INNOVATIVE PROJECT DEVELOPMENT REPORT

CRYPTOCURRENCY PREDITION USING MACHINE LEARNING

Submitted by

B.UJJAINI	B.SAI SUPRAJA	B.NAGA MAHESHWARI	B.MADHURI
(21RH1A0516)	(21RH1A0520)	(21RH1A0523)	(21RH1A0535)

Under the Esteemed Guidance of

Mrs.V.PRABHAVATHI

Assistant Professor

In partial fulfillment of the Academic Requirements for the Degree of

BACHELOR OF TECHNOLOGY

Computer Science &Engineering

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

(Autonomous Institution-UGC, Govt. of India)

Accredited by NBA & NAAC with 'A 'Grade, UGC, Govt .of India **NIRF Indian Ranking–2018, Accepted by MHRD, Govt. of India Permanently Affiliated to JNTUH, Approved by AICTE, ISO 9001:2015 Certified Institution**

AAAA+ Rated by Digital Learning Magazine, AAA+ Rated by Careers 360 Magazine, 6thRankCSR, Platinum Rated by AICTE-CII Survey, Top100 Rank band by ARIIA, MHRD, Govt. ofIndia

National Ranking-Top 100 Rank band by Outlook, National Ranking-Top 100Rank band by Times NewsMagazine

Maisammaguda, Dhullapally, Secunderabad, Kompally-500100

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Maisammaguda, Dhullapally, Secunderabad, Kompally-500100

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the Project work entitled "CRYPTOCURRENCY PREDITION USING MACHINE LEARNING" is carried out by **B.UJJAINI (21RH1A0516),B.SAI SUPRAJA (21RH1A0520), B.NAGA MAHESHWARI (21RH1A0523), B.MADHURI (21RH1A0535)** in partial fulfillment for the award of degree of **BACHELOR OF TECHNOLOGY** in Computer Science and Engineering, Malla Reddy Engineering College For Women (Autonomous), Hyderabad during the academic year 2022-2023.

SUPERVISER'S SIGNATURE
Mrs.V.PRABHAVATHI
Assistant Professor

HEAD OF THE DEPARTMENT
DR.M.VANITHA
Professor and HOD

EXTERNALEXAMINER

MALLA REDDY ENGINEERING COLLEGE FOR WOMEN

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Maisammaguda, Dhullapally, Secunderabad, Kompally-500100

DECLARATION

We hereby declare that our project entitled **"CRYPTOCURRENCY PREDITION USING MACHINE LEARNING"** submitted to **Malla Reddy Engineering College for Women, Hyderabad** for the award of the Degree of Bachelor of Technology in **Computer Science and Engineering** is a result of original research work done by us.

It is declared that the project report or any part there of has not been previously submitted to any University or Institute for the award of Degree.

B. UJJAINI (21RH1A0516)
B. SAI SUPRAJA (21RH1A0520)
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We feel ourselves honored and privileged to place our warm salutation to our college **Malla Reddy Engineering College for Women** and Department of **Computer Science and Engineering** which gave us the opportunity to have expertise in engineering and profound technical knowledge.

We would like to deeply thank our Honorable Minister of Telangana State **Sri.Ch. MALLAREDDY GARU,** founder chairman MRGI, the largest cluster of institutions in the state of Telangana for providing us with all there sources in the college to make our project success.

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We would like to thank **A.RADHA RANI**, Director of Computer Science and Engineering & Information Technology for encouraging us to take up a project on this subject and motivating us towards the Project Work.

We express my sincere gratitude to **Dr. M.VANITHA**, Professor and Head of the Department of Computer Science and Engineering for inspiring us to take up a project to this subject and successfully guiding us towards its completion.

We would like to thank our internal guide **Mrs. V.PRABHAVATHI** Assistant Professor all the Faculty members for their valuable guidance and encouragement towards the completion of our project work.

With regards and gratitude,

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ABSTRACT

Cryptocurrencies have become a prominent asset class in the financial world, characterized by their remarkable volatility and market dynamics. In this project, we employ advanced machine learning techniques, specifically Random Forest and Gradient Boosting algorithms, to predict cryptocurrency prices. Our analysis hinges on an extensive dataset comprising cryptocurrency prices recorded at specific timestamps.

Our primary goal is to leverage the power of machine learning to forecast cryptocurrency price movements, offering investors and traders valuable insights for decision-making. By training and evaluating our models on historical price data, we aim to provide predictions that assist in making informed trading choices.

The core outcome of this project is the calculation of profit percentages based on the model's predictions. We compare the predictive performance of Random Forest and Gradient Boosting algorithms, presenting the results in the form of a bar graph. This graphical representation showcases the effectiveness of each algorithm, allowing users to discern which model offers the most reliable predictions.

By harnessing the capabilities of machine learning and a comprehensive dataset of cryptocurrency prices, our project strives to contribute to the ongoing efforts to enhance cryptocurrency market analysis. The insights gained from this research can assist traders and investors in making well-informed decisions, ultimately promoting a more transparent and efficient cryptocurrency market.

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CHAPTER 1

INTRODUCTION

The realm of cryptocurrency has emerged as a dynamic and lucrative market in recent years. With its distinctive volatility and investment potential, accurate price prediction has become a critical need for traders and investors. In response to this demand, our project focuses on harnessing machine learning techniques, specifically the Random Forest and Gradient Boosting algorithms, to predict cryptocurrency prices.By analyzing a rich dataset of historical cryptocurrency price data recorded at specific timestamps, our aim is to offer reliable insights for decision-making in cryptocurrency trading and investment. The project not only addresses the ever-growing interest in cryptocurrencies but also contributes to the broader domain of financial forecasting.

This project aims to revolutionize cryptocurrency market analysis by implementing advanced machine learning algorithms, specifically Random Forest and Gradient Boosting, to create predictive models for forecasting cryptocurrency prices. The objectives encompass efficient data handling, involving the collection and preprocessing of vast and dynamic datasets associated with cryptocurrency prices.

Additionally, the project focuses on developing a user-friendly interface, ensuring seamless interaction for traders and investors to input parameters and interpret predictions. Furthermore, the project explores the feasibility of integrating real-time data updates, enhancing the system's ability to provide timely insights aligned with the ever-changing nature of cryptocurrency markets.By incorporating machine learning techniques, it seeks to enhance decision-making processes for traders and investors, ultimately contributing to more informed, data-driven strategies in the volatile world of cryptocurrency trading. The comparative analysis between Random Forest and Gradient Boosting algorithms adds an extra layer of depth, allowing users to choose the most effective model for their specific needs.

