Dataset Link:

The dataset used in the project can be found on Kaggle:

Description of Project:

      This project aims to predict the price of Bitcoin using the Autoregressive Integrated Moving Average (ARIMA) model. The dataset contains the historical daily closing prices of Bitcoin from 2013 to 2018.

A brief explanation of the outputs of the Predicting the price of bitcoin Project

1. Data preprocessing: The code performs the following data preprocessing steps: it loads the dataset and sets the date as the index. It handles missing values and converts the datatype of columns. It checks for stationarity in the time series using the Augmented Dickey-Fuller (ADF) test. It also plots the time series to visualize the data.

2. Model building and training: The code builds and trains an ARIMA model using the following steps: it splits the dataset into training and validation sets. It builds an ARIMA model using the pmdarima library. It fits the ARIMA model on the training data and makes predictions on the validation data.

3. Model evaluation: The code evaluates the ARIMA model using the following steps: it calculates various performance metrics such as Mean Absolute Error (MAE), Mean Squared Error (MSE), and Root Mean Squared Error (RMSE). It also plots the actual and predicted values of the time series on a graph. It plots the residual errors to check for any patterns or trends.

4. Forecasting: The code performs the following steps for forecasting: it builds a final ARIMA model using the entire dataset. It forecasts future values of the time series using the final ARIMA model.

5. Visualization: The code creates visualizations of the time series using the following steps: it plots the actual and predicted values of the time series on a graph. It also plots the forecasted values of the time series on a graph.

6. Conclusion: The code interprets the results and discusses the strengths and weaknesses of the model. It provides suggestions for future improvements.

Description of Output:

The output of the code is a plot of the actual Bitcoin prices and the predicted prices using the ARIMA model. The plot also shows the root mean squared error (RMSE) of the predicted prices compared to the actual prices.

Instructions on How to Run the Code/Project/File:

1. To run the code in the notebook, you will need to have Jupyter Notebook installed on your computer. Once you have installed the Jupyter Notebook, you can download the notebook from the Kaggle website and open it in the Jupyter Notebook.
2. Before running the code, you will need to make sure that you have downloaded the necessary data files and saved them in the correct directory. The notebook provides instructions on how to download the data files and where to save them.
3. Once you have downloaded the data files and opened the notebook in Jupyter Notebook, you can run each cell of the notebook by clicking on the cell and then clicking the "Run" button in the toolbar or by using the keyboard shortcut "Shift + Enter".
4. It is recommended that you run the code cells in order, as some cells depend on the output of earlier cells. The notebook also provides explanations and comments for each code cell, so beginners can follow along and understand the code.

Note: Make sure to update the file paths in the code cells to match the location of the downloaded dataset and kernel files on your local machine.