Given a non-empty list $S$ of natural numbers, define a $P$-list as a non-empty list $P$ of natural numbers such that each item of $P$ is an index of $S$, and

$$\forall i: 1..\#P \cdot P(i-1) < P(i) \leq S(P(i-1))$$

Write a program to find the length of a longest $P$-list for a given list $S$.

no solution given