

DP algorithm to determine if $x \in L$

Let's design a DP algorithm to determine if $x \in L$ where x is a binary string.

Let $x \in \{0,1\}^+$ be given as input (so x is not the empty string).

We define the length of x to be the number of characters in x . For example, if $x = 011001$ then the length of x is 6.

We write $x[i]$ to denote the i^{th} letter of x and $x[1..i]$ to denote the prefix of x ending at $x[i]$.

For example, if $x = 011001$ then $x[4] = 0$ and $x[1..4] = 0110$.