IDENTIFY BEST DATA CONNECTION FOR DAY-TO-DATA USAGE BY ANALYSING NETWORK TRAFFIC

Jayasinghe Arachchige Prasad Chaminda

A dissertation submitted in partial fulfilment of the requirement for
Bachelor of Science (Honours) degree in Computer Science

Department of Computing

Informatics Institute of Technology, Sri Lanka
in collaboration with
Robert Gordon University Aberdeen, UK

2023

Abstract

The research problem is to provide network traffic forecast report to decide the suitable data package for optimal usage. People tend to use a couple of smart devices to accomplish their day-to-day requirements. For instance, a smartphone is not just to make calls or text messaging but to process multiple applications which helps us to simply manage many tasks and to entertain us on-the-go. Nevertheless, people use various types of computers and tablets to do advanced technical work such as coding, designing, data entry, and online learning; smart TVs, gaming consoles and other smart devices for entertainment; IoT devices for security and other automation purposes. All in all, each smart device has its own set of unique features that could be used to serve multiple purposes other than what it is intended for. Therefore, it is inevitable to categorize a set of requirements over a device as one device can satisfy many user requirements at once. Most Internet Service Providers   provide a mobile app to manage their connection. It contains the current package, amount, usage report, change their package. Most of the time these apps can visualize one device usage. For instance, there is a report for Mobile phone data utilization and another report for Smart devices.

Purpose of the research is to observe all the network traffic from a central point and efficiently forecast the same in a periodic manner. With the use of ARIMA and LSTM deep leaning models.

Key words: ARIMA, LSTM, Deep-Learning, Encoding, Decoding, TF-IDF, SGD