In-Class Exercise

1. Preparation and installation.

1. Please try to install the Anaconda and Pytorch on your Mac or Windows.

The instruction on how to install the anaconda can be found here:

<https://docs.anaconda.com/anaconda/install/index.html>

The instruction on how to install the Pytorch can be found here:

<https://pytorch.org>

*Attention: since we may not use GPU at this time, please install the cpu version of the Pytorch.*

(Optional installation): Pycharm (as code editor) and torch-geometric (a graph learning library)

1. Please read and get familiar with the papers which presents the algorithm that we will program in class.

You can find the paper in the following links

<https://arxiv.org/pdf/1609.02907.pdf>

<https://arxiv.org/pdf/1904.08082.pdf>

2. We will discuss how to program GCN layers and GCN framework in class, including:

1) program the basic GCN layer based on pytorch

2) program the GCN framework based on the GCN layer (class) that you programed.

3. Exercise objective: Learn how to build up the train (main) file to train the network.

**Requirement: To realize a graph convolutional network to do the node classification task on Cora dataset (7 classes classification problem).**

The Cora dataset (data.zip) is included in the attached zip file.

The Cora dataset consists of Machine Learning papers.

These papers are classified into one of the following seven classes:

1) Case\_Based,

2) Genetic\_Algorithms,

3) Neural\_Networks,

4) Probabilistic\_Methods,

5) Reinforcement\_Learning,

6) Rule\_Learning

7) Theory

4. Submission:

Please copy/paste your code in the word document and also report your accuracy and please submit your report to Canvas folder by Nov 18, 2021.