National College of Ireland

Configuration Manual

MSc Internship
Cyber-Security

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MSc Project Submission Sheet

School of Computing

Student Name:	Somesh Saxena		
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Programme:	MSc. Cybersecurity	**Year:**	2020
Module:	MSc. Internship		
Supervisor:	Vikas Sahni		
Submission Due Date:	17th August, 2020		
Project Title:	Efficient Detection of Denial of Service (DoS) attack using Machine Learning		
Word Count:	842	**Page Count:**	7

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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Configuration Manual

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1 Introduction

The Configuration Manual is designed to know others the detail to run the research project and gives the configuration of the system and the applications used to build and evaluate the models. There are different steps that involve software installation, packages installation, configure systems to evaluate the models and run the project.

2 System Specification

2.1 Hardware

Operating System: macOS Catalina Version: 10.15.6
Processor: 2.7 Ghz Dual-Core Intel Core i5
Memory: 8GB 1867 MHz DDR3
Storage: 256 GB SSD

2.2 Software

Microsoft Excel: Used for data exploration and self-understanding.

Python: Project is entirely written in python. It is used for implementation.

Anaconda: Open-source distribution for python. Used for management and deployment.

Jupyter Notebook: Used for loading the data, pre-processing the data, building models for the data and finally evaluating them.

Atom: Atom is the IDE where python can be written and can be debug easily.

3 Download & Installation

3.1 Python

Python can be downloaded from python.org Figure 1 shows the snapshot from where python can be downloaded[1]. It is advised to use the latest version of the software. Python version 3.8.5 for mac was downloaded and installed.

[1] Python: https://www.python.org

Figure 1. Snapshot of python.org

3.2 Anaconda

Anaconda can be downloaded from anaconda.com Figure 2 shows the snapshot of the download page from the website[2].

Figure 2. Snapshot of Anacondo.com

3.3 Jupyter Notebook

Jupyter Notebook comes pre-installed with Anaconda Navigator. Figure 3 shows the snapshot of Anaconda Navigator where there is Jupyter Notebook, Spyder, R, etc comes pre-installed. Python code can be written in Jupyter Notebook as well as Spyder by creating a python file.

