

Group 1: For a string, the circularized version of the string is one for which the first character follows after the last. Design an algorithm that given two strings S and T finds the alignment of two substrings **of the circularized versions of the strings** with maximal alignment score.

Group 2: Given a string S , determine the longest substring R such that both the substring and its reverse is in S .

Group 3: Given a string S , list all of the 2-character substrings of S **in lexicographic order** using the tools we have covered (i.e. without using any sorting algorithms).

Group 4: Given a string S over the alphabet $\Sigma \cup \{*\}$, and a string T over only Σ , and a scoring function δ over $\Sigma \cup \{-}$: find the best alignment alignment (of the whole strings) where $*$ matches with any character but does not contribute to the alignment score.