Exercise 1  *(Precompute PSV)*

The previous smaller value (PSV) array for an array $A$ of length $n$ is defined as

$$PSV_A[i] = \max\{-1\} \cup \{j \mid 0 \leq j < i \land A[j] < A[i]\}$$

for all $0 \leq i < n$. Devise a linear time algorithm to compute $PSV_A$.

Exercise 2  *(Enclose)*

In Lecture 8 we have seen how the $\text{find\_close}$ operation can be solved in constant time with a data structure which just takes $o(n)$ extra space. Adapt the data structure to solve the $\text{enclose}$ operation.

Exercise 3  *(Reconstruct LZ)*

Given the LZ factorization $(\text{PrevOcc}_0, \text{LPS}_0), \ldots, (\text{PrevOcc}_{z-1}, \text{LPS}_{z-1})$ of a text $T$. Devise a linear time algorithm to reconstruct $T$ from its LZ factorization.