Bitcoin Price Prediction

bitcoin

Contents Overview

Introduction

- Bitcoin is an innovative payment network and a new kind of money or a cryptocurrency, where cryptocurrency is a digital asset designed to work as a exchange medium that uses strong cryptography to secure financial transactions, control the creation of additional units, and verify the transfer of assets. BITCOIN, the first cryptocurrency was introduced in a paper published in 2008 by an author under pseudonym of SATOSHI NAKAMOTO.
- We aim to incorporate machine learning to analyse past fluctuations in currency prices, and attempt to decipher a trend in prices, this is because we can’t predict accurately and sentiment analysis of bitcoin from twitter tweets.

Why this project

- As we reach, the ending of the course, we will soon be responsible, earning individuals,
  who will want to save money and invest it properly to gain huge benefits.
- Since stocks and cryptocurrency trading are in trend, we choose to help common man to learn how this works, and enable them to invest judiciously by studying this**Trend Analysis.**

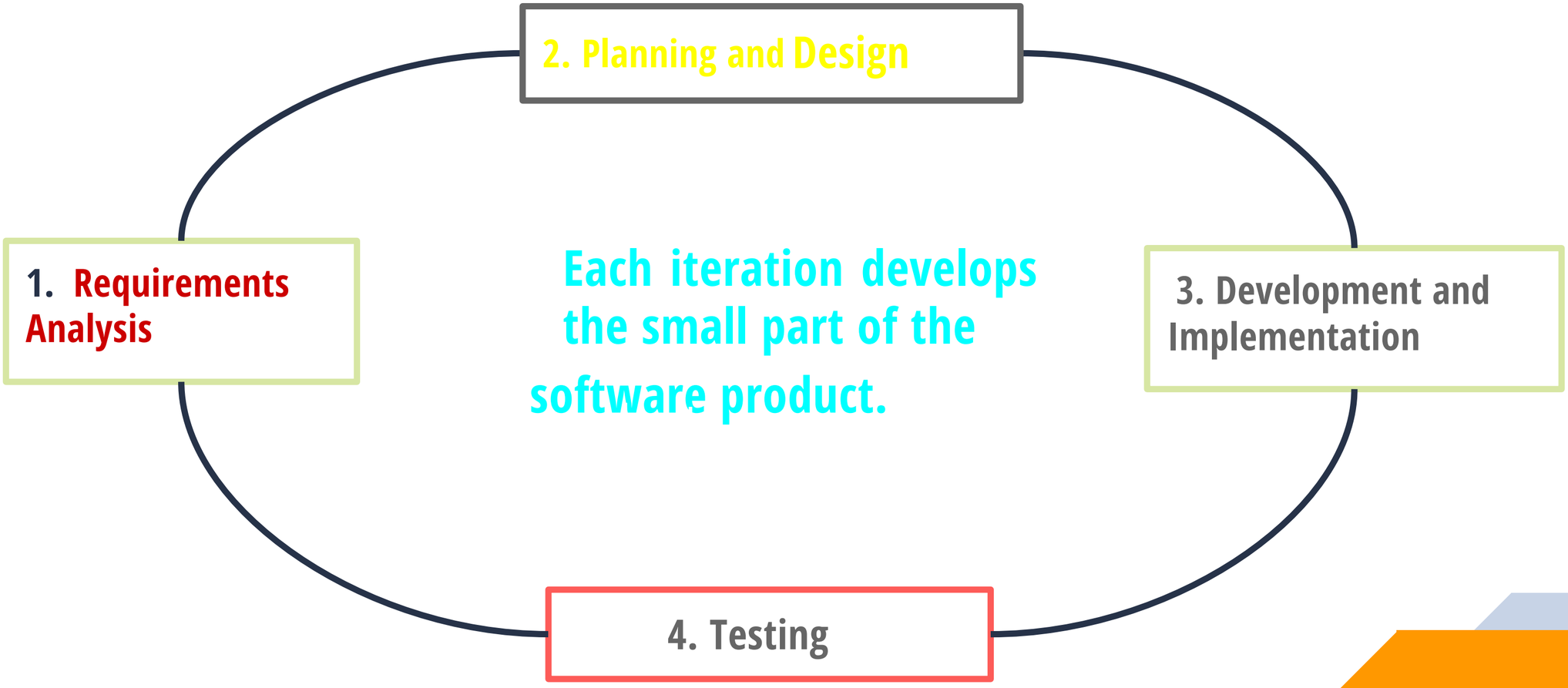
what is y finance ?

yfinance is a popular open source library developed by Ran Aroussi as a means to access the financial data available on Yahoo Finance.

why we use y finance?