In essence, this project represents a pioneering effort to harness the capabilities of machine learning for predicting cryptocurrency prices, offering a valuable tool for market participants navigating the complexities of the digital asset landscape. This project is significant in providing a practical and automated approach to cryptocurrency price prediction, offering a substantial improvement over traditional manual analysis.

CHAPTER 2

LITERATURE SURVEY

Existing System

In the current scenario of cryptocurrency price prediction, the prevalent methods predominantly hinge on human analysis, technical evaluations, and simplistic statistical models. Many existing systems heavily rely on historical trends and traditional financial indicators. While historical data is valuable, it may not fully capture the unique characteristics and sudden changes that define the cryptocurrency market, leading to less accurate predictions.However, these conventional approaches often prove insufficient in capturing the precision and adaptability demanded by the swiftly evolving cryptocurrency market. The intricacies of cryptocurrency price movements, characterized by intricate patterns and abrupt shifts, pose challenges for traditional methods, leading to limitations in accuracy and responsiveness. Recognizing this gap, our project aspires to revolutionize and contemporize the prediction landscape by harnessing the potential of machine learning. Through the integration of advanced algorithms, our system aims to provide predictions that are better equipped to navigate the unique dynamics of the cryptocurrency market, offering enhanced precision and adaptability in the face of its rapidly changing nature.

Disadvantages-

- **Precision and Adaptability Challenges:** Traditional methods of cryptocurrency price prediction, such as human analysis, technical analysis, and simple statistical models, face challenges in achieving precision and adaptability. The rapidly evolving nature of the cryptocurrency market demands more dynamic and responsive approaches.
- **Inability to Capture Complex Patterns:** Cryptocurrency markets exhibit intricate patterns and sudden shifts that are challenging for traditional methods to capture effectively. Human analysts and basic statistical models may struggle to discern and react promptly to these complex and dynamic movements.
- **Limitations in Traditional Approaches:**The limitations of traditional approaches become evident when dealing with the unique characteristics of cryptocurrency price movements. Conventional models often lack the sophistication required to analyze and interpret the non-linear and highly volatile nature of cryptocurrency markets.
- **Lack of Adaptability to Market Dynamics:** Human and statistical approaches may lack the adaptability required to respond swiftly to the rapidly changing dynamics of cryptocurrency markets. Sudden shifts or anomalies may be overlooked or not adequately addressed in a timely manner.

Proposed System

Our proposed system represents a significant leap forward in cryptocurrency price prediction, offering several distinct advantages. Firstly, the incorporation of machine learning algorithms, specifically Random Forest and Gradient Boosting, addresses the shortcomings of human analysis and simple statistical models. These algorithms are designed to capture intricate patterns and sudden shifts characteristic of cryptocurrency price movements, providing a more adaptive and precise predictive capability.

The proposed system, through its Data Collection and Preprocessing module, ensures the efficient handling of these datasets, enabling a more comprehensive analysis and interpretation of market trends. Furthermore, the machine learning-driven nature of the proposed system introduces adaptability and responsiveness to the rapidly changing dynamics of cryptocurrency markets. While traditional approaches may lack the agility required to respond swiftly to sudden shifts, the Random Forest Model and Gradient Boosting Model modules in our system continuously learn and adjust, offering a more dynamic and accurate prediction mechanism.

Advantages

- **Machine Learning Precision:** The proposed system harnesses the power of machine learning algorithms, specifically Random Forest and Gradient Boosting, providing a more precise and adaptive approach to cryptocurrency price prediction. These algorithms excel in capturing complex patterns and adapting to the rapidly changing dynamics of the cryptocurrency market.
- **Profit Percentage Calculations**: The system provides users with profit percentage calculations, offering a tangible measure of the predicted outcomes. This feature assists traders and investors in assessing the potential returns on their investments, aiding in risk management and decision-making.
- **Holistic Predictive Capabilities**: Through the combination of machine learning models and comprehensive modules, the proposed system offers a holistic approach to cryptocurrency price prediction. The interconnected modules, from data collection to result visualization, create a seamless and effective predictive framework.
- **Real-Time Insights:** The exploration of integrating real-time data updates enhances the system's ability to provide timely insights aligned with the dynamic nature of cryptocurrency markets. This ensures that users have access to the most up-to-date information, facilitating more informed decision-making.

CHAPTER 3

SYSTEM REQUIREMENTS

Software Requirements

Python: Python is the programming language .we can write and execute the programs in an efficient way. Tkinter is included with Python's standard library, so you don't need to install it separately. It provides tools for creating graphical user interfaces.

Backend Development: Python's simplicity, readability, and extensive libraries make it a popular choice for developing the backend of information of cryptocurrency. It can be used tohandle data storage, process user requests, and manage the overall system logic

Data Processing and Analysis: Python's data processing libraries, such as Pandas and Numpy, can be utilized to analyze related data of cryptocurrency, such as profit, opening and closing rates. This information can help make informed decisions and improve the analysis system.

Reporting and Visualization**:** Python's data visualization libraries like Matplotlib and Seaborn can be used to create meaningful reports and charts, presenting statistical information related to cryptocurrency and changes in those prices.

Database Management System: You may need a Database Management System (DBMS) to store and manage data. The DBMS allows users to insert data into the database and retrieve information as needed. example, when a new person joins the hostel, their details such as name, address, contact, etc., can be inserted into the person table., the DBMS can retrieve information about a person's room allocation, fee payments etc. The DBMS enables users to update or delete existing data. For instance, if a person changes their room or contact information, the DBMS allows for updating the relevant records., when a person leaves the hostel, their records can be deleted or marked as inactive

Database Connector: we need a Python library to connect your application to the chosen database system. For other DBMS options, you can consider libraries like **mysql-connector-python** for MySQL.

Google chrome: While not strictly necessary, using version control software like Git can help you manage and track changes to your codebase efficiently. Git is widely used and has various hosting services like GitHub, GitLab, and Bitbucket.

Operating System: Python is cross-platform, so you can develop on Windows, macOS, or Linux. However, it's essential to keep in mind any platform-specific considerations. Any OS with clients to access the internet.

Hardware Requirements

For application development, the following Hardware Requirements

Processor : A processor is the brain of a computer that performs all the calculations and operation Intel is a company that produces processors for computers. They have a range of processors such as Core i3, i5, i7, and i9 These processors are designed for different types of users and workloads. For example, the Core i3 is suitable for basic tasks like web browsing and word processing, while the i9 is more powerful and can handle demanding tasks.

