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MIT WORLD PEACE UNIVERSITY | PUNE
TECHNOLOGY, RESEARCH, SOCIAL INNOVATION & PARTNERSHIPS

Faculty of Engineering and Technology

School of Computer Science

2022-2023

A

Project Report

ON

Crypto-Currency History Tracking and Prediction

BY

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In Partial fulfilment Of

Master Of Science (M.Sc. Computer Science)

Dr. Vishwanath Karad MIT World Peace University

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MIT WORLD PEACE UNIVERSITY | PUNE
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MIT-WPU
॥ विश्वशान्तिर्ध्रुवा ॥

School of Computer Science

Certificate

This is to certify that**, Anant Dubey** student of M.Sc.(Computer Science) Semester I has successfully / partially completed Mini Project in partial fulfilment of M.Sc. Computer Science under Dr.Vishwanath Karad MIT World Peace University, for the academic year 2022-2023.

_____ _____

Course Teacher Head of the School

Date: 02 / 12 / 2022

Acknowledgement

First and foremost, we would like to express our gratitude to our Mentor, **Prof. Devyani Kamble**, who was a continual source of inspiration. She pushed us to think imaginatively and urged us to do this mini-project without hesitation. Her vast knowledge, extensive experience, and professional competence in Data Mining enabled us to successfully accomplish this project. This endeavour would not have been possible without her help and supervision. We could not have asked for a finer mentor in our studies. This initiative would not have been a success without the contributions of my project partners **Anant Dubey** and **Udaykumar Thalishetti**. We were always there to cheer each other on, and that is what kept us together until the end.

I'd like to thank **MIT World Peace University** for providing me with the opportunity to work on the project Crypto-Currency History Tracking and Prediction. Last but not least, I would like to express my gratitude to my family, siblings, and friends for their invaluable assistance, and I am deeply grateful to everyone who has contributed to the successful completion of this project.

Declaration

I hereby declare that the project work entitled "**Crypto-Currency History Tracking and Prediction**" submitted to the MIT-WPU, is a record of an original work done by me under the guidance of Prof. Devyani Kamble, Programme Head Of MSc CS, MIT-WPU. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

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1. Introduction

1.1 Problem Statement

There is a lack of common resources that display different cryptocurrency charts. There is a constant need for tracking, comparing two or more cryptocurrencies, and predicting cryptocurrencies. Common people don't have the time and resources to find the data of the different cryptocurrencies, arrange it, and then use it to derive any sort of insight.

This problem was first identified when I was on the internet searching for data regarding the history of cryptocurrencies to track some coins, but I couldn't find any. So, this project will help those who want to track the historical price of different cryptocurrencies and compare them to gain some sort of insight.

1.2 Description of Data Set

We are using datasets of the three main cryptocurrencies in the crypto market, which are Bitcoin, Ethereum, and DogeCoin. These datasets were created by using a Python script to scrape cryptocurrency information from the coinmarketcap.com website and saving it in a.csv file. The dataset consists of 7 columns: date, open, high, low, close, volume, and market cap.

1.3 Objectives of the system

The system's goal is to create a system that displays a price vs. time graph of three cryptocurrencies, namely Bitcoin, Etherum, and Dogecoin, compares two of them at the same time, and forecasts their prices for future quarters.

1.4 Module List

We have developed all these modules using the Shiny package in R.