- Yahoo Finance offers an excellent range of market data on stocks, bonds, currencies and cryptocurrencies. It also offers market news, reports and analysis and additionally options and fundamentals data- setting it apart from some of it’s competitors

Agile Process Model



User And System Requirements

User Requirements

- To get the predicted price of a bitcoin
- To see the trend in variation of bitcoin

System requirements

- To incorporate machine learning algorithms in order decipher the a trend in prices .
- To use various API which provides user-friendly UI.

ALGORITHM

```
from sklearn.model_selection import train_test_split
from sklearn.ensemble import RandomForestRegressor
from sklearn import metrics

from sklearn.neighbors import KNeighborsRegressor
from sklearn import tree
from sklearn.ensemble import RandomForestClassifier
from sklearn.ensemble import GradientBoostingRegressor
```

Step 1: First step is to get the data from the yahoo finance website by using yfinance.

Step 2: we have to import important algorithms which are useful to this project

Step 3: Next, We have to cheak head and tail functions and find null values. and after

Step 4: Filtering the columns which are needed for this project

. **Step 5:** After completing the eda part divide the data into two parts and train it for machine learning

Step 6: Next, find which is best algorithm and by using R2 score and mse value which gives best accuracy_score choose it and go for test

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DESIGN

The Model

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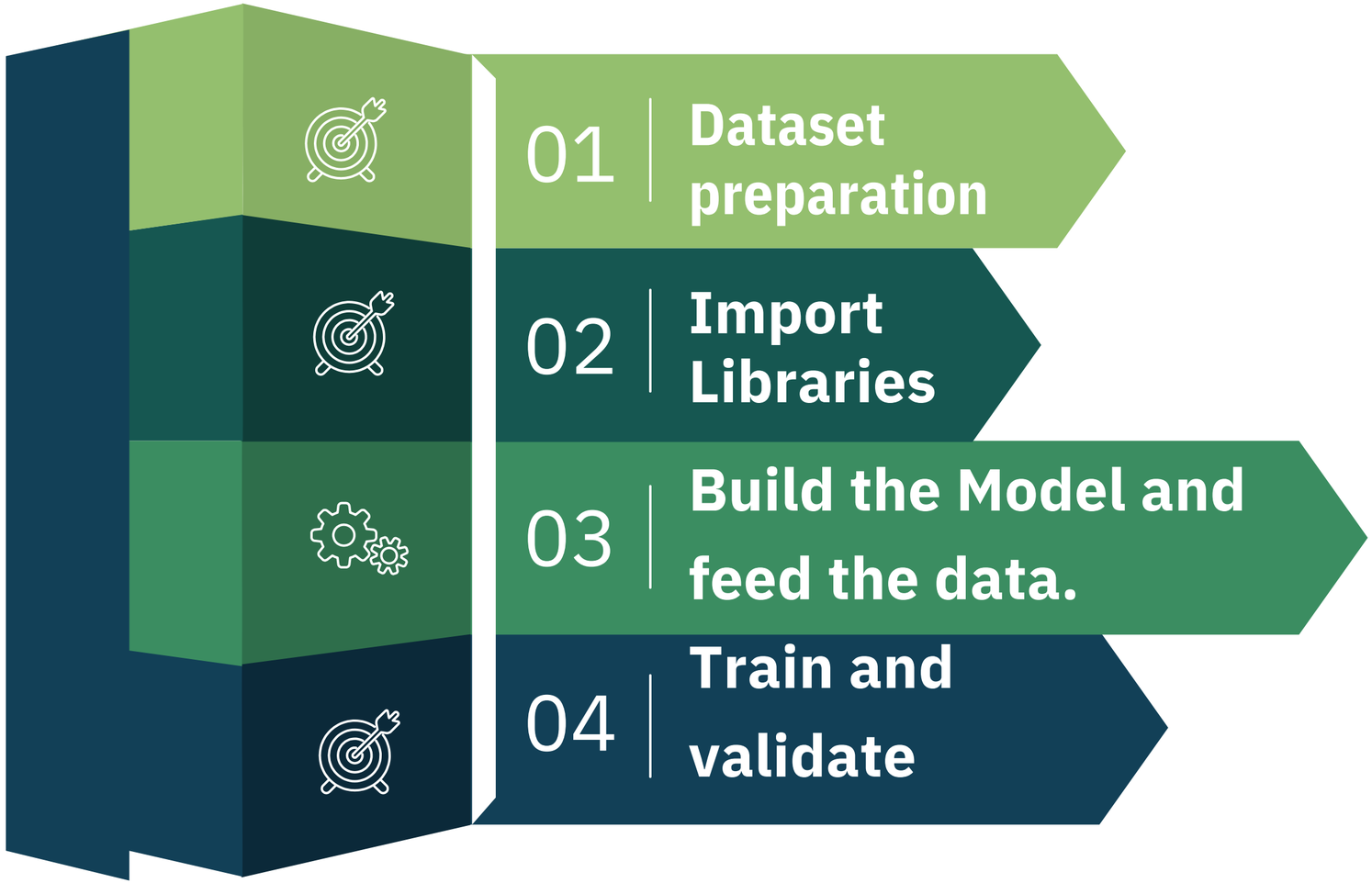
Implementation

