DCS 3350: Contagion
Assignment 2 (100 points)
Immunization and Friendship Paradox
Due: Wednesday, 3/31 by 11:59 PM
Collaboration Level 1 (https://turing.bowdoin.edu/dept/collab.php)

Tasks:

1. Use simulation to test the friendship paradox for Barabasi-Albert and Erdos-Renyi networks. Use at least 10,000 nodes and the similar number of edges.
2. Compare and contrast the results for the two types of networks.
3. Implement the selection-based immunization scheme for Barabasi-Albert networks. Compare it with random immunization. Note that this boils down to comparing the average degrees of Group 0 and Group 1 nodes. Do this comparison for at least two different values for the fraction of nodes vaccinated.

Deliverables:

1. Python code.
2. Writeup not exceeding 500 words on Tasks 2 and 3 above. Make sure you relate your experimental results to the theoretical study done in class.