

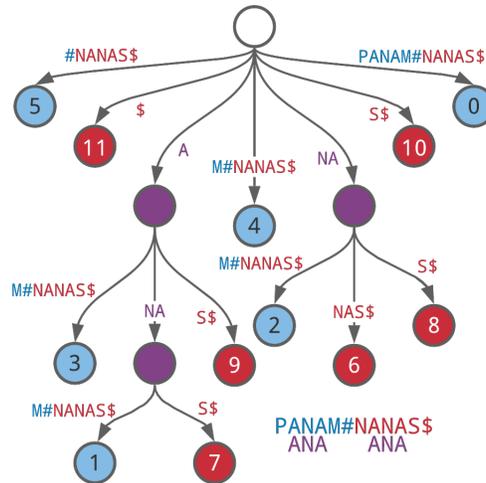
9E Find the Longest Substring Shared by Two Strings

Longest Shared Substring Problem

Find the longest substring shared by two strings.

Input: Strings $Text_1$ and $Text_2$.

Output: The longest substring that occurs in both $Text_1$ and $Text_2$.



Formatting

Input: A pair of strings $Text_1$ and $Text_2$

Output: The longest substring that occurs in both $Text_1$ and $Text_2$

Constraints

- The lengths of $Text_1$ and $Text_2$ will be between 1 and 10^3 .

Test Cases

Case 1

Description: The sample dataset is not actually run on your code.

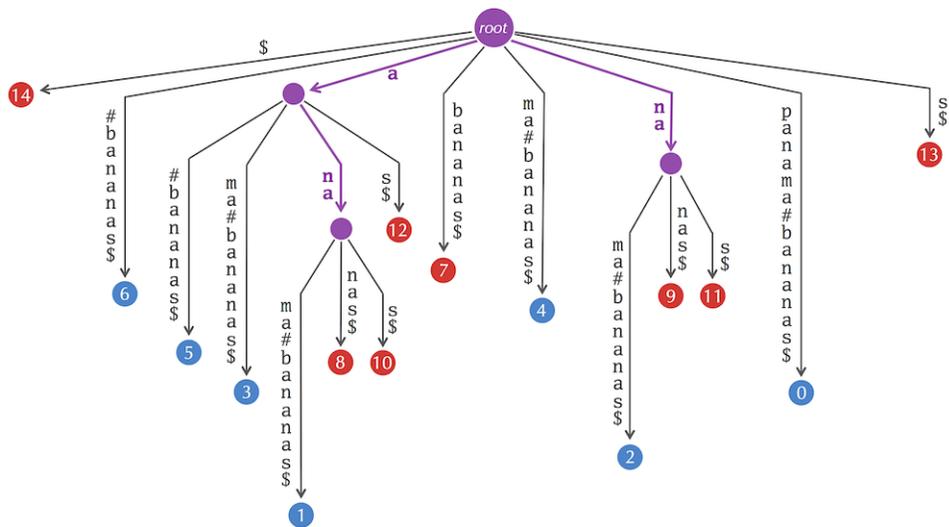
Input:

panama
bananas

Output:

ana

Figure:



Shown above is the suffix tree of the string `panama#bananas$`. Blue and red leaves represent suffixes that start in `panama` and `bananas`, respectively. An internal node is colored purple if it has both blue and red descendants. Each purple node is a shared substring of `panama` and `bananas`. The longest shared substring (purple node) is `ana`.

Case 2

Description: $Text_1$ and $Text_2$ have no common substring.

Input:

GAGA

CTCT

Output:

Case 3

Description: $Text_1$ and $Text_2$ only share 1-mers.

Input:

GAGT

GGCT

Output:

C or G or T (you will not be penalized for having one over the other, but make sure you only output one).

Case 4

Description: $Text_1 = Text_2$.

Input:

GAGCAT

GAGCAT

Output:

GAGCAT

Case 5

Description: The suffix of $Text_1$ and the prefix of $Text_2$ are the same.

Input:

GAGCAT

CATAGA

Output:

CAT

Case 6

Description: A larger dataset of the same size as that provided by the randomized autograder. Check input/output folders for this dataset.