THE GROWTH OF CRYPTOCURRENCY USING BLOCKCHAIN TECHNOLOGY

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Abstract

Although cryptocurrency is not illegal, it is unregulated. It must be properly managed to be reliable for banking activities as well. Other policies are imposing new regulations, either by raising the fees or forcing businessmen to leave the country in search of profitable opportunities. This fear drives them to use digital currency, making their transactions more secure and faster. We talk about distributed ledger (blockchain) technology for cryptocurrencies. We look at the 'monetary' characteristics of cryptocurrencies and discuss some of the factors that have led to their acceptance. In this, we explained the digital currency forms, tools, Investors tools, Crypto-tech growth market, Overview of the market, trends in the market, Blockchain Technology Adoption is Growing at a Rapid Pace, Alternative Currency Types, Blockchain Function, The Benefits of Blockchain-Enabled Digital Currency, Prevents the Adoption of Blockchain-Enabled Digital Currency for the growth ofcrypto.

Keywords: *Cryptography, Cryptocurrency, Blockchain, Blockchain Technology, Bitcoin, Ethereum, Litecoin, Zcash, Dipple, Growth, Transactions, Exchange, Rate*

1. Introduction

Hal Finney and Satoshi Nakamoto exchanged the first Bitcoins, with Satoshi giving Hal Finney 10 of them. The first Bitcoin to USD trade was carried out by software developer Martti Malmi, who exchanged5,050BTCfor$5.02fromNewLiberty Standard. Operating since March 2010, the bitcoin platform Bitcoinmarket.com. The first Bitcoin transaction took place on May 22, 2010, when Laszlo Hanecz spent 10,000 Bitcoins on two pizzas in Florida. It used anonymous encryption and was referred to as “cash”. The cryptocurrency system was outlined in a study by the National Security Agency published in 1996 titled “How to Make a Mint: The Cryptography of Anonymous Electronic Cash.” Bitcoin, the first cryptocurrency in history, was unveiled in 2009 by an unidentified coder named Satoshi Nakamoto [1]. The first significant cryptocurrency exchange to go public is Coinbase. It had a Nasdaq listing [2]. A type of digital money where records are preserved, and transactions are validated using encryption by a decentralised system as opposed to a centralised authority. The success of Bitcoin has given rise to several similar cryptocurrencies known as altcoins, such as Name coin, Litecoin, and PPCoin. A decentralised, open source blockchain with smart contracts is what is meant by the term “Ethereum”. The majority of cryptocurrency consumers (65%) are bitcoin owners. A 2012 investment of $22 in Bitcoin would be worth

$1 million today [3]. 88% of the market value is made up of the top 10 cryptocurrencies. Over 6,000 different kinds of cryptocurrencies exist. More than 100 million people in India are bitcoin owners, more than any other nation. As of February 21st, 2021, the market value of bitcoin was $1,072.21 billion. Already, 18,000 companies accept cryptocurrency payments[4].

2. Literature Survey

A. Growth of cryptocurrency using blockchain

Cryptocurrency is a means of exchange that is encrypted, recorded in the blockchain, and controlled by a limited supply of money. It also serves as a means of transaction verification. Numerous crypto currencies, such as Litcoin, Zcash, Dash, Ripple, Bitcoin, and many others, have been developed. The most well-known crypto currency, however, that has caught the interest of techies is Bitcoin.

The Advantages of Crypto currency is because crypto currency transfers from one peer to another peer, there is no need for a centralized server, and transaction costs are cheap, these features make it advantageous. Decentralized systems also don't charge for money conversion. The ability to access crypto currencies from anywhere in the globe without interference from a centralized body is another benefit of crypto currencies. They are listed as follows.

1. Centralized financial systems have some drawbacks and vulnerabilities that can be quickly used against them. Equity imbalances and improper fund allocation are also potential issues. The effects of all of this may be detrimental to customers. This collaborative technology has the ability to strengthen company relationships and increase trust, increasing the value of every dollar invested.
2. Because of the decentralized nature of the blockchain, individuals continue to have the authority to make decisions rather than centralized bodies like the government. Now, central banks are in charge of the financial system, and everyone is dependent on them.

B. Digital Currency and alternative currency types

A payment system built on digital currency replaces traditional money with an alternative non-tangible currency. The four types of digital currency are tokens, centralised digital money, decentralised digital money, and money with intrinsic utility. They seek to offer a full- featured alternative to conventional tender. Secondary currencies that are frequently utilised in local areas include complementary and community currencies. Currency possessing intrinsic utility: This kind of currency has real inherent value and is not governed by any external authority. Gold, silver, bronze, and even prepaid phone cards are examples.