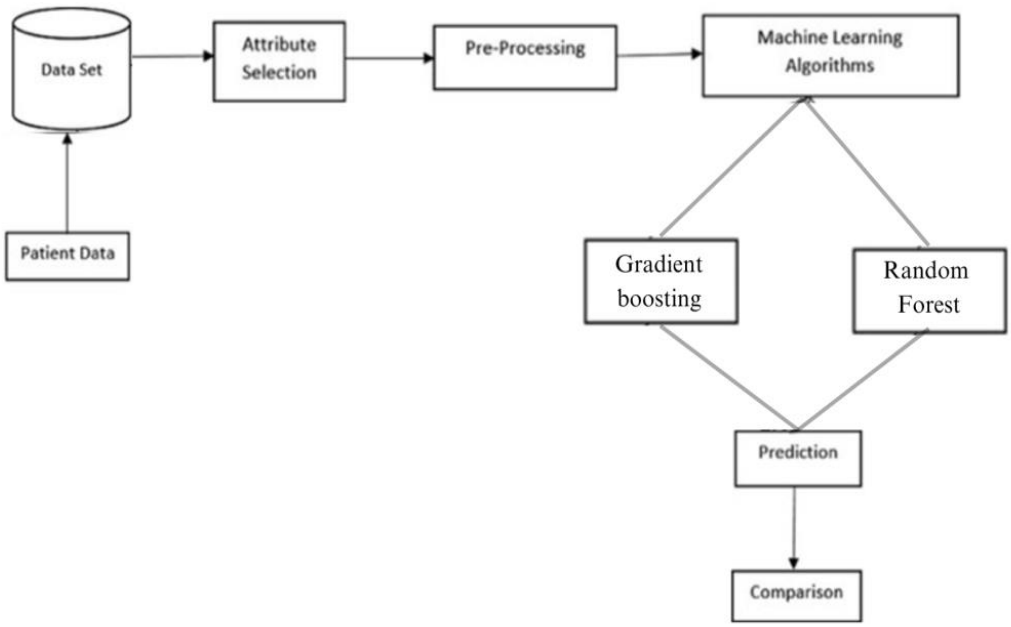
RAM: 256 MB
RAM, which stands for Random Access Memory, is a hardware device generally located on the motherboard of a computer and acts as an internal memory of the CPU. It allows CPU store data, program, and program results when you switch on the computer. It is the read and write memory of a computer, which means the information can be written to it as well as read from it.

Space on disk: minimum 512MB
A hard disk drive (HDD) is an internal or external computer component that stores data, such as the system, applications, and user files. HDDs are “non-volatile” storagedevices, meaning they retain stored data even when power isn’t being supplied.

CHAPTER 4

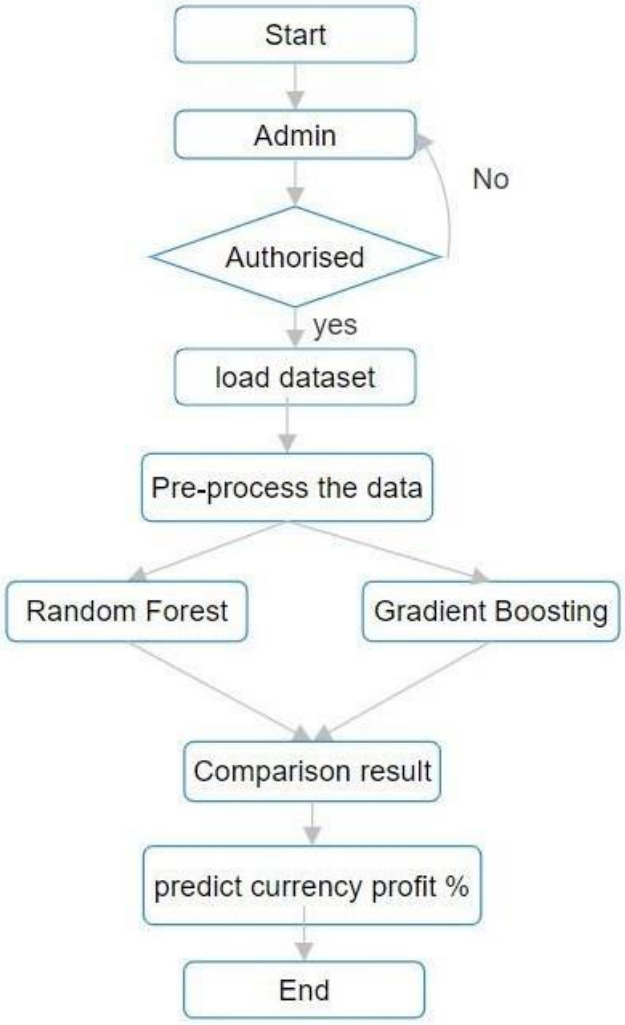
SYSTEM DESIGN

Block Diagram



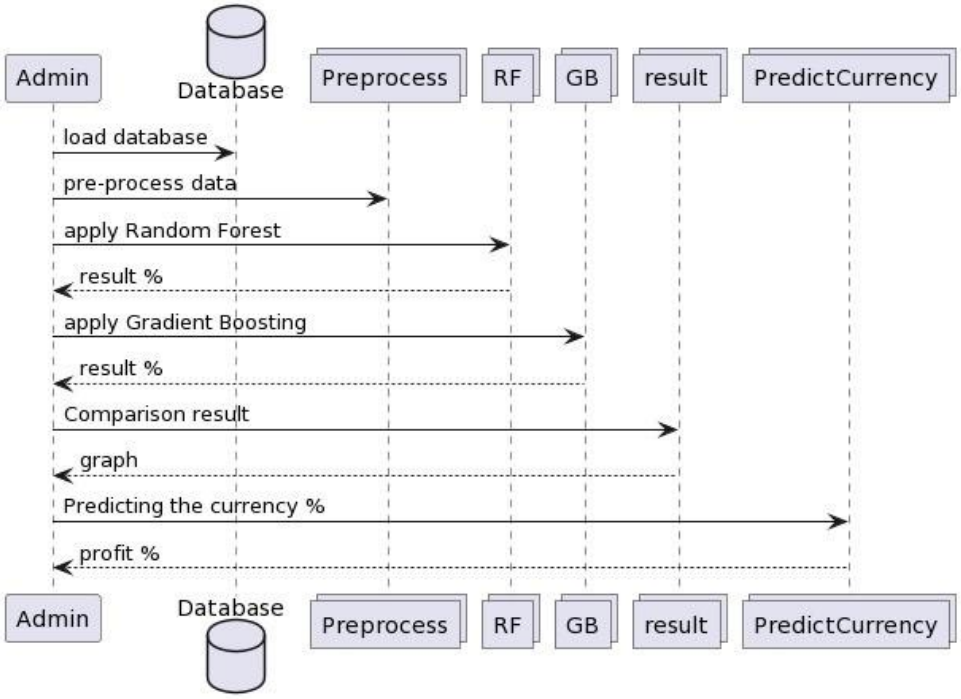
The block diagram outlines a streamlined process for cryptocurrency price prediction. It begins with data collection and preprocessing, followed by the implementation and optimization of Random Forest and Gradient Boosting models. The prediction module generates precise outcomes, presented through a user-friendly interface with real-time insights and comparative analyses. The system is designed for adaptability, scalability, and continuous improvement, ensuring a comprehensive framework for informed cryptocurrency trading decisions.

