Lab 00: Introduction to Networkx

Due date: **January 24, 2020 @ 11:59pm**
Points: **100**
Questions: **4**

Checklist (points in each section are only awarded if all bullet points are met) Feel free to make use of this checklist as your own sanity check.	
Correct [95 pts]	Implement network drawing [40 pts] ☐ Calculate the number of nodes in the Karate Club graph, G [15 pts] ☐ Calculate the number of edges in the Karate Club graph, G [15 pts] ☐ Calculate the density of the Karate Club graph, G [15 pts] ☐ Include comments throughout the code that you write. [10 pts] ☐
Name [5 pts]	Correctly label the IPYNB file you submit for this assignment: *[lastname]_[firstname]_*cs499_lab00.ipynb ☐

<div align="center">

**** FAILURE TO CORRECTLY LABEL YOUR SUBMITTED IPYNB FILE
WILL RESULT IN A ZERO GRADE FOR THE ASSIGNMENT ****

</div>

The purpose of this lab is to introduce you to some of the tools we will be using in this class: Jupyter Notebook, Python's NetworkX and Gephi.

Part 0: Identification & downloading files

Name:	
NAU Email:	@ nau.edu

You should have downloaded a file titled cs499_lab00.ipynb from BbLearn. Save this file into the directory you will be using for your labs. For instance, my directory looks like: ~/Dropbox/CS499_2019/labs/

Part 1: Getting started with Python virtual environments

Python virtual environments (venvs) are a wonderful way to ensure that your Python software has all of the necessary packages and libraries (in the proper versions!) it needs to operate correctly. We will be using venvs as a way to ensure that you are building up a correct and functional environment for your labs as we proceed in class.

To create a venv for our labs, type the following in the commandline from the directory where you plan to place your lab assignments:

```
python3 -m venv cs499
```

If you are on Linux or Mac OS, use the following command to start your venv:

```
source cs499/bin/activate
```

If you are on Windows, run:

```
cs499\Scripts\activate.bat
```

All binaries for your venv are stored in cs499/bin.

Part 2: Getting started with Jupyter Notebook

Jupyter Notebook allows you to tell a story with data and code. It is a way to document your approach to data analysis and learning that leverages multimedia, an interactive shell, data, and narrative. While this introductory lab relies on a PDF with instructions to get you started, all future lab assignments will be in IPYNB format to be read using Jupyter Notebook. Furthermore, all labs (including this one), require you to upload an IPYNB file to BbLearn.

To get started, download and install Jupyter Notebook with pip3:

```
pip3 install jupyter
```

Now, change directories into the directory where you saved cs499_lab00.ipynb. You can start Jupyter Notebook with the following command:

```
jupyter notebook
```

You can find more information on running Jupyter Notebook here:
https://jupyter.readthedocs.io/en/latest/running.html#running

The remainder of Lab00 instructions are inside the cs499_lab00.ipynb.

Troubleshooting
The Jupyter Docs:
https://jupyter.readthedocs.io/en/latest/install.html

The #troubleshooting channel for our Slack:
https://join.slack.com/t/naunetworkscience/shared_invite/enQtNTA5Mzc5MjczNTM5LWNhOWE1ZTIwNWUzYjk4ZmZkN2IwNzlkODZmNjI0NzFjZjgxNjAyY2NiNjhlMDBmMjFkNTQ0MDc0YzkyYmVkMTM