1. Tokens: Because their usage is so specialized, tokens have less intrinsic value. Tokens are seen as being local currencies. The Berkshires region of Massachusetts uses a local currency called BerkShares as an illustration.
2. Centralized digital currency: It is widely used in contemporary culture. Transactions are governed by a centralized governance structure. Examples of centralized digital

money include air miles, digital wallets, currency issued by a central bank, and many forms of customer loyalty points.

3. Decentralized digital currency: It consists of a variety of crypto currencies. The primary way to identify such an alternative currency is the absence of centralized government regulation.

Cryptocurrencies like Bitcoin and Ethereum are examples.

C. The Benefits of Blockchain-Enabled Digital Currency

The benefits and advantages of blockchain technology are numerous. A fundamental change in how data is secured and work is done in general has been sparked by the incorporation of blockchain technology into numerous industries and businesses. Different blockchain benefits.

1. Improved security: Comparing blockchain technology to other systems or record-keeping techniques, it uses a higher level of protection. The consensus technique must be used to decide on every transaction that has ever been recorded.
2. Greater transparency: Without blockchain, each business would have been unable to manage its own database. Blockchain makes use of a distributed ledger, which makes sure that data and activities are recorded uniformly everywhere [2]. Every transaction consists of immutable records that have been time and date stamped. Due to the ability of members to view the complete transaction history, fraud is all but impossible.
3. Immediate traceability: Every step of an asset's path leaves a trace of its origins thanks to a blockchain-based audit trail. Blockchain has made direct consumer communication of provenance information feasible. Any supply chain may have weak points that can be located using traceability information, such as when goods are stored on a loading dock while being moved.
4. Increased output and speed: Conventional document-intensive procedures are time-consuming, vulnerable to human mistake, and frequently call for third-party mediation. Different ledgers don't need to be reconciled, so clearing and settling can move much more quickly[5].
5. Automation: Using "smart contracts," deals can even be automated to increase efficiency and speed up the process. Once pre-specified conditions are met, the next step of a transaction or process is automaticallystarted.
6. Cost-cutting strategies: By utilizing blockchain, businesses can significantly reduce the costs related to third-party vendors. Additionally, authenticating atransaction

D. Use of Cryptocurrency with blockchain technology

Technically, the greater the use of a cryptocurrency's blockchain, the greater its value. Introducing blockchain technology to a consumer base is also a critical step toward the introduction of an associated cryptocurrency. As a result, a popular blockchain helps cryptocurrency investors generate morevalue.

3. Theoretical Analysis

The systematic and objective evaluation of the theory for significance, logical sufficiency, applicability, generalizability, parsimony, and testability may yield previously unidentified insights and formulations. The theory is divided into components, and each component's relationship to the others is investigated separately, as is the case with all analysis methodologies. They are.

1. Best Exchanges: Selecting reputable exchanges to trade with is the first step in making large profits. They serve as your entryway into the world of crypto currencies. Liquidity, security, and fees are the three key characteristics that distinguish a good exchange from an ineffective one. When selecting the ideal crypto exchange platform for you, keep an eye out forthem.

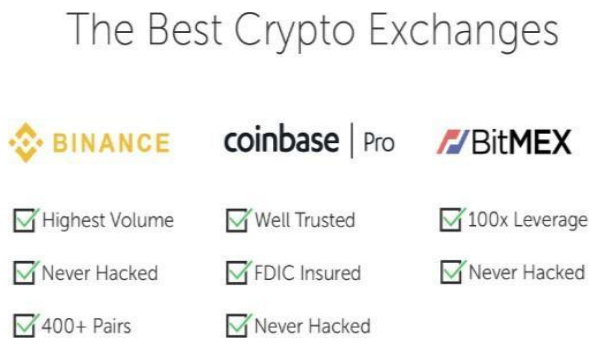


Figure 1: Some examples of best crypto exchanges.

Three crypto exchanges are given above they are Binance, Coinbase-Pro, BitMex and their properties given.

2. Best Decentralized Exchange: A decentralized exchange, like the ones previously described, performs the same purpose as a centralized exchange but with a decentralized technical infrastructure. Users of decentralized exchanges can keep their money safe in their wallets because they are not required to deposit money into the exchange. Although DEXs are ultimately more secure for users, they are frequently more complicated to operate and have lowerliquidity.