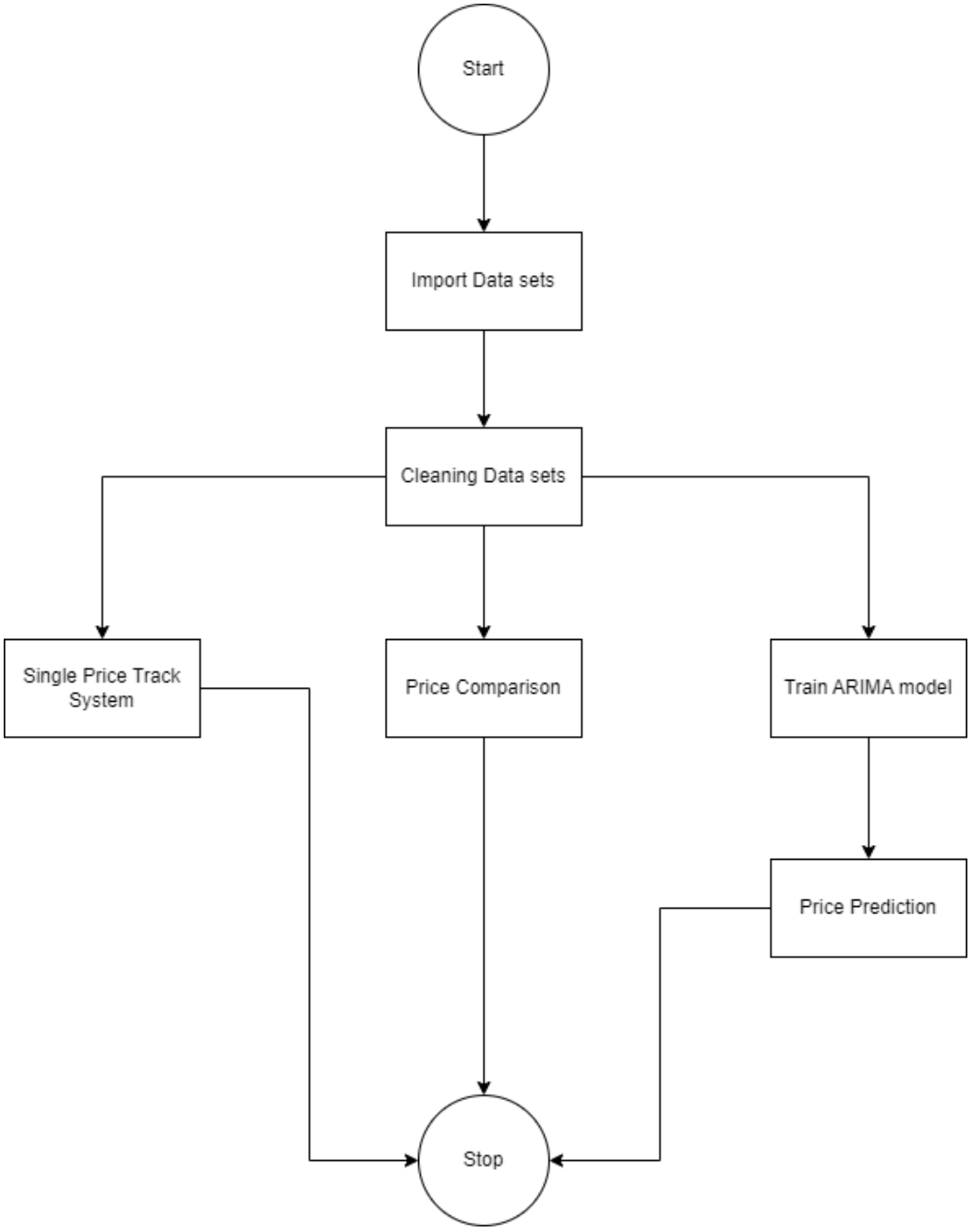
Module 1: Displaying two graphs, which are **Price vs. Time** and **Market Capitalization vs. Time** charts depending on the user's selected crypto currency.

Module 2: In this module, we are comparing the details of two crypto currencies depending on the user's input.

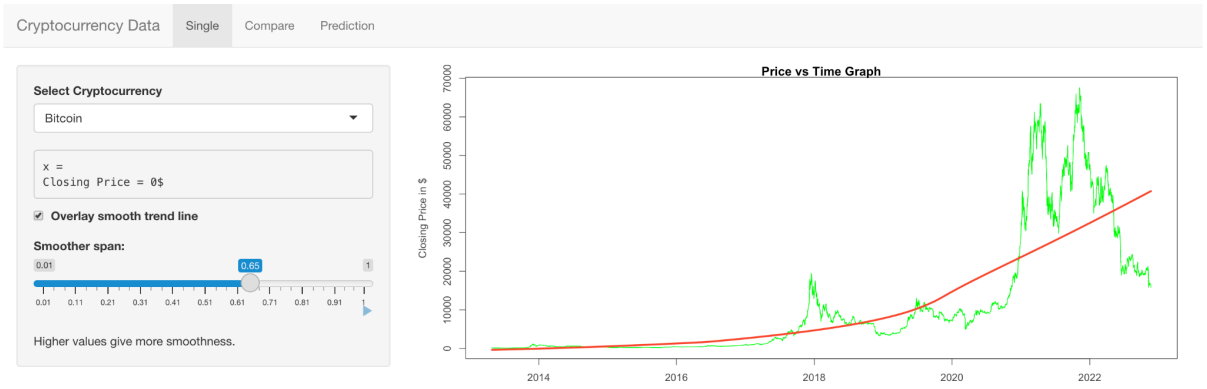
Module 3: Prediction of Cryptocurrency Using the **ARIMA Time-Series Forecasting Algorithm.**

