**Information Retrieval**

**9 February 2015**

**Ex 1 [ranks 3+3+3]** Given the words {abaco, adagio, baco, alano} construct a 2-gram index, and describe the algorithm that solves 1-edit distance over it. Finally test the algorithm and data structure on the two query strings P1=abco, P2=acabi.

**Ex 2 [points 5+5]** Given the array A = [5, 2, 4, 8, 3, 1, 9, 6], build the RMQ data structure but **ONLY** for RMQ-queries which are either aligned to blocks or overlap block boundaries (hence, no the queries internal into blocks). Finally, show how it is answered the query RMQ[1,6], where indices in A start from 0.

**Ex 3 [points 3+4]** Compute the Strongly Connected Components (SCC) of the graph G having 5 nodes and 7 edges given by {(1,2), (2,3), (3,1), (3,4), (2,5), (4,5), (5,4)}, using the two algorithms seen in class: the one showing quadratic time complexity (by repeatedly applying BFS/DFS), and the one showing linear time complexity (by applying twice a DFS on proper graphs).

**Ex 4 [points 4]** Show the Rocchio’s formula and comment on its application and its pros/cons.