 1]$  if  $x_{i-1} < x_i$

Why is this correct?