Configuration Manual

MSc Research Project
Data Analytics

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MSc Project Submission Sheet

School of Computing

Student Name:	Soumyadip Dipak Ghosh		
Student ID:	X18192181		
Programme:	MSc in Data Analytics	**Year:**	2019-2020
Module:	Research Project		
Lecturer:	Dr. Catherine Mulwa		
Submission Due Date:	17 August, 2020		
Project Title:	Text Classification using Graph Based Learning		
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I hereby certify that the information contained in this (my submission) is information pertaining to research I conducted for this project. All information other than my own contribution will be fully referenced and listed in the relevant bibliography section at the rear of the project.
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Date: 17 August, 2020

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Configuration Manual

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1 Prerequisite Configuration

1.1 Python Setup

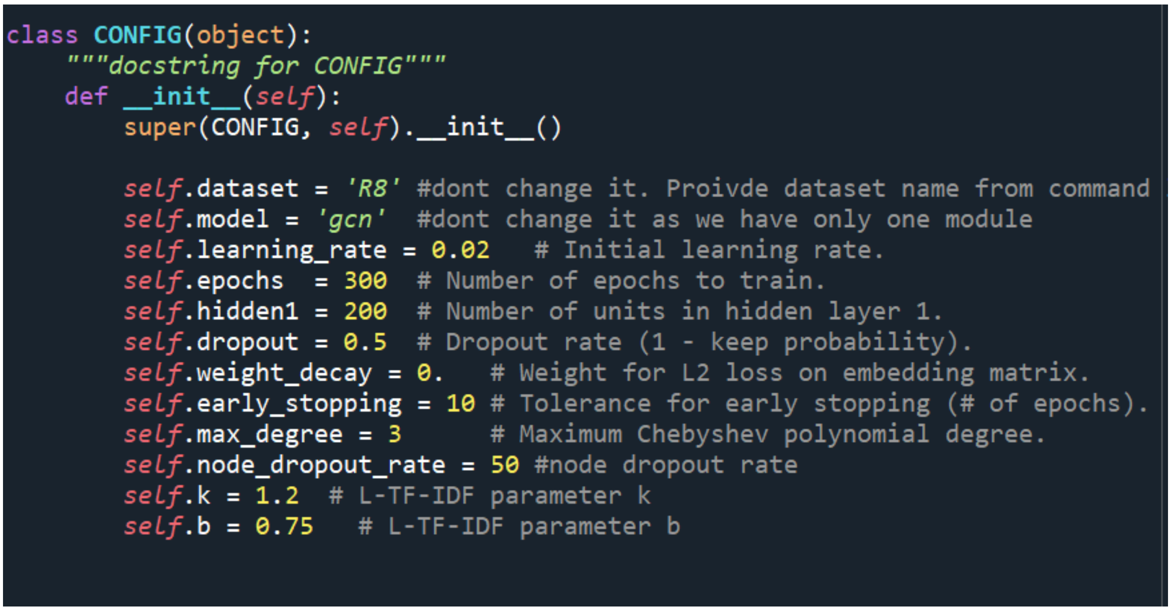
- Install python on your system. Minimum required version 3.7.x. Download it from: https://www.python.org/downloads/
- For Instructions on how to download and install it on system visit the link: https://docs.python.org/3/using/index.html

1.2 Installing required Packages

- NLTK - https://www.nltk.org/install.html
- Numpy - https://numpy.org/install/
- Scipy - https://www.scipy.org/install.html
- Pickle – installed by default in python 3.x
- Sklearn - https://scikit-learn.org/stable/install.html
- Pytorch - https://pytorch.org/
  - Required build above 1.5.x
  - If system has CUDA enabled GPU, select correct CUDA version. I
  - ncase of any CUDA related errors, install CPU only version.
- Networkx - https://pypi.org/project/networkx/

2 Setting up configuration file

- Configurations have been set up and values have been set at default values required for the project.
- Configuration file name: config.py
- Location: root directory of project
- Proceed without making changes to run project at default values.



```
class CONFIG(object):
    """docstring for CONFIG"""
    def __init__(self):
        super(CONFIG, self).__init__()

        self.dataset = 'R8' #dont change it. Proivde dataset name from command
        self.model = 'gcn'  #dont change it as we have only one module
        self.learning_rate = 0.02   # Initial learning rate.
        self.epochs  = 300  # Number of epochs to train.
        self.hidden1 = 200  # Number of units in hidden layer 1.
        self.dropout = 0.5  # Dropout rate (1 - keep probability).
        self.weight_decay = 0.   # Weight for L2 loss on embedding matrix.
        self.early_stopping = 10 # Tolerance for early stopping (# of epochs).
        self.max_degree = 3      # Maximum Chebyshev polynomial degree.
        self.node_dropout_rate = 50 #node dropout rate
        self.k = 1.2  # L-TF-IDF parameter k
        self.b = 0.75   # L-TF-IDF parameter b
```

3 Code Running Sequence

- Navigate to root directory of the project folder. There are 4 datasets to choose from.
- Replace <dataset> with ‘R8’, ‘R52’, ‘ohsumed’ or ‘mr’ depending upon the dataset you want to train on.
- No need to type ‘python’ in following commands, if running from Anaconda prompt.
- Then run the following commands:
  - cd preprocess
  - python remove_words.py <dataset>
  - python build_graph.py <dataset>
  - cd..
  - python train.py <dataset>

- After training is completed, the best model will save in the root folder with name ‘<dataset>_model.pt’.

Note: If dataset has to be changed, then follow the process from the 1st step.