CS344: HW4

October 19, 2017

- Out Oct 19, Due week of Oct 30. Hand it to your TAs at the beginning of the recitation. No late homeworks please.
- Given a text $t[1 \dots n]$ and k pattern $p_1, p_2, \dots, p_k$ each of length m, $n = 2m$, from alphabet $[0, \Sigma - 1]$. Design an efficient algorithm to find all locations i in t where *any* of the patterns p_j's match.
- Given a text $t[1 \dots n, 1 \dots n]$ and $p[1 \dots m, 1 \dots m]$, $n = 2m$, from alphabet $[0, \Sigma - 1]$, we say p matches t at $[i, j]$ if $t[i + k - 1, j + \ell - 1] = p[k, \ell]$ for all k, ℓ. Design a randomized algorithm to find all matches in $O(n^2)$ time with high probability.