Model Implementation

STEP WISE PROCEDURE



Data Preparation

Source: https://yahoofinance.com/

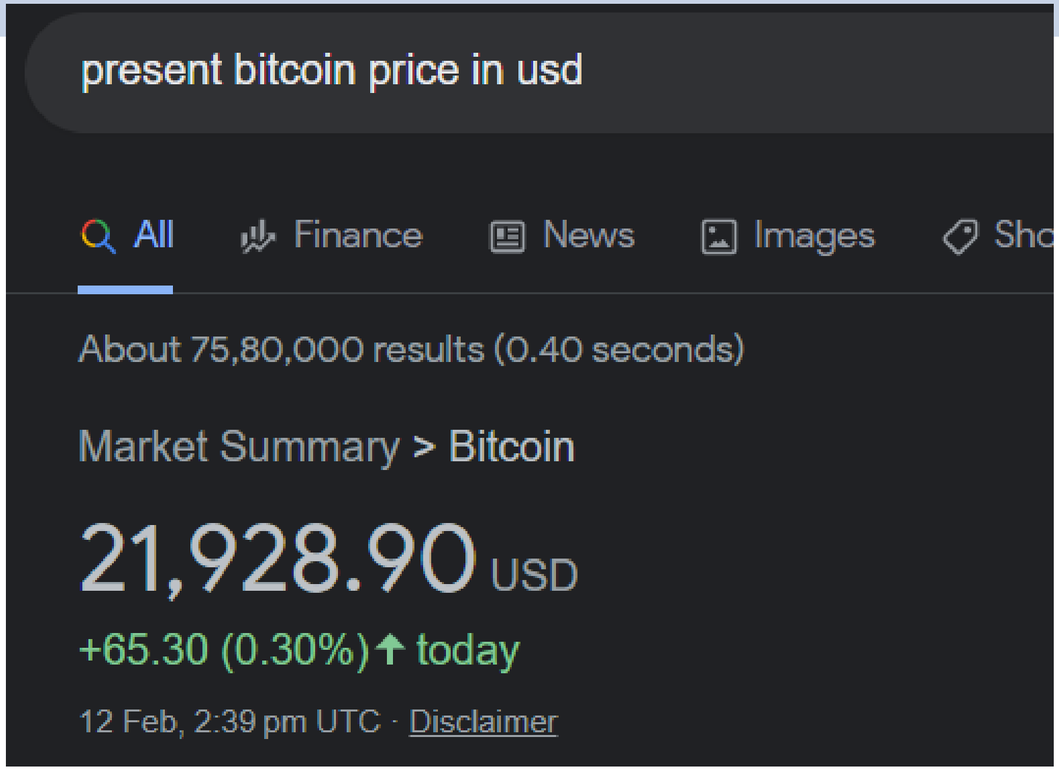
Data Preprocessing:

- Divide the dataset into and training and testing set.
- Normalize and reshape.

