Be sure to read the instructions on the assignments section of the class web page. Remember to keep your solutions to one page!

**Substring matching.** Given two strings $S_1$ and $S_2$, and a positive integer $k$, find the number of substrings of $S_1$ of length at least $k$ that occur in $S_2$. Develop and analyze an algorithm to solve this problem in $O(|S_1| + |S_2| + \text{sort}(\Sigma))$ time.