BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT
YELAHANKA, BENGALURU - 560064

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROJECT BASED LEARNING

Odd Semester - 2022-23

Project Report

"Bitcoin Price Notification"

Computer Networks and Security – 18CS52

Application Development using Python – 18CS55

V Semester, 5A CSE

Submitted By

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Under the Guidance of

Mrs. Vidya R Pai	Dr. Srivani P
Assistant Professor	Assistant Professor

2022-23

INSTITUTE VISION

To emerge as one of the finest technical institutions of higher learning, to develop engineering professionals who are technically competent, ethical and environment friendly for betterment of the society.

INSTITUTE MISSION

Accomplish stimulating learning environment through high quality academic instruction, innovation and industry-institute interface.

DEPARTMENT VISION

To develop technical professionals acquainted with recent trends and technologies of computer science to serve as valuable resource for the nation/society.

DEPARTMENT MISSION

Facilitating and exposing the students to various learning opportunities through dedicated academic teaching, guidance and monitoring.

PROGRAM EDUCATIONAL OBJECTIVES

1. Lead a successful career by designing, analyzing and solving various problems in the field of Computer Science & Engineering.
2. Pursue higher studies for enduring edification.
3. Exhibit professional and team building attitude along with effective communication.
4. Identify and provide solutions for sustainable environmental development.

Program Specific Outcomes (PSOs):

1. Analyze the problem and identify computing requirements appropriate to its solution.

2. Apply design and development principles in the construction of software systems of varying complexity.

Computer Networks and Security 18CS52 - Course Outcomes (COs) w.r.t this PBL	
CO	Using the modern relevant tools analyze & develop the application layer protocols and security protocols and write a brief report on your observations with less than 10% plagiarism checked in the TURNITIN tool.

Application Development using Python – 18CS55- Course Outcomes (COs) w.r.t this PBL	
CO	Using the python network libraries and their methods that are supported in python programming language and implement the networking application.

Project to Program Outcomes (PO) Mapping

Project Name: **Bitcoin Price Notification**

COURSE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Computer Networks and Security					√	√		√	√	√		√
Application Development using Python					√	√		√	√	√		√

Bitcoin Price Notification

Program outcomes (POs):	
PO1	**Engineering knowledge:** Apply the knowledge of Mathematics, Science, Engineering fundamentals and an engineering specialization to the solution of complex engineering problems
PO2	**Problem analysis:** Identify, formulate, review research literature, and analyze complex Engineering problems reaching substantiated conclusions using first principles of mathematics, Natural sciences and engineering sciences
PO3	**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the Information to provide valid conclusions
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern Engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7	**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for Sustainable development
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO10	**Communication:** Communicate effectively on complex engineering activities with the engineering Community and with society at large, such as, being able to comprehend and write effective reports And design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance:** Demonstrate knowledge and understanding of the Engineering and management principles and apply these to one's own work, as a member and Leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Project to Program Specific Outcomes (PSO) Mapping

Program Specific Outcomes (PSOs):	
PSO1	Analyze the problem and identify computing requirements appropriate to its solution.
PSO2	Apply design and development principles in the construction of software systems of varying complexity.

Project Name: Bitcoin Price Notification

COURSE	PSO1	PSO2
Computer Networks and Security	√	√
Application Development using Python	√	√

ABSTRACT:

Cryptocurrency is a sort of digital money in which transactions are protected by encryption. People are frequently unaware of cryptocurrencies and many regard it as a criminal activity. As information and communication technology advances at a breakneck pace, many aspects of our everyday lives have been digitized, making them more expandable and productive. Cryptocurrency is a safe, popular, and standardized means to transact from anywhere on the planet, with relatively minimal fees. Bitcoin is one such most popular cryptocurrency in present days.

The concepts of computer networks that we make use of in our project are as follows

- HTTP requests (requests package in python)

- Webhooks and IFTTT ("if this, then that") to connect our python project to external services such as sending an email, mobile notifications, telegram notification and even calling your phone.