[2] Anaconda: https://www.anaconda.com/products/individual

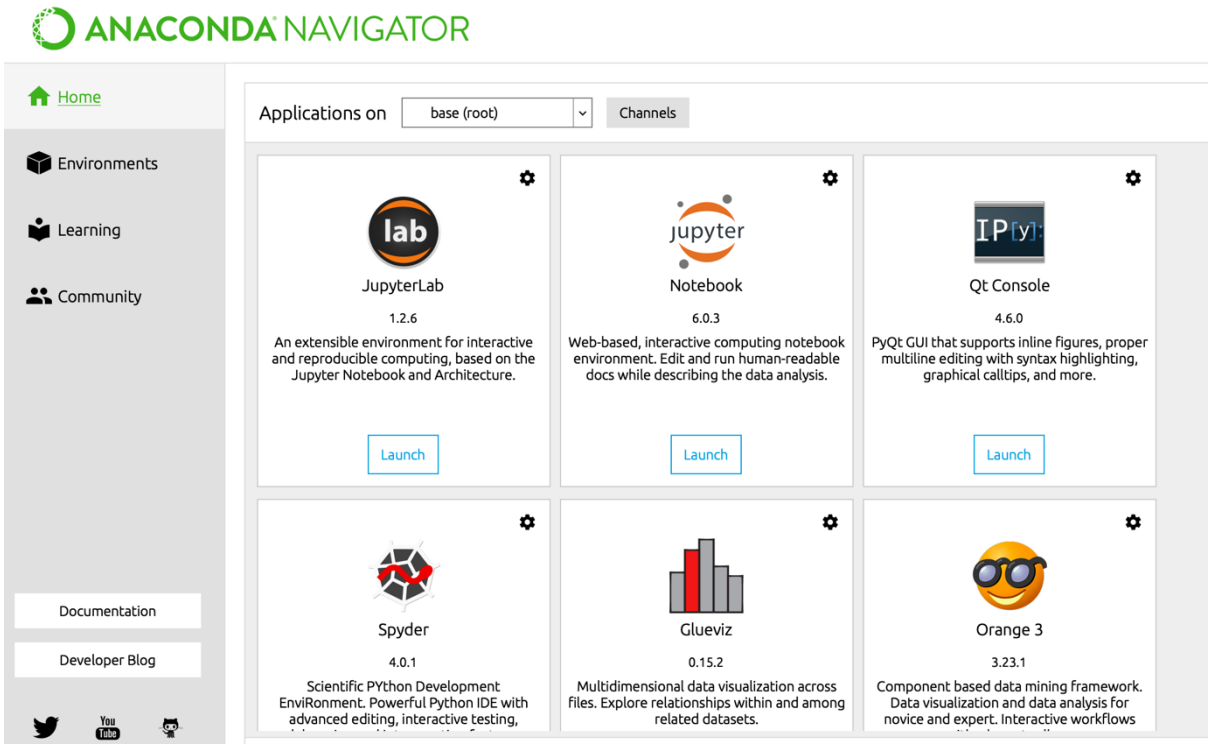

Figure 3. Snapshot of Anaconda Navigator

3.4 Atom

Atom is the IDE where python is written and can be debug the code. Atom IDE can be downloaded[3] from atom.io as shown in Figure 4.

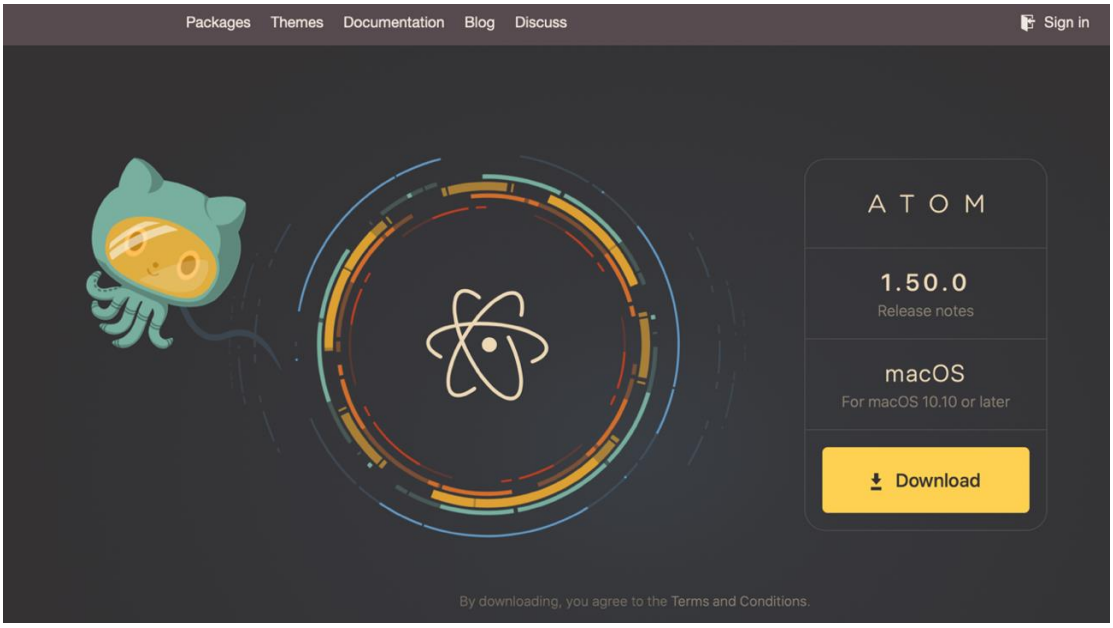

Figure 4. Snapshot from atom.io

[3] Atom: https://atom.io

3.5 Dataset

The dataset used in this research project is KDD CUP99. The dataset is obtained from online domain[4] as shown in Figure 5 and the dataset works quite efficient in Intrusion Detection System.

