**Self-evaluation**

**21-5-2013**

Given a dictionary D of 232 strings having the same length L:

1. compute the error rate of a Bloom Filter which uses an array of 240 bits and an optimal number of hash functions. *[Assume that logs are in base 2]*
2. Compute for which value of L the Bloom Filter is more advantageous in space than a classic hashing with chaining. *[For hashing assume pointers take 32 bits and do not consider the space cost of the hash table]*

Given a sequence of items S = (10, 14, 19, 2, 6, 21, 3, 17, 0, 9, 13 )

1. Construct a prefect hash table where the first level has size 7 and the hash functions are chosen to be of the form *(k mod m)*.
2. Construct a cuckoo hash table of size 22 in which the two hash functions are chosen to be of the form *(5k mod m)* and *(3k mod m)*.

Given the graph consisting of 5 nodes and the following edges, where the third component indicates the weight: (1,2,7) (1,3,6) (1,4,9) 2,3,3) (2,4,2) (3,4,4). Compute the MST via PRIM and Kruskal. Then apply the algorithm to derive an Hamiltonian cycle of the graph (by verifying whether the condition on the triangular inequality is satisfied).