Flowchart Diagram



A flowchart is a diagram that depicts a process, system or computer algorithm. They are widely used in multiple fields to document, study, and plan, improve and communicate often complex processes in clear, easy-to-underst and diagrams.

Sequence Diagram



The above figure represents sequence diagram, the proposed system's sequence of data flow is represented.

A Sequence diagram emphasizes the time ordering of messages. A sequencediagram shows a set of objects and the messages sent and receive by those objects.The objects are typically named or anonymous instances of classes. Sequence diagrams are used to model the dynamic aspects of a system.

CHAPTER 5

SYSTEM IMPLEMENTATION

Step 1 – Install the python version 3.7.0 from the Google

Step 2 – Install various python libraries –

pip install numpy-1.18.1
pip install matplotlib-3.1.3
pip install pandas-0.25.3
pip install opencv-python 4.2.0.32
pip install keras-2.3.1
pip install tensorflow-1.14.0
pip install h5py-2.10.0
pip install pillow--7.0.0
pip install sklearn-genetic-0.2
pip install SwarmPackagePy
pip install sklearn
pip install scikit-learn-0.22.2.post1
pip install sklearn-extensions=0.0.2
pip install pyswarms-1.1.0
pip install django-2.1.7
pip install pymysql-0.9.3

Package	Version
absl-py	2.0.0
asgiref	3.7.2
astunparse	1.6.3
beautifulsoup4	4.12.2
bs4	0.0.1
cachetools	5.3.1
certifi	2023.7.22
charset-normalizer	3.3.0
click	8.1.7
colorama	0.4.6
cryptocompare	0.7.6
cycler	0.11.0
Django	3.2.22
dnspython	2.3.0
Flask	2.2.5
flatbuffers	23.5.26
gast	0.4.0
google-auth	2.23.3
google-auth-oauthlib	0.4.6
google-pasta	0.2.0
grpcio	1.59.0
h5py	2.10.0
idna	3.4
importlib-metadata	6.7.0
itsdangerous	2.1.2
Jinja2	3.1.2
joblib	1.3.2
keras	2.11.0
kiwisolver	1.4.5
libclang	16.0.6
Markdown	3.4.4
MarkupSafe	2.1.3
matplotlib	3.1.3
numpy	1.21.6
oauthlib	3.2.2
opencv-python	4.2.0.32
opt-einsum	3.3.0
packaging	23.2
pandas	1.1.5
Pillow	7.0.0
pip	23.2.1
protobuf	3.19.6
pyasn1	0.5.0
pyasn1-modules	0.3.0

pycoingecko	3.1.0
pymongo	4.5.0
PyMySQL	1.1.0
pyparsing	3.1.1
PyQt5	5.15.9
PyQt5-Qt5	5.15.2
PyQt5-sip	12.12.2
pyqtgraph	0.12.4
python-dateutil	2.8.2
pytz	2023.3.post1
requests	2.31.0
requests-oauthlib	1.3.1
rsa	4.9
scikit-learn	1.0.2
scipy	1.7.3
seaborn	0.12.2
setuptools	68.0.0
six	1.16.0
sklearn	0.0.post10
soupsieve	2.4.1
sqlparse	0.4.4
tensorboard	2.11.2
tensorboard-data-server	0.6.1
tensorboard-plugin-wit	1.8.1
tensorflow	2.11.0
tensorflow-estimator	2.11.0
tensorflow-intel	2.11.0
tensorflow-io-gcs-filesystem	0.31.0
termcolor	2.3.0
threadpoolctl	3.1.0
typing_extensions	4.7.1
urllib3	1.25.11
Werkzeug	2.2.3
wheel	0.41.2
wrapt	1.15.0
xlrd	2.0.1
zipp	3.15.0

Step 3 – Data Collection and Preprocessing :

- Develop mechanisms to efficiently collect cryptocurrency price data from various sources, including historical data and real-time updates.
- Implement preprocessing techniques to clean and transform raw data, addressing issues such as missing values, outliers, and data normalization.

Step 4 - Random Forest Model:

- Implement the Random Forest algorithm using machine learning libraries or frameworks.
- Fine-tune hyperparameters, such as the number of trees, tree depth, and feature selection, to optimize the model's predictive performance.
- Train the Random Forest model on historical cryptocurrency price data to enable accurate predictions.

Step 5 - Gradient Boosting Model:

- Implement the Gradient Boosting algorithm, specifically XGBoost or a similar variant, using appropriate libraries.
- Fine-tune hyperparameters, including the learning rate, tree depth, and regularization parameters, to enhance the model's accuracy.
- Train the Gradient Boosting model on historical cryptocurrency price data, allowing it to learn sequential patterns and trends.

Step 6 - Prediction and Output Generation:

- Develop a prediction module that utilizes the trained Random Forest and Gradient Boosting models to generate price predictions.
- Implement algorithms to calculate profit percentages based on predicted and actual price movements.
- Generate comprehensive output reports, including predicted prices, profit percentages, and any other relevant metrics.

Step 7 - Result Visualization:

- Design a user-friendly interface for traders and investors to interact with the system.
- Implement visualization tools to present the results, including a comparative bar graph that illustrates the effectiveness of the Random Forest and Gradient Boosting algorithms.
- Ensure clear and intuitive presentation of data, allowing users to interpret predictions and performance metrics effortlessly.

