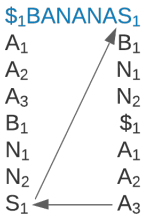
9J Reconstruct a String from its Burrows-Wheeler Transform

Inverse Burrows-Wheeler Transform Problem
Reconstruct a string from its Burrows-Wheeler transform.

Input: A string *Transform* (with a single "$" symbol).
Output: The string *Text* such that BWT(*Text*)=*Transform*



Formatting

Input: A string *Transform*
Output: A string *Text* such that BWT(*Text*)=*Transform*.

Constraints

- The length of *Transform* will be between 1 and 10^3.

Test Cases

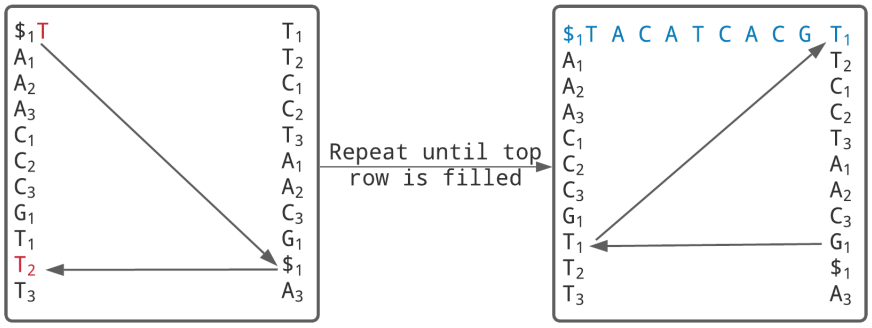
Case 1

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

Input:
`TTCCTAACG$A`

Output:
`TACATCACGT$`

Figure:



Above is a general overview of the BWT inversion process. `TTCCTAACG$A` is BWT(*Text*), and we repeat the first-last traversal process until we have "filled" the top row of the BWT matrix. Lastly, we rotate the top row until the `$` is at the end of the string to obtain `TACATCACGT$`.

Case 2

Description: There are no repeat characters in *Text*.

Input:
`T$ACG`

Output:
`ACGT$`

Case 3

Description: *Text* is made up of only one character.

Input:
`AAAAAAAAAA$`

Output:
`AAAAAAAAAA$`

Case 4

Description: *Text* is palindromic or has substrings that are palindromic.

Input:
`TGCG$AA`

Output:
`GAGCAT$`

Case 5

Description: A larger dataset of the same size as that provided by the randomized autograder.