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