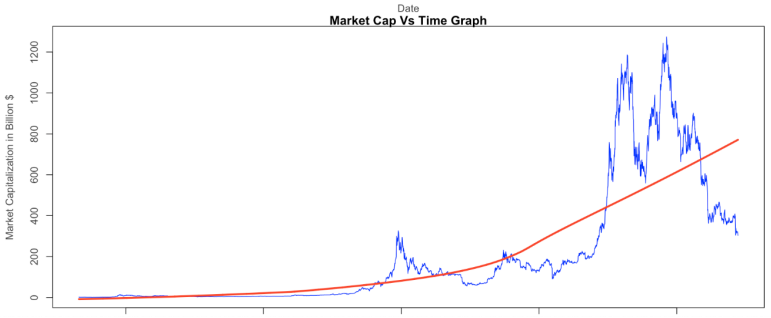
2. Analysis and Design

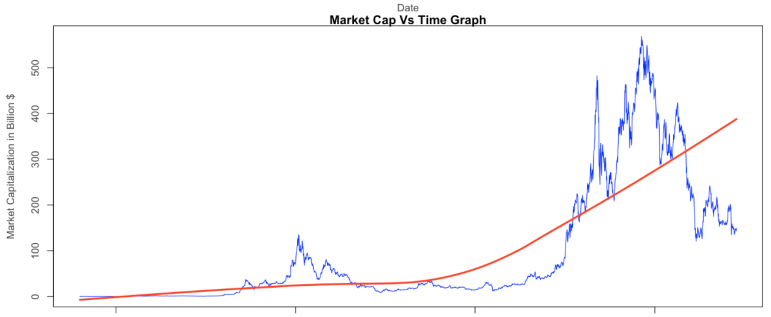
2.1 UML Diagram (Flowchart)



2.2 Screenshots







Cryptocurrency Data | Single | Compare | Prediction

Select Cryptocurrency

Doge_Coin

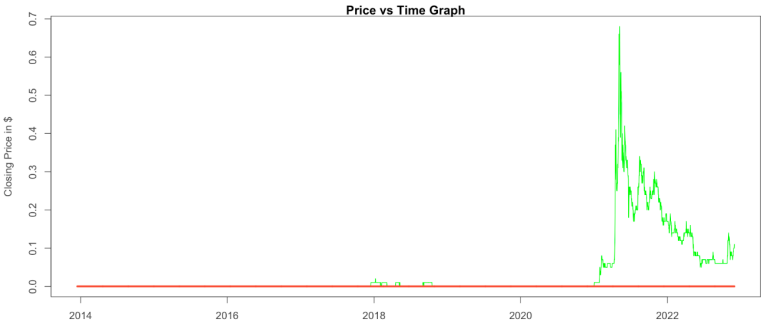
```
x =
Closing Price = 0$
```

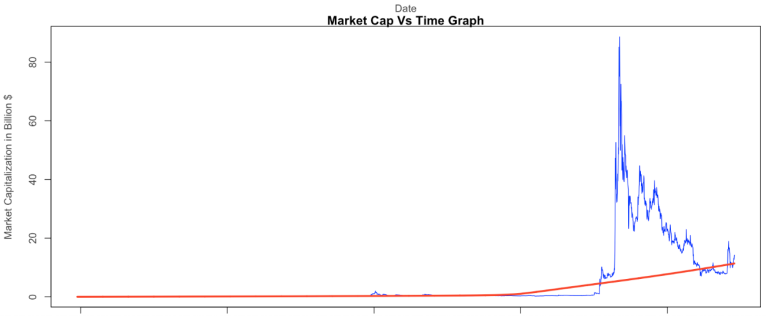
Overlay smooth trend line

Smoother span:

0.01 — 0.65 — 1

Higher values give more smoothness.