Step 8 - Testing and Evaluation:

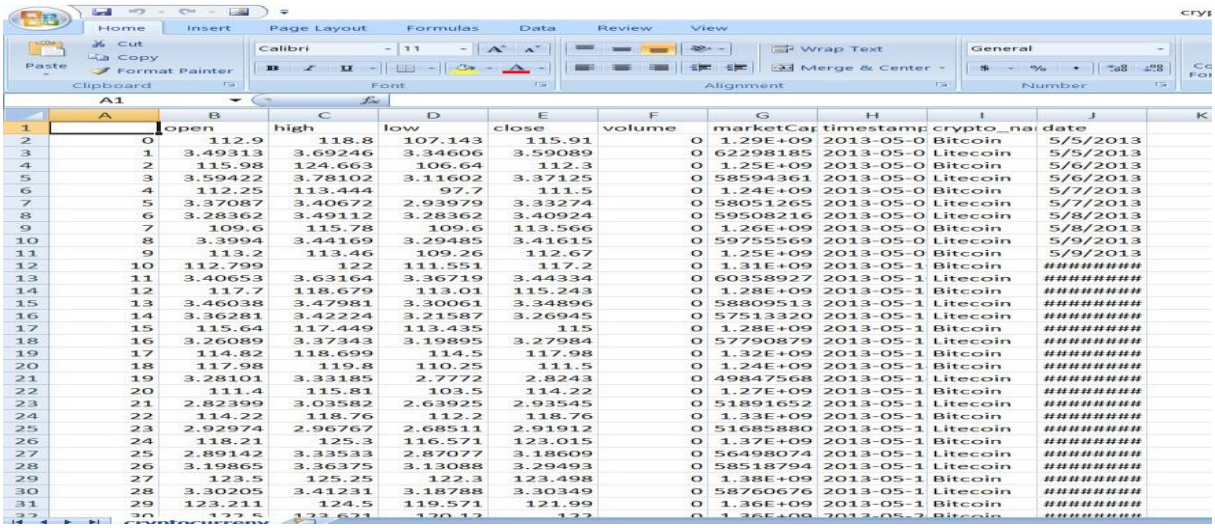
- Conduct thorough testing of each module to ensure the system's reliability and accuracy.
- Utilize historical data and possibly a simulated trading environment for rigorous evaluation of the predictive models.
- Implement feedback mechanisms to continuously refine and improve the models based on performance evaluations.

Step 9 - Continuous Improvement:

- Establish mechanisms for continuous monitoring of the system's performance in real-world conditions.
- Implement feedback loops and update mechanisms to adapt to changing market dynamics and user needs.
- Consider periodic reviews and updates to incorporate advancements in machine learning and data processing technologies.

CHAPTER 6

RESULT AND ANALYSIS



	A	B	C	D	E	F	G	H	I	J
1		open	high	low	close	volume	marketCap	timestamp	crypto_na	date
2	0	112.9	118.8	107.143	115.91	0	1.29E+09	2013-05-0	Bitcoin	5/5/2013
3	1	3.49313	3.69246	3.34606	3.59089	0	62298185	2013-05-0	Litecoin	5/5/2013
4	2	115.98	124.663	106.64	112.3	0	1.25E+09	2013-05-0	Bitcoin	5/6/2013
5	3	3.59422	3.78102	3.11602	3.37125	0	58594361	2013-05-0	Litecoin	5/6/2013
6	4	112.25	113.444	97.7	111.5	0	1.24E+09	2013-05-0	Bitcoin	5/7/2013
7	5	3.37087	3.40672	2.93979	3.33274	0	58051265	2013-05-0	Litecoin	5/7/2013
8	6	3.28362	3.49112	3.28362	3.40924	0	59508216	2013-05-0	Litecoin	5/8/2013
9	7	109.6	115.78	109.6	113.566	0	1.26E+09	2013-05-0	Bitcoin	5/8/2013
10	8	3.3994	3.44169	3.29485	3.41615	0	59755569	2013-05-0	Litecoin	5/9/2013
11	9	113.2	113.46	109.26	112.67	0	1.25E+09	2013-05-0	Bitcoin	5/9/2013
12	10	112.799	122	111.551	117.2	0	1.31E+09	2013-05-1	Bitcoin	#########
13	11	3.40653	3.63164	3.36719	3.44334	0	60358927	2013-05-1	Litecoin	#########
14	12	117.7	118.679	113.01	115.243	0	1.28E+09	2013-05-1	Bitcoin	#########
15	13	3.46038	3.47981	3.30061	3.34896	0	58809513	2013-05-1	Litecoin	#########
16	14	3.36281	3.42224	3.21587	3.26945	0	57513320	2013-05-1	Litecoin	#########
17	15	115.64	117.449	113.435	115	0	1.28E+09	2013-05-1	Bitcoin	#########
18	16	3.26089	3.37343	3.19895	3.27984	0	57790879	2013-05-1	Litecoin	#########
19	17	114.82	118.699	114.5	117.98	0	1.32E+09	2013-05-1	Bitcoin	#########
20	18	117.98	119.8	110.25	111.5	0	1.24E+09	2013-05-1	Bitcoin	#########
21	19	3.28101	3.33185	2.7772	2.8243	0	49847568	2013-05-1	Litecoin	#########
22	20	111.4	115.81	103.5	114.22	0	1.27E+09	2013-05-1	Bitcoin	#########
23	21	2.82399	3.03582	2.63925	2.93545	0	51891652	2013-05-1	Litecoin	#########
24	22	114.22	118.76	112.2	118.76	0	1.33E+09	2013-05-1	Bitcoin	#########
25	23	2.92974	2.96767	2.68511	2.91912	0	51685880	2013-05-1	Litecoin	#########
26	24	118.21	125.3	116.571	123.015	0	1.37E+09	2013-05-1	Bitcoin	#########
27	25	2.89142	3.33533	2.87077	3.18609	0	56498074	2013-05-1	Litecoin	#########
28	26	3.19865	3.36375	3.13088	3.29493	0	58518794	2013-05-1	Litecoin	#########
29	27	123.5	125.25	122.3	123.498	0	1.38E+09	2013-05-1	Bitcoin	#########
30	28	3.30205	3.41231	3.18788	3.30349	0	58760676	2013-05-1	Litecoin	#########
31	29	123.211	124.5	119.571	121.99	0	1.36E+09	2013-05-1	Bitcoin	#########

Fig 6.1

- we collect the data of cryptocurrency and store it in excel sheets. And preprocessing of data is done so as to remove unwanted data.