Figure 2: Process of operating decentralized Exchange.

The process gives information about decentralizes exchange operating is given in 5 steps method where it is understood easily to us. One of the firstdecentralized exchanges thatis still.

3. Trading Platforms: One of the finest ways to streamline your trade and take it to the next level with crypto currencies is to use trading platforms. You may now trade on numerous

exchanges from a single platform, eliminating the need to have multiple windows open. This can make it easier for you to seize market chances and keep a closer eye on themarket.

Figure 3: Historical data used by developers withown trading strategies of Coinigy [5].

The various factors in the Coinigy trade graph view varies by range. We can see data, trade, alerts, economy, roles with high/low, volumes, bid, ask ,price likethat.

Tradedash: Liquidity is not a problem because it supports Bittrex and Binance, two reputable exchanges that are also among the biggest on the market.

4. Charting Tools: Using a charting program, you may visualize various trading indicators and create trend lines to represent the market. Cryptowat.ch and Tradingview are two of the top charting tools. A few Large firm Tradingview provides live trading charts for both stocks and cryptocurrencies. The top traders all rely on Tradingview as their primary cryptocurrency charting tool.

Figure 4: Source diagram of tradingview.com[6].

A significant exchange, Kraken, is the owner of Cryptowat.ch. You may chart different coins using it for free, and you can examine more than ten charts at once. You have nothing to lose by checking it out and using those free bitcoin charts, therefore I highly recommend it.

5. Market data: Finding systems that provide reliable, nearly real-time information about price movement, circulating supply, total supply, and other topics is essential. Several of the most popular websites for examining coin prices, volumes, and supplies is called Coin market cap. In case you wish to add data to your own user interface, they also have a strong API. Knowing what the consensus is in the market is also useful. The website Crypto Compare has been active in the market for a long time. They provide accurate market data, tools for managing your portfolio, and educational articles so you can keep

up with the latest trends and coins. With a following as big as theirs, Crypto Compare is a viable option.

6. Network statistics: A high volume of transactions on the Bitcoin network may be a sign of future price volatility.
7. News Aggregators: It will be very helpful to have a source that can aggregate all this data in one view for feeling a quick pulse on the market and seeing news laid out in one place with these crypto analytics tools because there are hundreds of news sites that publish thousands of articles per day and Twitter influencers who spread contradictory opinions[13,14,15].
8. Research Reports: Research reports typically offer fundamental research, technical analysis, and opinions on the past, present, and future market. They are lengthy, in-depth, and extremely significant publications.

The Three Types of Cryptocurrencies Analysis there are classified into three analyses. More and more traders and investors are using these research techniques for space. Although many investors choose to hoard their coins, Multicoin Capital co- founder Tushar Jain believes that active management has a chance to excel since "the crypto markets are the least efficient markets I've ever seen in mylife."

1. Fundamental analysis: It delves deeply into every piece of cryptocurrency knowledge that is currently available. It's a technique you employ to calculate the inherent worth of the coins or tokens. An analyst determines if a digital asset is undervalued or over valued by evaluating the relevant financial and economic elements. The investor evaluates the asset using publicly available data when performing fundamental research.

This is an evaluation intended to establish the value of an asset, primarily as one that the analyst can demonstrate in terms of amounts and figures.

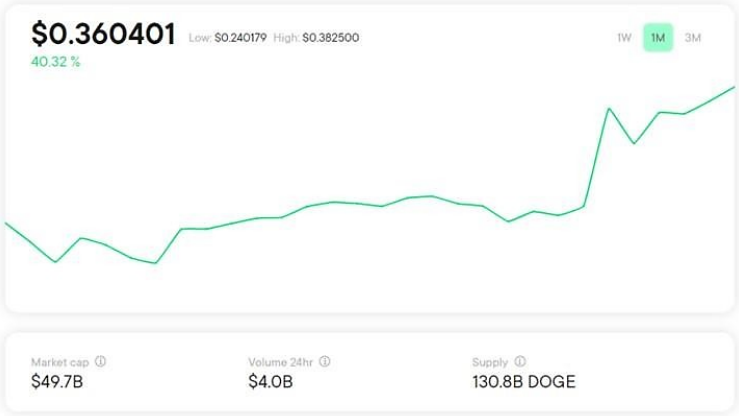


Figure 5: Analysis of currency.