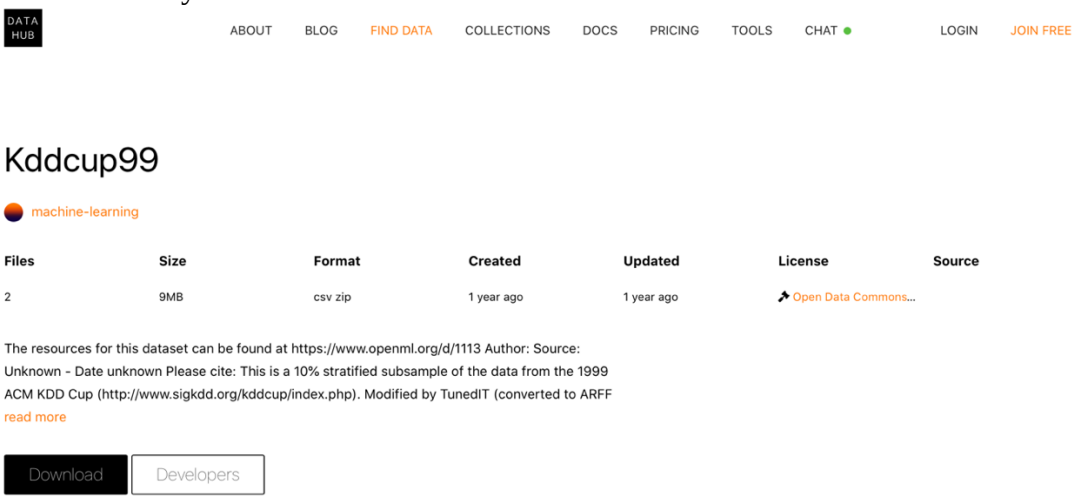

Figure 5. Snapshot from where the dataset is downloaded

4 Project Development

After successful installation of all the pre-requisite tools now we can start building our project. Start Anaconda Navigator and then start the Jupyter Notebook. The python code is written here and can be executed along with the code writing side by side. Figure 6 shows the snapshot of the python code that is written in Jupyter Notebook. The main important feature of Jupyter Notebook is that it generates the output or the result along with the code. Figure 7 shows the output that is generated on Jupyter Notebook.