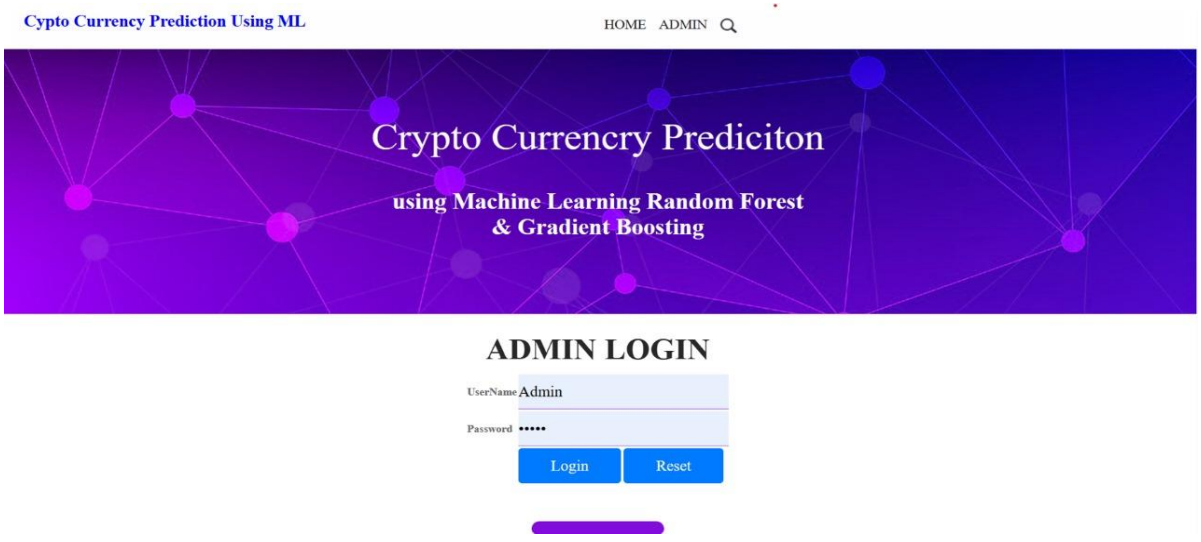


Fig-6.2

- This is homepage of the website. Login to the admin page by giving username and password and click on login button.

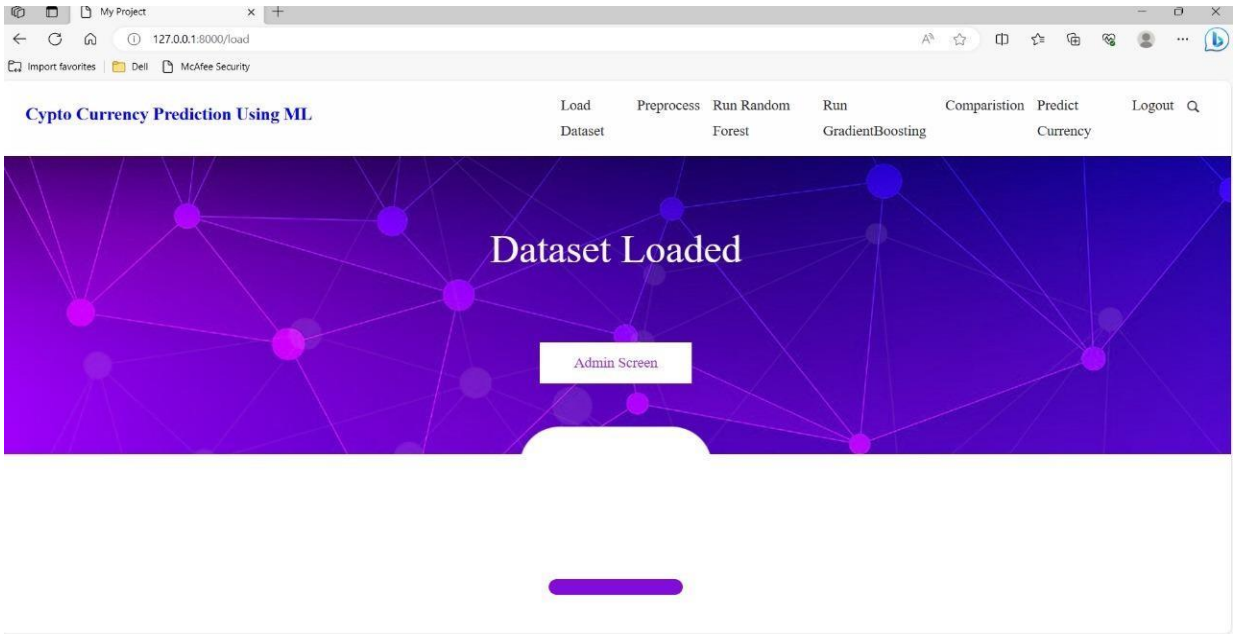


Fig-6.3

- We click on “load dataset” to load the data from excel sheet of cryptocurrency into the webpage

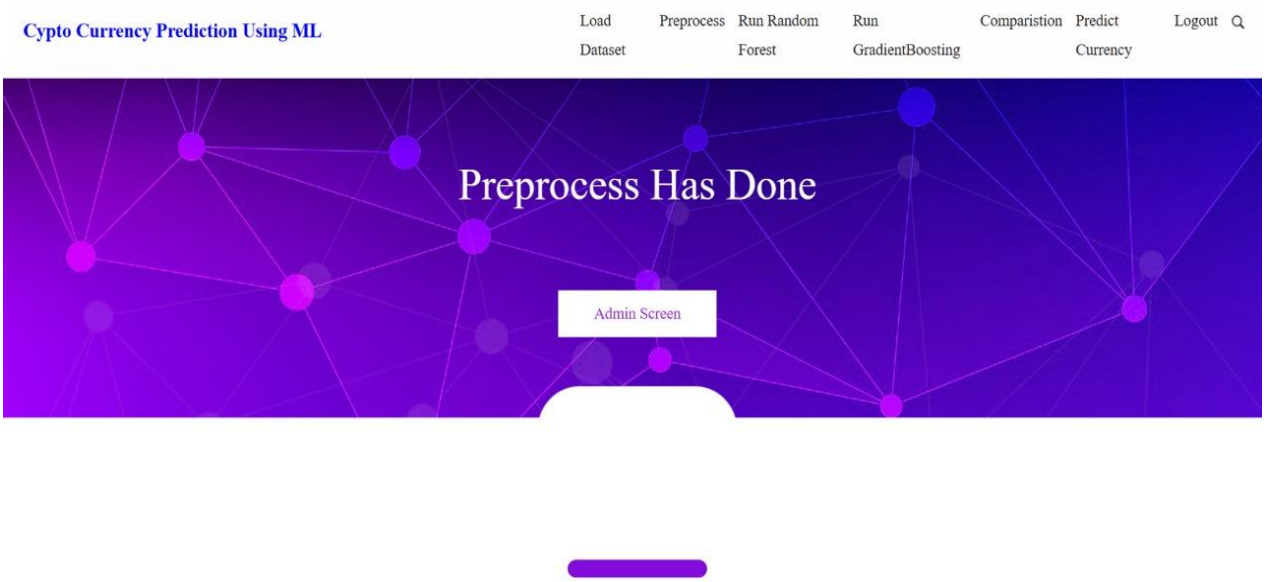


Fig-6.4

- Here after loading the dataset we perform preprocessing on the dataset. Click on “Preprocesss” for cleaning the data.