The line graph gives data of market cap, volume of 24hrs, Supply in DOGE, dollar rate with high and low, percentage.

2. Technical analysis: To predict the direction the market will move in next; it examines previousprice movements. One of the main strategies used by seasoned cryptocurrency investors to comprehend the market factors driving price changes is this one [8,9]. To find profitable trading chances, statistical patterns and trends must be studied.

Figure 6: past price movements and bitcoin chart from TradingView.

The various kinds of graphs are presented above with bitcoin in Australian Dollar ID Binance in months some terms like Volume, MA, MACD, RSI are there.

3. On-chain analysis: It examines the blockchain's open data. The cryptocurrency industry is the only one where it is a developing field, and traders use it to forecast market movements and assess market sentiment more accurately. They make use of a variety of indications, including as transaction volume, wallet balances, and coin dormancy.

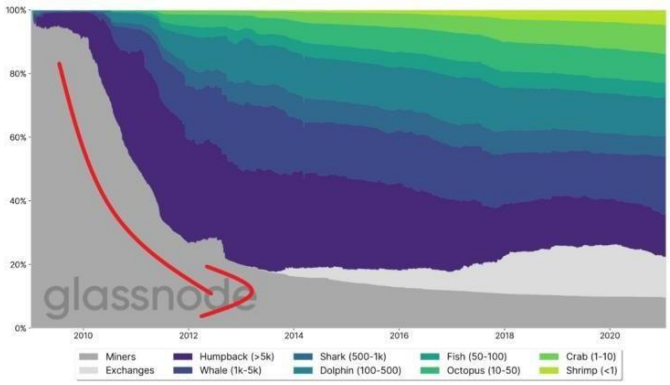


Figure 7: The Glassnode, the proportion of miners and significant holders of bitcoin has declined [7].

The analysis in year with percentage for miners, exchanges, Humpback, crab, whale, shark, Dolphin, fish, octopus, shrimp.it gradually decreased from a greatfall.

4. Methodology

Cryptocurrencies are digital tokens that can easily replace traditional cash in the future. They are becoming so popular due to their ease of use. These coins may be owned by almost anybody and are accepted as payment in the same way that regular cashis.

The cryptocurrency market, like the stock market, is heavily influenced by trader mood. Buyers raise the price, while sellers lower it [10]. A gain in price but a fall in volume traded indicates a lack of interest, which might lead to areversal.

ARIMA MODEL

It is abbreviation is Auto Regressive Integrated Moving Average Model. Three parameters are p, d, and qin the model considered the dataset's seasonality, trend, and noise. Using a

statistical model that will yield an AIC value, we will fit the ARIMA model (Akaike Information Criterion). The complexity and data compatibility of the model are scaled by the AIC. A model with a lot of characteristics that accurately predicted the data would have a higher AIC score than a model with fewer features but the same accuracy. We are looking for a model with a low AIC score as a result.

5. Computation Of Arimamodel

A cryptocurrency is a new form of asset which is used for paying or investing digitally. The upsurge in the various cryptocurrency prices over the past 10 years has increased the curiosity of researchers and investors to analyze and forecast its prices in the future [11,12]. Creating an ARIMA model, a time- series statistical model for forecasting cryptocurrency values, is the main goal of this study. This research focuses on six different cryptocurrencies – Bitcoin, DogeCoin, Ethereum, Binance Coin, XRP, and Cardano due to their popularity, and discusses the price movements and the stability of these cryptocurrencies using various exploratory data analysis techniques and visualization techniques [9]. These six coins datasets were combined into one dataset after being acquired from several Kaggle datasets. In this research, the dataset has a record of the prices of these six cryptocurrencies dated from 2018 to 2021.

About dataset

The crypto-Currency dataset by Kaggle consists of many (eg:244855) observations of six popular cryptocurrency details with 6 independent and 1 dependent variable. The sample dataset is shown below.

Creating new dataset: Dataset is created to show the various parameters analysis.