Cryptocurrency Data | Single | Compare | Prediction

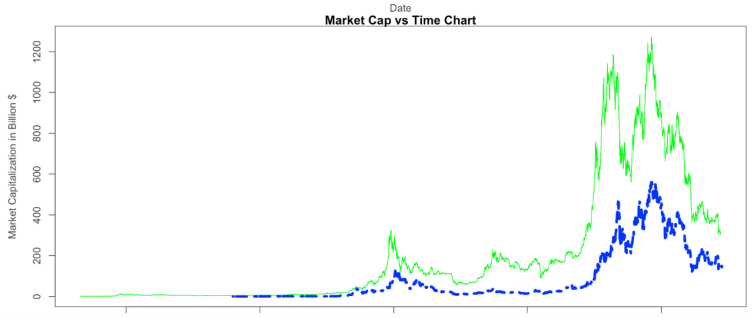
Select First Cryptocurrency

Bitcoin

Select Second Cryptocurrency

Ethereum

Overlay smooth trend line

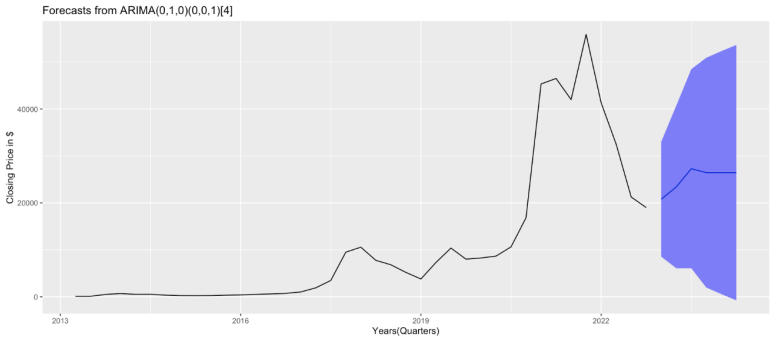


Cryptocurrency Data | Single | Compare | Prediction

Quarters to predict

1 6

1 2 3 4 5 6



3. User Manual

3.1 User Manual

User can run the system by simply following these simple steps:

1. You can download the project by going on https://github.com/dubeyanant/crypto_R
2. After that, you can click on “cryptoProject.Rproj” in the project folder to open the project in RStudio.
3. After opening the project in RStudio, you can click on "app.R" to open the file and then click on "run app" to start the web interface of Shiny.
4. The web interface of Shiny consists of a navigation bar, which in turn consists of three pages: single, compare, and prediction. You can click on any page and visit it.
5. The single page consists of a price vs. time chart and a time vs. market cap chart. You can select any cryptocurrency from the drop-down list.
6. The price vs. time and market cap vs. time charts on the compare page map one cryptocurrency onto the other. You can select any two cryptocurrencies from the drop-down list.
7. The Predict page consists of ARIMA model predictions of Bitcoin data up to the next six quarters. You can use a slider to define the time period between the first quarter and the sixth quarter.

4. Conclusion

4.1 Limitations & Drawbacks

1. Our ARIMA prediction model can only forecast prices six quarters in advance.
2. Because we have limited hardware resources, this data is static rather than dynamic, as scraping data requires us to constantly run a server with a script.

4.2 Future Enhancement

1. We would like to implement a bar plot (candlestick) chart for price vs. time for every crypto currency.
2. Implement the user-defined date range input for displaying the chart.
3. The data that we are showing on our local system, we would like to display all over the world using a web application.

4.3 References and Bibliography

1. Cryptocurrency data scraped from: https://coinmarketcap.com/

2. UI Designing in R reference : https://shiny.rstudio.com/

3. Referred book: R For Dummies Paperback – 21 July 2015 - Books