**WEEK 2: Practice Quiz – BWT Matching & Suffix Arrays**

**25% on 1st attempt**

1. What is the length of BWT(S) for a string S of length L?

L (S includes the dollar sign)

1. What is the time complexity of the algorithm from the lectures used to build for a string S of length L?

O(L log L) since we have to sort all the strings lexicographically during the build of the BWT.

O(L) - we can build the BWT(S) in linear time.

1. What is the time complexity of the algorithm from the lectures to build the inverse of BWT of a string S of length L?

Sorting takes O(L) time using counting sort, and we need to do this L times to finally reconstruct the entire string. So won’t the upper bound be O(L2 log L)?

O(L) – we can build the inverse BWT in linear time.

1. What is the time complexity of the algorithm from the lectures to build a suffix array of a string S of length L?

O( L ) time using a depth first traversal. This is NOT building a suffix array from a suffix tree, you haven’t even built the suffix tree! ☹

O(L2) time. The algorithm we’ve learned works in quadratic time. However, in the last module you will learn to build the suffix array much faster, in time O(L log L).