LINMA2472 – Algorithms in Data Science

HW 1 – module “Networks”: part 2

Assignment 1 (part 2): maximizing the influence in the network of characters

Take the network of characters you infer from the first part of the assignment. Imagine there is an important rumour to spread in this network.

You want it to quickly reach all the people, thus you want to solve the **influence maximization problem**. Implement the greedy algorithm from the lectures and identify the set MI of maximal influence of size k = 5% of the nodes.

Implement the **independent cascade model** on this network and use it to compare* the outcomes starting from the obtained set MI with similar size set of nodes of largest degrees and a random selection.

(*Comparison can be made by the total size of people reached by a cascade or by the spreading curve : (t,Y(t)) - curve, where t in discrete time and Y(t) is the total average proportion of “infected” people at time t.)