-

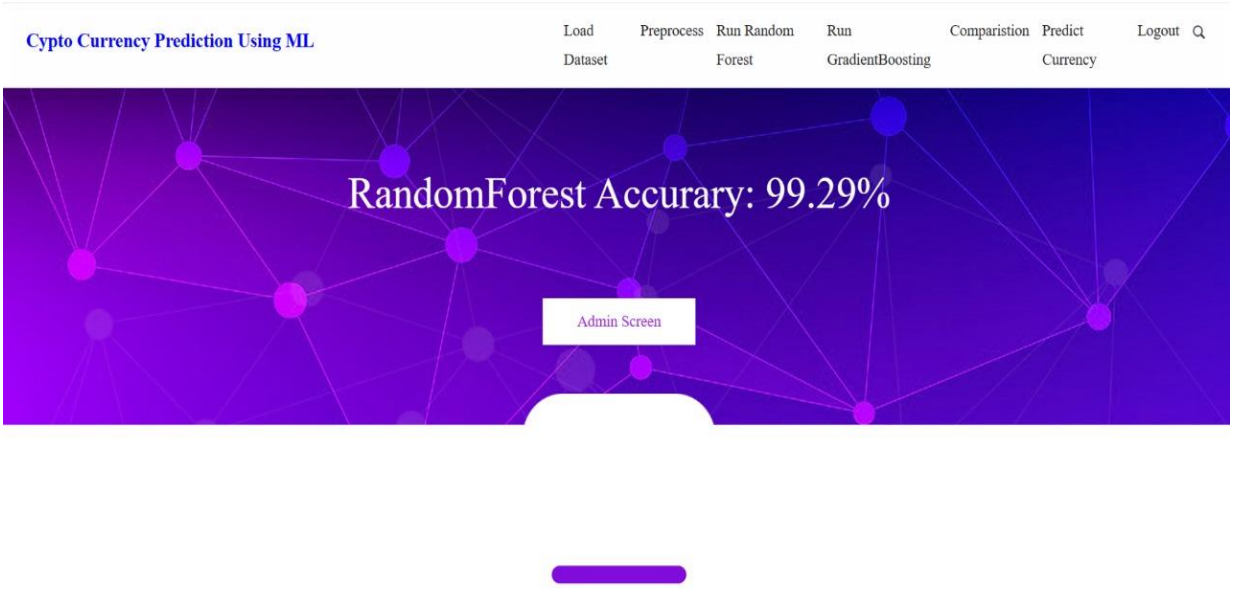


Fig – 6.5

- Now click on "Run Random Forest" for applying random forest algorithm to the dataset that is loaded and it will generate the profit percentage for the given dataset.

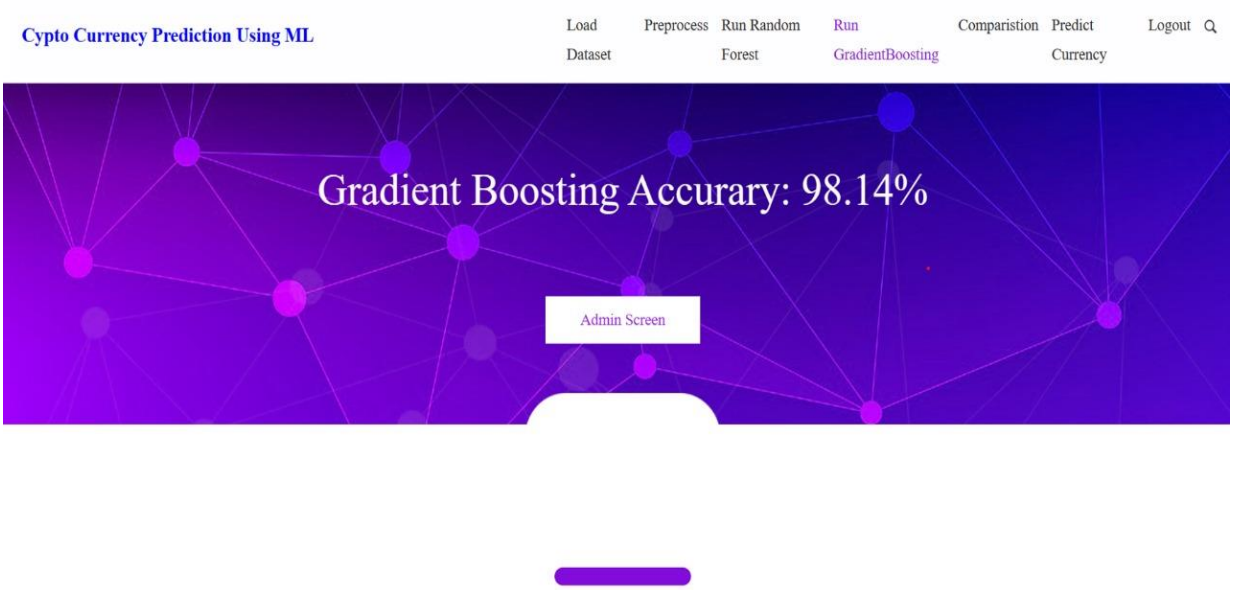


Fig-6.6

- Now click on "Run Gradient Boosting" for applying gradient boosting algorithm to the dataset that is loaded and it will generate the profit percentage for the given dataset