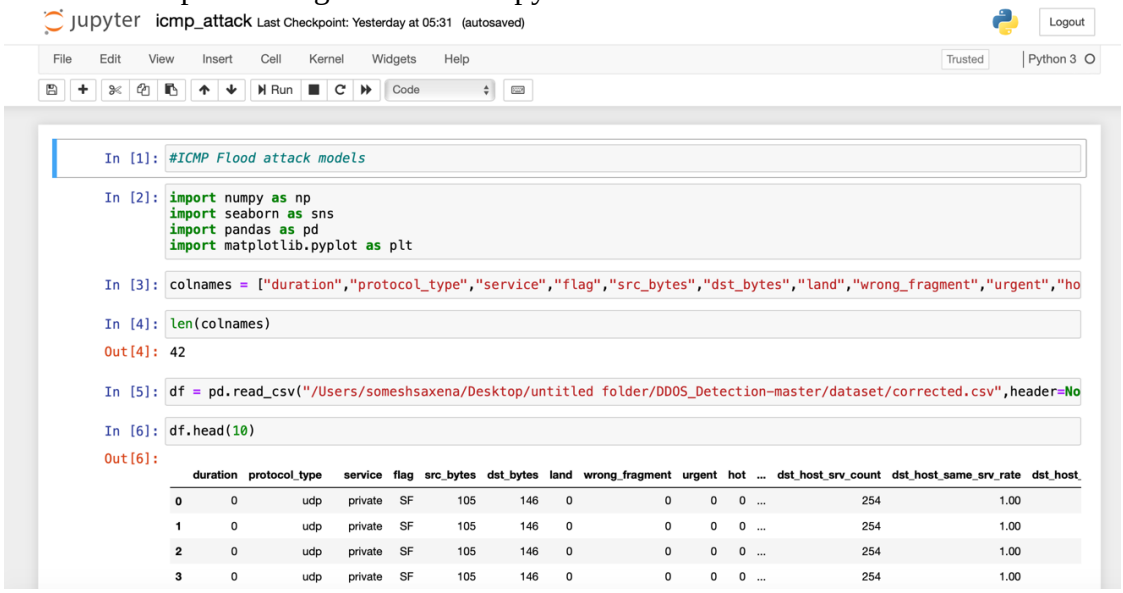

Figure 6. Snapshot of Jupyter Notebook

[4] Dataset: https://datahub.io/machine-learning/kddcup99

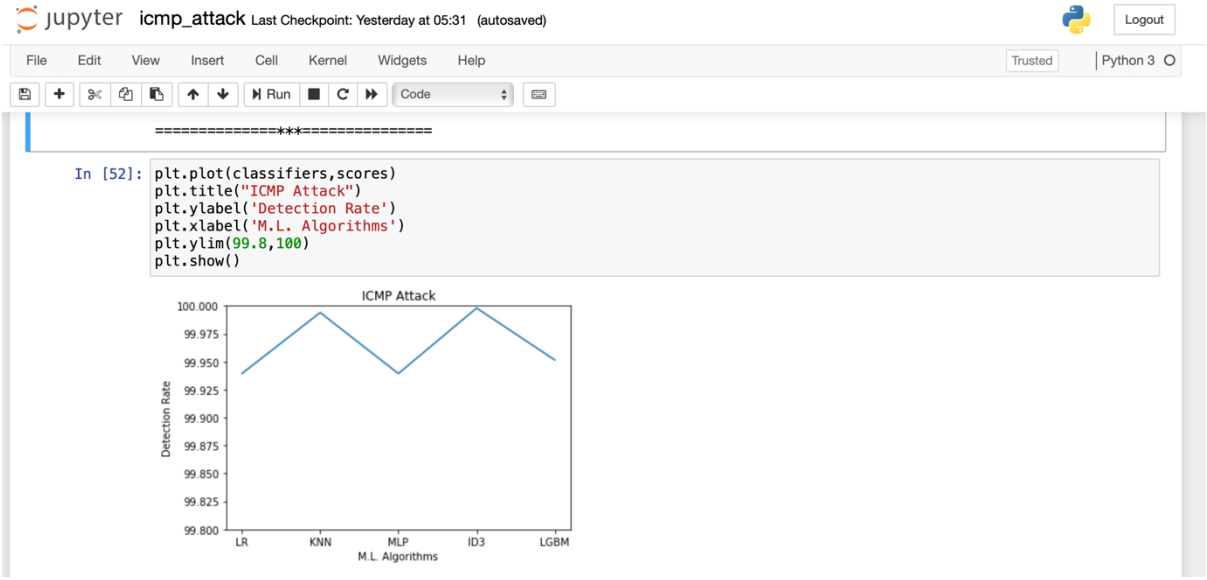

Figure 7. Snapshot of output in Jupyter Notebook

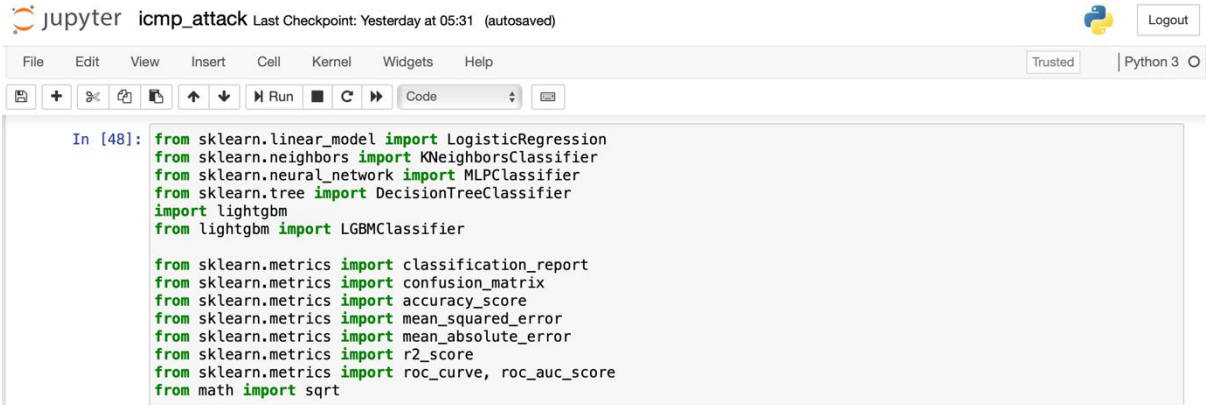

Figure 8. Snapshot of important packages

Figure 8 shows the pre-requisite packages that needed to be installed to perform the evaluation. Packages can be install using the command line argument “pip install package_name”.

The scripts that is generated by Jupyter Notebook is saved by .ipynb extension. All the python scripts are saved by.py extension. And the datasets that is used in this project are saved by .csv extension. All the files and data used in this project are submitted as a part of the ICT submission.