Graph Powered Machine Learning - Exercise 2

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Thank you for participating in the Graph Powered Machine Learning Workshop! This is the first of two Exercises.

Logistics

- You can submit into groups up-to 4 people, please include:
  - Full Name
  - Student ID and Affiliation
  - Email Address

  for all group members
- Deadline: October 2nd, 23:59 CET
- Submit to joerg@arangodb.com
- Code can be either submitted in .py file or as .ipynb notebook (will give you the chance to add additional information)
- Feel free to use existing notebooks as starting point

1 A Comprehensive Survey on Graph Neural Networks

Read sections 1,2,3,6 of the A Comprehensive Survey on Graph Neural Networks and discuss the following questions (roughly 1-2 paragraphs each):

1. How are network embeddings and GCNs related?

2. What are the potential outputs of GCNs? Please describe one use-case for each potential output.

3. What are value is added by Graph Attention Networks over GCNs? What are potential disadvantage?

4. Why are GCNs relevant for Computer Vision?

Note: Just in case you want to read more even after the completing the remaining sections in the above paper Graph neural networks: a review of methods and applications is good addition.

2 Graph Learning Tasks

Pick one of the following Graph Learning Tasks from the DGL Guide and create a python tutorial (preferably as jupyter notebook) for that example. Feel free to choose another dataset (http://kaggle.com is a good starting point).

1. Node Classification/Regression

2. Edge Classification/Regression

3. Link Prediction

4. Graph Classification