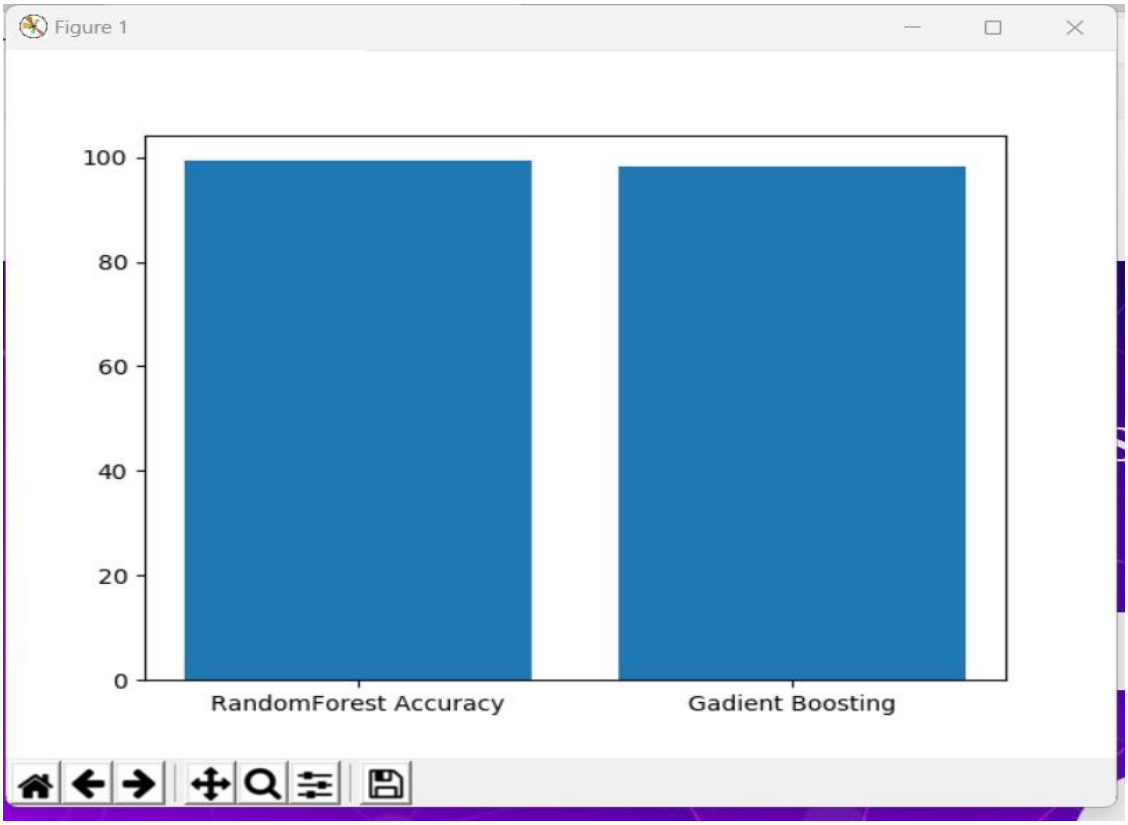


Fig – 6.7

- Click on "comparision". Here this will generate the bar graph for the both algorithms and compare the profit bars of each algorithm.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

Conclusion :

In summary, this project pioneers machine learning for cryptocurrency price prediction, overcoming manual analysis limitations. Through Random Forest and Gradient Boosting algorithms, the system delivers data-driven insights, addressing manual analysis constraints. Rigorous training ensures accurate predictions and profit calculations. A user-friendly interface, coupled with comparative bar graphs, facilitates informed decision-making for traders. In a dynamic cryptocurrency market, this project enhances transparency, efficiency, and contributes to data-driven financial decisions, aligning with the evolving landscape of digital assets.

Future Scope :

The future of this cryptocurrency prediction system involves incorporating advanced machine learning models like recurrent neural networks and long short-term memory networks for increased accuracy. Expanding support to a wider range of cryptocurrencies and integrating real-time data will enhance the system's relevance. Introducing risk assessment and portfolio optimization modules offers a holistic solution. Further refinements to the user interface will improve user experience. In summary, the project's future scope envisions advanced models, broader asset coverage, real-time capabilities, risk management, and an enriched user interface, contributing to a comprehensive cryptocurrency trading platform.

CHAPTER 8

SAMPLE CODE

```
from django.shortcuts import
renderimport pymysql
import os
import pandas as pd
from sklearn.model_selection import train_test_split

from sklearn.ensemble import RandomForestRegressor
from sklearn.ensemble import GradientBoostingRegressor
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt

# Create your
views here.
Def
index(request):
    return
render(request,'AdminApp/index.html')def
login(request):
    return
render(request,'AdminApp/Admin.html')def
LogAction(request):
    username=request.POST.get('userna
    me')
    password=request.POST.get('passw
    ord')
    if username=='Admin' and password=='Admin':
        return render(request,'AdminApp/AdminHome.html')
    else:
        context={'data':'Login Failed ..... !!'}
        return
render(request,'AdminApp/Admin.html',context)def
home(request):
    return render(request,'AdminApp/AdminHome.html')
global df
def
    LoadData
    (request):
    global df
    BASE_DIR = os.path.dirname(os.path.dirname(os.path.abspath(_file_)))
```

```
        df=pd.read_csv(BASE_DIR+"\\dataset\\cryptocurreny.csv")
        #data.fillna(0, inplace=True)

    context={'data':"Dataset Loaded\n"}

    return render(request,'AdminApp/AdminHome.html',context) global X
    global y
    global X_train,X_test,y_train,y_test def split(request):
    global X_train,X_test,y_train,y_test global df
    df=df.drop(columns=(['timestamp','date']))
     df.fillna(0, inplace=True)
    X=df[['open','high','low','close','volume']]
    y=df[['marketCap']]
    X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2)
    context={"data":"Preprocess Has Done"}
    return render(request,'AdminApp/AdminHome.html',context) global ranacc
    global rfc
    def runRandomForest(request): global ranacc
    global rfc
    rfc = RandomForestRegressor() rfc.fit(X_train, y_train) ranacc=rfc.score(X_test, y_test)*100
    r = format(ranacc, ".2f")
    context={"data":"RandomForest Accurary:"+str(r)+"%"}
     return render(request,'AdminApp/AdminHome.html',context)
    global adacc global model
    def runGradientboost(request): global adacc
    global model
    model = GradientBoostingRegressor()
    model.fit(X_train, y_train) adacc=model.score(X_test, y_test)*100 ad = format(adacc, ".2f")
    context={"data":"Gradient Boosting Accurary: "+str(ad)+"%"}
     return render(request,'AdminApp/AdminHome.html',context)

    def runComparision(request): global ranacc,adacc
    bars = ['RandomForest Accuracy','Gadient Boosting']
    height = [ranacc,adacc]
    y_pos = np.arange(len(bars)) plt.bar(y_pos, height) plt.xticks(y_pos, bars) plt.show()
    return render(request,'AdminApp/AdminHome.html')

    def predict(request):
    return render(request,'AdminApp/Prediction.html')
```

```
def PredAction(request):
global model global rfc o=request.POST.get('open')
high=request.POST.get('high')
low=request.POST.get('low')
 close=request.POST.get('close')
volume=request.POST.get('volume')
pred=rfc.predict([[o,high,low,close,volume]])
context={'data':pred[0]}
return render(request,'AdminApp/PredictedData.html',context)
```

REFERENCES

[1]The problem statement is taken from **IEEE Explorer**
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https://www.geeksforgeeks.org/bar-plot-in-matplotlib/

[3]The **Simplilearn** provided platform to learn about the Gradient-Boosting-Algorithm
https://www.simplilearn.com/gradient-boosting-algorithm-in-python-article

[4] The **Analyticsvidhya** provided platform to learn about the Random-forest-Algorithm
https://www.analyticsvidhya.com/blog/2021/06/understanding-random-forest/