➢ The project is developed using python programming language importing in-built python packages.

INTRODUCTION:

Nowadays, Cryptocurrencies are the hot trending topic, most importantly 'Bitcoin'. But the problem is that bitcoin's price is highly volatile and you will never really know where it's going to be at the end of the day. It's really hard to keep track of the ever-changing BTC price. So instead of constantly checking various websites for the latest price, why don't we make Python application to do this work automated for us. In this project, we are going to build a python script that will keep

track of the latest bitcoin price and keeps us updated with the changing price at a specified interval of time. This project is developed for those who wish to invest online while simultaneously dealing with economic operations like purchasing, selling, and trading.

MOTIVATION:

A crypto price alert is a notification that pops up on your phone, telling you that the price of a currency has reached or is approaching a certain point. To take advantage of this, you need to have an app that you can configure to send alerts whenever the price reaches a specific value. The goal here should be obvious: and that is to buy before the currency goes up and sell before it goes down.

Crypto traders use price alerts to get ahead of the market. They want to know when a currency is overbought and can be sold at a profit or when it is undervalued and should be bought. On the whole, crypto price alerts are highly beneficial for traders because they provide information about price fluctuations for selected cryptocurrencies (Bitcoin). If you want to make data-based decisions in the crypto market, it's best to use a crypto price alert app to stay on top of the changes in crypto prices.

EXISTING SYSTEM:

• The crypto world moves almost entirely on sentiment and speculation. People look at charts and discuss news, trying to find patterns that help them predict when the price will go up or down.

• Some of these patterns are simple, like a descending triangle that might indicate a fall in bitcoin price. But many strategies are far more complex, involving code repositories on GitHub, social media activity, and other factors.

• A crypto price alert app saves you from all the hard work, showing the changing price of tokens in real time.

LIMITATIONS OF EXISTING SYSTEM:

The problem with the existing system is that the bitcoin's price is highly volatile, and it is really hard to know where it's going to be at the end of the day. It's really difficult to keep track of the ever-changing BTC price. In the existing system the user will have to be constantly checking various websites in order to get the latest price of bitcoin which is very hectic and time consuming.

PROPOSED SYSTEM:

✓ The project needs two python libraries for its functionalities:

- requests:- requests is a networking library defined in python used for making HTTP requests to the websites requesting for information.

- matplotlib: - matplotlib is a python module which has predefined functions and methods that can do many operations on graph plots and charts.

- The project makes an HTTP request to the website coinmarketcap.com requesting the live bitcoin price.

✓ In turn the bitcoin price in USD is received as a response message.

✓ The **coinmarketcap** API key is needed for user authentication with the website.

✓ Telegram bot and user's telegram chat ID are used to send notification.

✓ We have designed our project to send notifications every time_interval (user defined) and also immediately when the bitcoin price values falls below a threshold value set by user.

✓ A graph is generated from list of 5 values of BTC price and sent to the user in form of image (.png format).