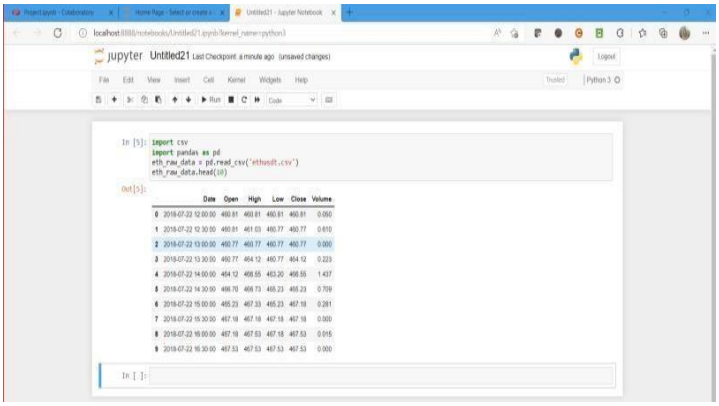


Figure 8.1: Dataset reading and printing.

Some rows like date, open, high, low, close, volume of the file data visible to see what is present like.

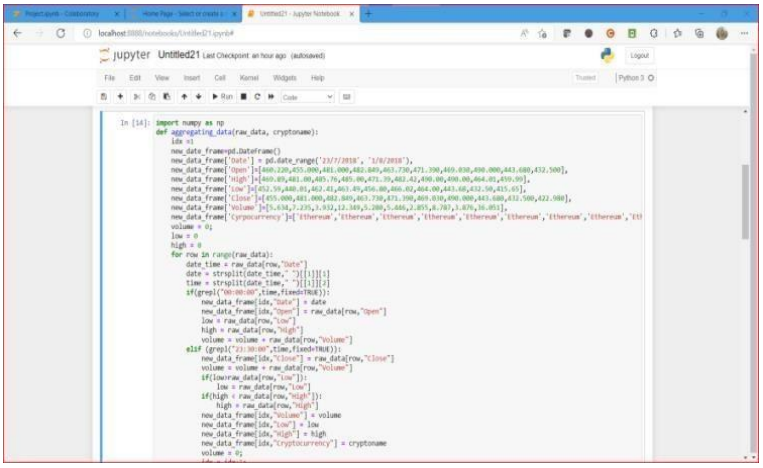


Figure 8.2: New dataset creation and data frames adding.

The data frames added, parameters like initializing and given value to 0.For loop for row inside it elif if loop used for the process.

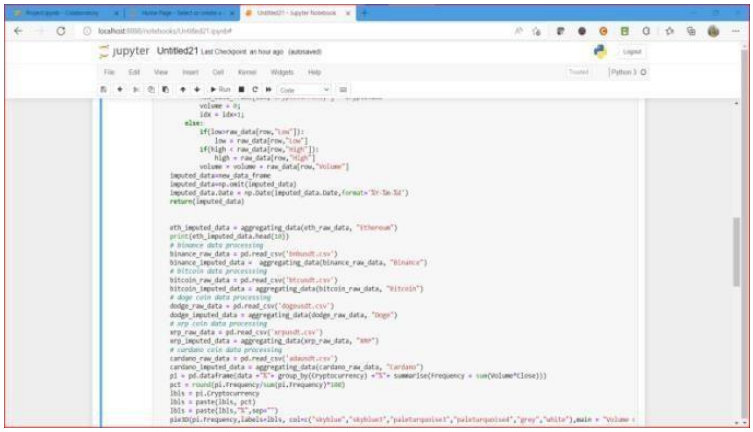


Figure 8.3: Data initializing and reading.

The parameter like close_ts of eth, ada, bin, doge, xrp, btc are initialized to data of date, close and printed it uses head individually.

6. Result Analysis

It seeks to describe the outcomes of a particular study without offering an analysis, interpretation, or recommendations in the discussion section. The analysis should be clear from the results. The analysis section also gives the author a chance to describe what happened to the data that was gathered.

Dataset: This is a structured group of data. Data is a collection of knowledge that has been collected through observations, metrics, research, or analysis, as we are all aware. It could contain names, numbers, facts, and even straightforward descriptions of things. The Ethusdt dataset file is utilized here.

In that file the components like date, open, high, low, close, Volume there , we print the information of 10 record details.

Merging all the data

Merging data is the process of combining data from several sources to serve as a single source of truth or a single point of reference. All six crypto- currencies datasets are merged

into one dataset where a column indicating the cryptocurrency name is created for a clear understanding of the trends.

Visualization

It is the display of data using standard images, including infographics, charts, plots, and evenanimations. These informational visual representations make complex data relationships and data-driven insights simple to comprehend. Observing trends in the Closing price of various cryptocurrencies in graphical representation.

