National College of Ireland

Configuration Manual

MSc Research Project
MSc Cloud Computing

Kamal Nikhar Yadav
Student ID: x20246935

School of Computing
National College of Ireland

Supervisor: Dr. Aqeel Kazmi

National College of Ireland
Project Submission Sheet
School of Computing

Student Name:	Kamal Nikhar Yadav
Student ID:	x20246935
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Configuration Manual

Kamal Nikhar Yadav
x20246935

1 System Configuration

The given code is running on a system with the following configuration:

1. Processor: Intel Core i5 9300H 2.4GHz
2. Graphic Card: 4GB of Nvidia GeForce GTX 1650
3. Memory: 8GB of Memory

2 Libraries

The below table shows the libraries that we are using in this project:

Table 1: Libraries Used In Project

Python
TensorFlow 2.0
Pandas
SciPy
Numpy

3 Runnig the Code

1. To run the code we will first install virtual environmentPython (n.d.) using py -m pip install –user virtualenv.

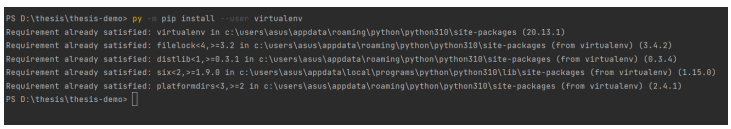


Figure 1: Installing Virtual Environment

2. Now create a new virtual environment using **py -m venv env**
3. Now activate the virtual environment using $\cdot\backslash env\backslash Scripts\backslash activate$

Figure 2: Creating and Activating Virtual Environment

4. Now we can install the dependencies in this environment using pip install -r requirements·txt

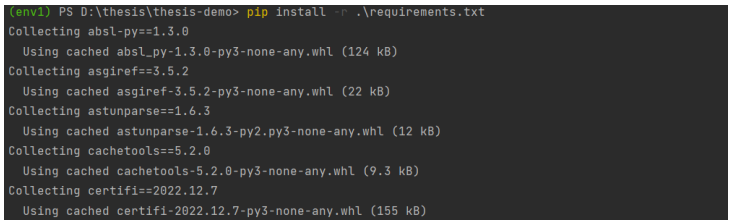


Figure 3: Installing the Requirements

5. Now run the main.py file using py main.py

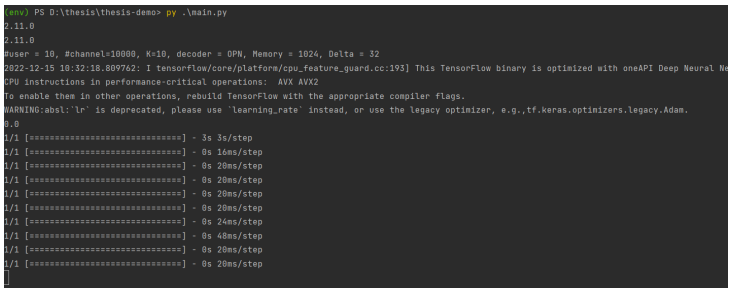


Figure 4: Running The Code

4 Changing the Parameters

We will be changing four parameters to evaluate our results that are number of user, N, the data arrival rate, lambda_param, the Lyapunovs parameter, V, and the power constraint, energy_thresh.

1. To change the Data arrival rate we should change the lambda_param on line 65 in main.py.
2. To change the Lyapunovs Parameter you should change V in the line number 63 of main.py
3. To change the power constraint, energy_thresh we change the multiplication factor on line 59 of main.py
4. To change number of users we change N at line 52 of main.py

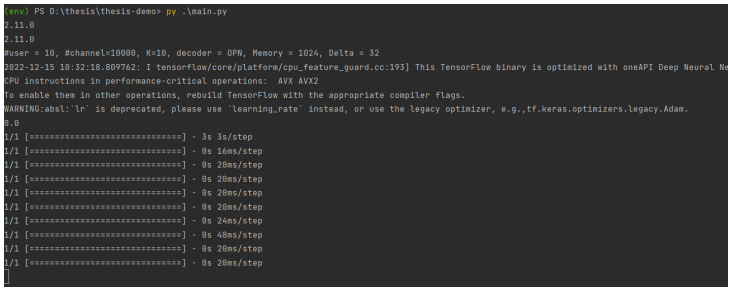
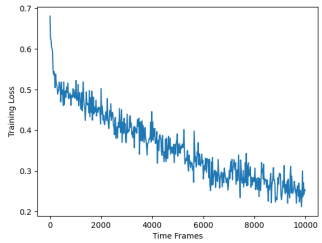


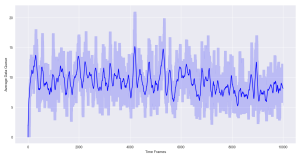
Figure 5: Various Parameters

5 Generating The Evaluations

After changing the parameters we run the code using py main.py and matplot plots the graph and generates it. You can then save it. The code also saves the simulation result in matlab file so that the data can be further evaluated.



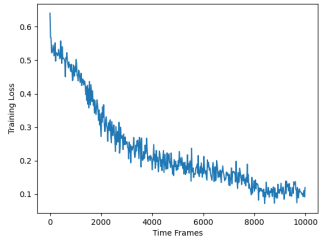
(a) Training Loss



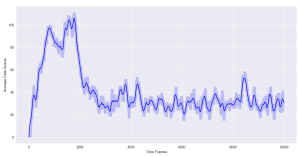
(b) Average Queue Length

(c) Average Energy Cost

Figure 6: Graphs for $\lambda = 2.5$



(a) Training Loss



(b) Average Queue Length

(c) Average Energy Cost

Figure 7: Graphs for $\lambda = 3$

References

Python, P. (n.d.). Installing packages using pip and virtual environments.
URL: *https://packaging.python.org/en/latest/guides/installing-using-pip-and-virtual-environments/*