Assignment 3

In this assignment you will explore measures of centrality on two networks, a friendship network in Part 1, and a blog network in Part 2.

Part 1

Answer questions 1-4 using the network `G1`, a network of friendships at a university department. Each node corresponds to a person, and an edge indicates friendship.

The network has been loaded as networkx graph object `G1`.

In [1]:
```
import networkx as nx

G1 = nx.read_gml('friendships.gml')
```

Question 1

Find the degree centrality, closeness centrality, and normalized betweeness centrality (excluding endpoints) of node 100.

This function should return a tuple of floats `(degree_centrality, closeness_centrality, betweenness_centrality)`.

In [2]:
```
def answer_one():
    degree_centrality = nx.degree_centrality(G1)[100]
    clsnss_centrality = nx.closeness_centrality(G1)[100]
    btwn_centrality = nx.betweenness_centrality(G1, endpoints=False, normali
    return degree_centrality, clsnss_centrality, btwn_centrality


answer_one()
```

Out[2]:
```
(0.0026501766784452294, 0.2654784240150094, 7.142902633244772e-05)
```

For Questions 2, 3, and 4, assume that you do not know anything about the structure of the network, except for the all the centrality values of the nodes. That is, use one of the covered centrality measures to rank the nodes and find the most appropriate candidate.

Question 2

Suppose you are employed by an online shopping website and are tasked with selecting one user in network G1 to send an online shopping voucher to. We expect that the user who