Data

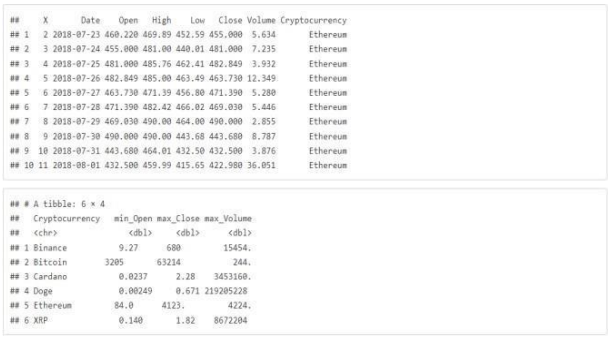
It is made up of a set of discrete values that describe amount, quality, fact, statistics, and other fundamental units of meaning. It can also just be a series of symbols that can be further understood. ## TimeSeries:

Start = c (2018, 192)

End = c (2018, 196)

Frequency = 365

[1] 6332.090 6174.555 6450.000 6310.000
6415.000



```
##    X       Date    Open   High    Low   Close Volume Cryptocurrency
## 1   2 2018-07-23 460.220 469.89 452.59 455.000  5.634       Ethereum
## 2   3 2018-07-24 455.000 481.00 440.01 481.000  7.235       Ethereum
## 3   4 2018-07-25 481.000 485.76 462.41 482.849  3.932       Ethereum
## 4   5 2018-07-26 482.849 485.00 463.49 463.730 12.349       Ethereum
## 5   6 2018-07-27 463.730 471.39 456.80 471.390  5.280       Ethereum
## 6   7 2018-07-28 471.390 482.42 466.02 469.030  5.446       Ethereum
## 7   8 2018-07-29 469.030 490.00 464.00 490.000  2.855       Ethereum
## 8   9 2018-07-30 490.000 490.00 443.68 443.680  8.787       Ethereum
## 9  10 2018-07-31 443.680 464.01 432.50 432.500  3.876       Ethereum
## 10 11 2018-08-01 432.500 459.99 415.65 422.980 36.051       Ethereum
```

```
## # A tibble: 6 × 4
##   Cryptocurrency   min_Open max_Close max_Volume
##   <chr>               <dbl>     <dbl>      <dbl>
## 1 Binance          9.27      680          15454.
## 2 Bitcoin       3205       63214            244.
## 3 Cardano          0.0237      2.28    3453160.
## 4 Doge             0.00249     0.671 219205228
## 5 Ethereum        84.0      4123.          4224.
## 6 XRP              0.140       1.82    8672204
```

Figure 9: Merging of data in Ethereum.

The data merged after the various parameters. And a tibble of 6 x 4 size having min_open, max_close,max_volume of different cryptocurrencies.

Below all 6 graphs are between date vs closing price of different cryptocurrencies like Bitcoin, Binance, Ethereum, Cardano, Doge, XRP in 2019, 2020, 2021 years with $ price. The graph has every less in 2019 the 2020 it starts increasing, in 2021 it increased a lot but in 2019 there is no Doge rate compared to others and 2020 also uniform no great increased than remaining. In 2021 all cryptocurrencies are increased a lot and now there are still having now also more profits in cryptocurrencies.

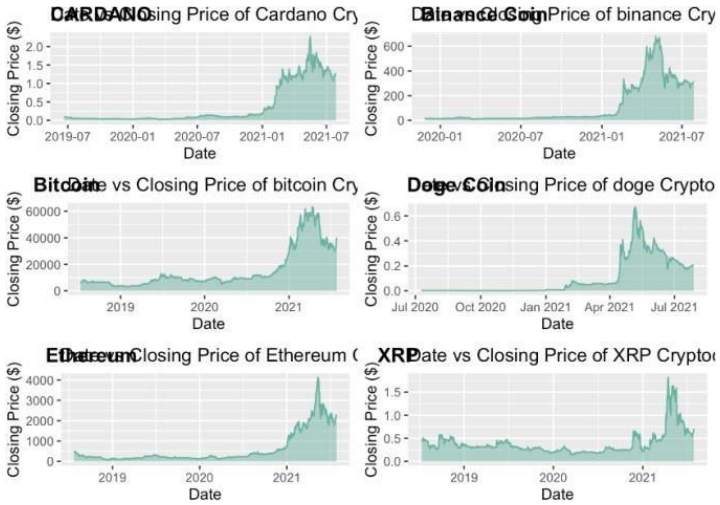


Figure 10: In one graphic representation different cryptocurrency coin.