Libraries and Tools used

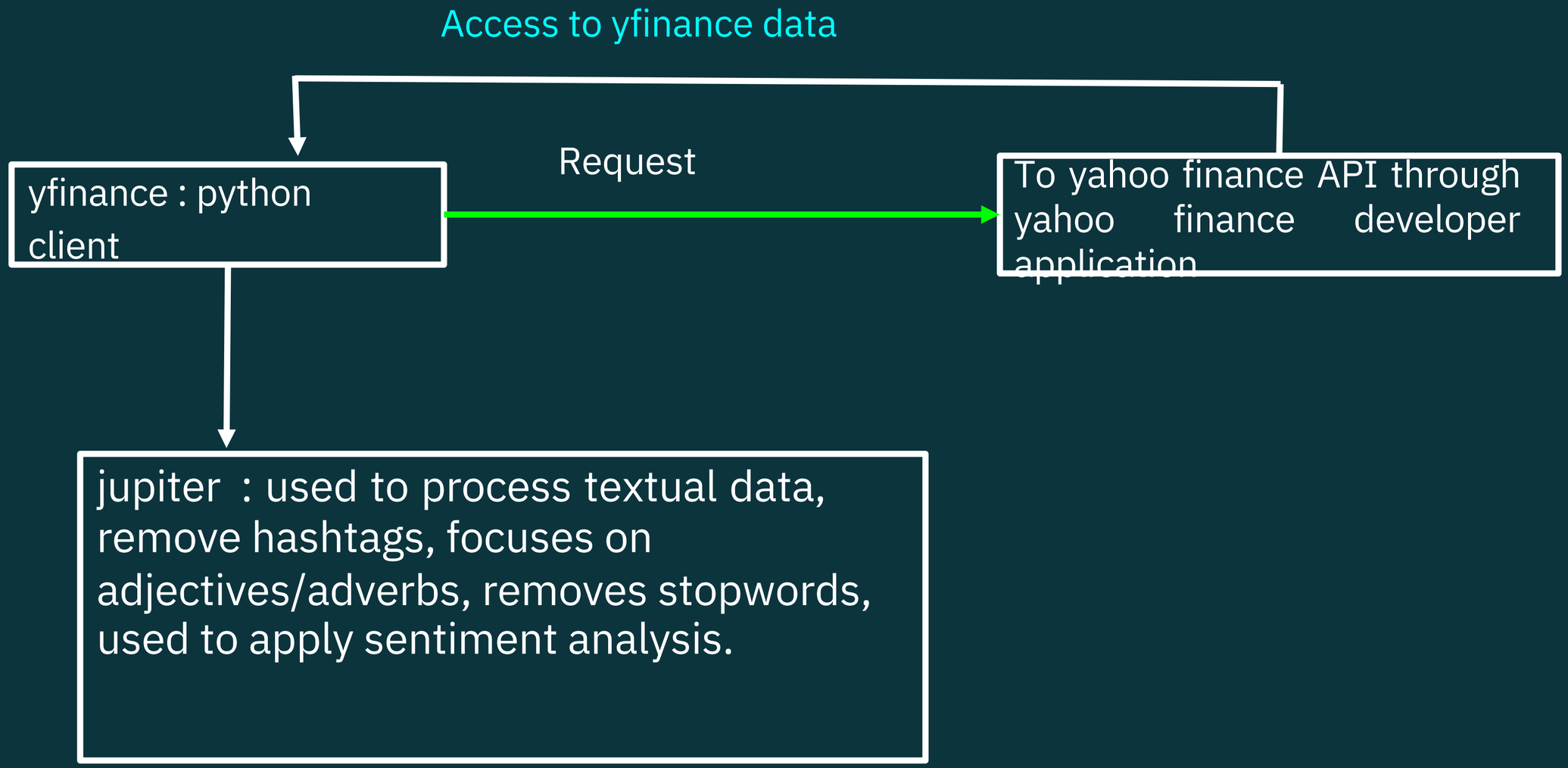
- yfinance
- Sklearn
- NumPy
- jupiter-IDE
- pandas

Model.summary()




```python
# Train a linear regression model on the training data
model = RandomForestRegressor()
model.fit(x_train[['Year', 'Month', 'Day']], y_train)
# Evaluate the model on the testing data
print(f"Accuracy: {model.score(x_test[['Year', 'Month', 'Day']],
# Use the trained model to make predictions about future prices
future_prices = model.predict(np.array([[2023, 2, 12]]))
print(f"Predicted price: {future_prices[0]}")
```

```
Accuracy: 0.9984479134151438
Predicted price: 21919.259609375
```



Visualization of the implementation

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Testing

Last step in the process of Development

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Future Scope

Future Aspects and Incremental Work possible

1.Use to predict the prices of other cryptocurrencieslike litecoin, ether etc.,
2.We tried to incorporate the idea of transfer learning, this model can be optimized for better performance.
3.The web application which is the final software product of this project can provide numerous other applications on single site like -live sentiment analysis of bitcoin, tutorial to do trading using bitcoincrypto currency etc.,
4.The result predict from the model and the idea of sentiment analysis can be combined to predict the prices more accurately, *this predicted*price will use both -historical data and current events related to Bitcoin.

THANK YOU