

Project Specifications

Probability and Statistics

March 26, 2016

1 FORMAT OF INPUTS

The input you are given consists of three text files, Nodes.txt, Edges.txt, Seed.txt. The first two, specify the graph we are using to model the network and the third specifies the initial conditions of a phenomenon.

Nodes.txt :

each line defines a Node and its conductance rates, in the following format:

NodeIndex NodeClass Rate1 Rate2 Rate3 Rate4

The Rates are of type double, and the index is of type int. The class is of type String.

Edges.txt :

each line defines an edge with an edge parameter which is of type double.

SrcIndex DestIndex EdgeParameter

Seed.txt :

NewsType Node1Index Node2Index ... NodeKIndex

this file consists of a single line, which is an integer which shows the type of news and then a series of integers separated with space, and are the indexes of the initial seeds of a news. The news type is again an integer.

2 DYNAMICS

As mentioned in the class, the dynamics is simple: at each turn, nodes which do not know a news, will check the people they follow, according to a poisson process or a simple bernouli process, and if they see a node which has shared the news, they will get notified of it. Then according to their conductance rate of that news type, they will either share it or don't share it. (the sharing happens just once, if they choose to do not share it, then they never will share).

For this phase, your program should, given the input files, plot the number of notified people as a function of turns passed.