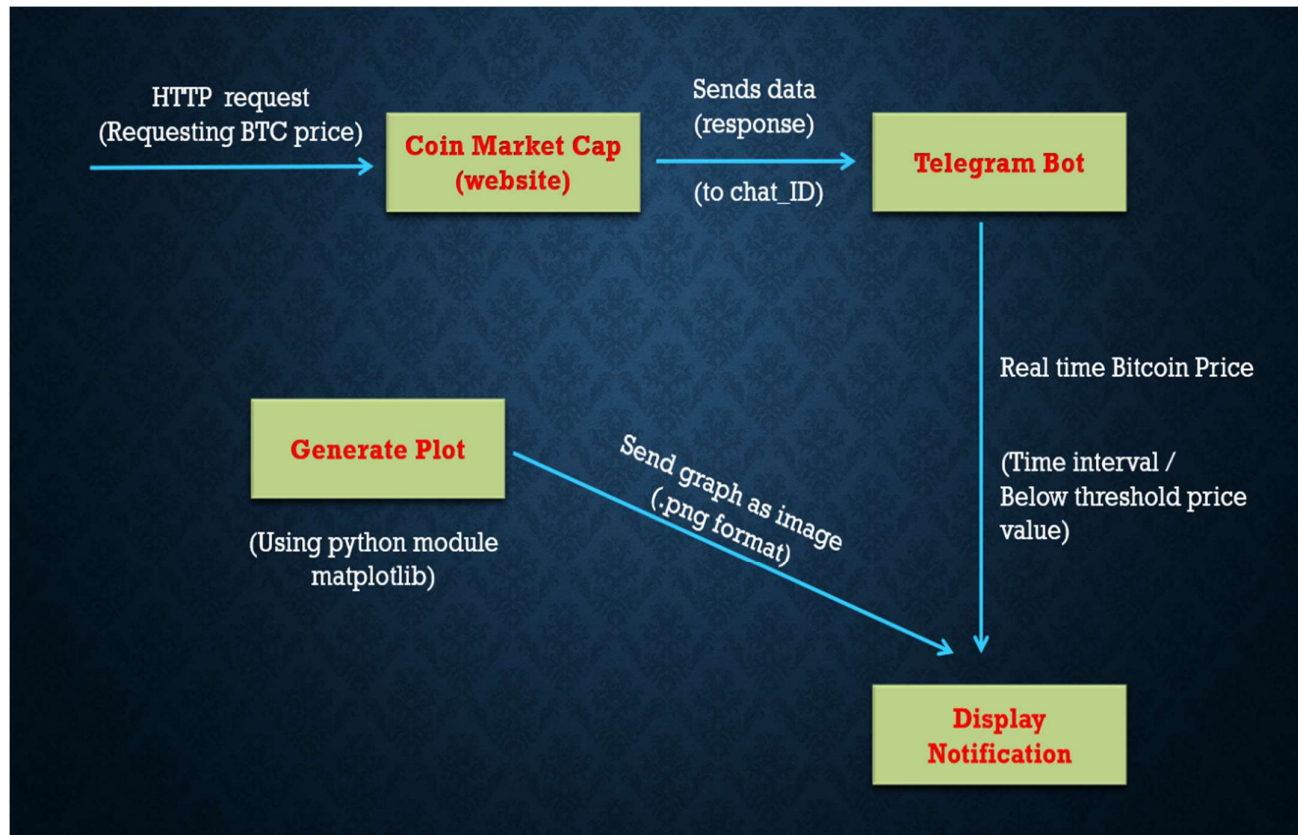# SYSTEM REQUIREMENT SPECIFICATIONS (FUNCTIONAL AND NON-FUNCTIONAL):

Functional Requirements/User Requirements:

-> Coinmarketcap.com API token

-> A telegram bot and it's token

-> User's telegram account chat_id

-> And Python3

Non-functional Requirements/System Requirements:

-> System requires a 2 GB of RAM.

->Minimum of 1.3 GHz processor speed

SYSTEM ARCHITECTURE / DESIGN:

IMPLEMENTATION:

- ✓ The coinmarketcap API key is needed for user authentication with the website.
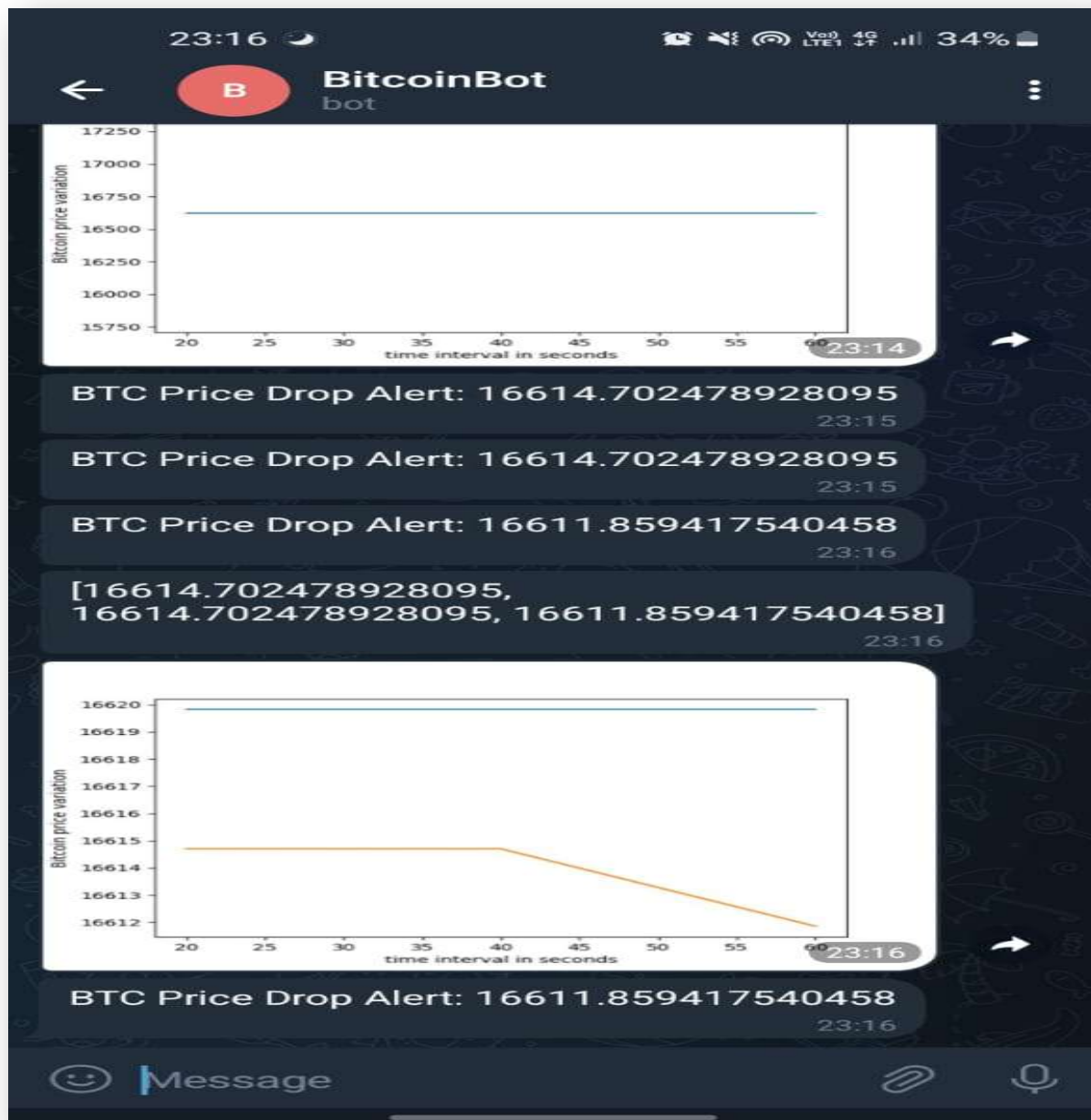- ✓ Telegram bot and user's telegram chat ID are used to send notification.

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VALIDATION/RESULTS:

Snapshot showing the messages sent to telegram app : the latest bitcoin price in US dollars and the graph plotted for the prices.

Bitcoin Price Notification

Snapshot showing the plot generated for the bitcoin prices upon the given period of time interval (10 seconds for testing)

FUTURE SCOPE/ENHANCEMENT:

In the future we may take up this project to add additional features and functionalities to already implemented functions.

- ➢ Send Email to the user the details of BTC price and graph.
  to his mail_ID.

- ➢ Send a normal mobile notification using IFTTT (If This Then That).

- ➢ Send normal SMS to the mobile number.

- ➢ Also, we may get the latest price of many other cryptocurrencies.

- ➢ We may develop a mobile app with all these functionalities.

REFERENCES:

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2. https://www.geeksforgeeks.org/get-bit-coin-price-in-real-time-using-python/

3. https://stackoverflow.com/questions/71653548/cryptocurrency-price-tracker-using-python