It is the complete view of the 6 different cryptocurrencies used and Closing Price with Date. Briefly we can investigate it and tell the differences rate easily.

Obtaining trends and seasonality of cryptocurrencyprice

Trend is when there is a steady rise or fall in the sequence. Seasonality is a variance that happens on a regular basis but less frequently than once a year. It can happen every day, every week, every month, or every year.

Model building for eachcrypto

It will concentrate on the desired algorithms. Although symbolic regression is the most well-known method, some people prefer other methods. Prior to usage, model validation is crucial to fostering a sense ofconfidence.

close_arima_eth = auto.arima (close_ts_eth, D=1) close_arima_btc = auto.arima (close_ts_btc,D=1)

close_arima_bin = auto.arima(close_ts_bin, D=1) close_arima_ada = auto.arima(close_ts_ada, D=1)

close_arima_doge = auto.arima(close_ts_doge, D=1)

close_arima_xrp = auto.arima(close_ts_xrp, D=1)

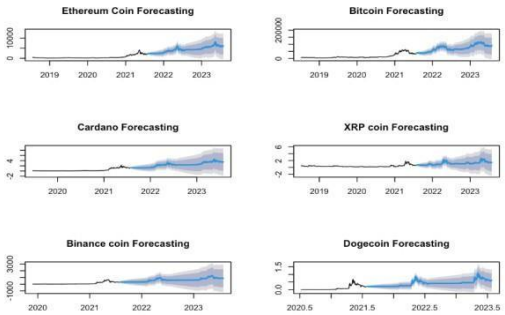


Figure 11: Cryptocurrency coins forecasting.

The 6 various forecasting have different in their graphs but common it the raised means it has increased slow and at an increase than some or uniform later again increased. But no decreases forecasting rate in all graphs.

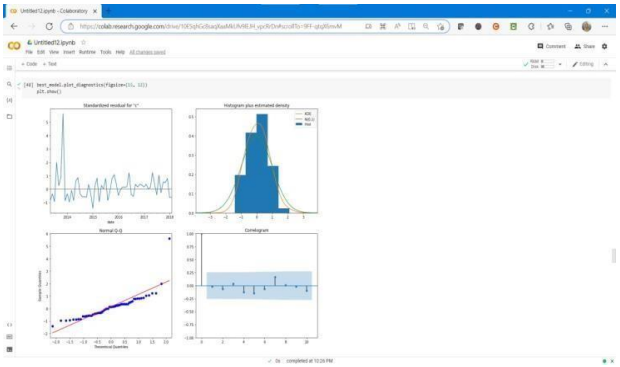


Figure 12: plotted a model diagnostic.

Four different graphs with various patterns. The first graph is like pulse rate graph with date, residual for c. Second, bar graph with lined curve graph. Third combination of line, dot graph theoretical with Sample Quantities. Fourth one is Correlogram represented with numbers.

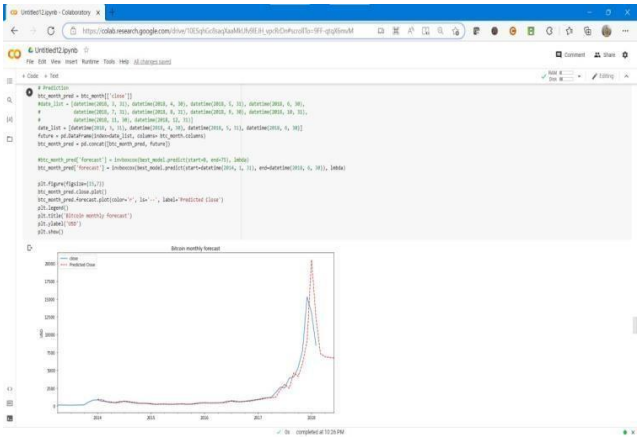


Figure 13: plotted a bitcoin monthly forecast graph.

It uniforms starting later increases at a peak later had fall. It is represented with years and USD their two graph merges each other they are close (line graph) and predicted Close (dotted graph).

7. Report Analysis

An analysis report is a crucial business document that presents analysis findings and workable recommendations. It gives decision-makers important information so they may assess the state of the existing operation and then make wise choices. According to research released on September 24 by the National Association of Software and Services Companies in collaboration with WazirX, the crypto-tech industry in India has grown 39 percent over the last five years to reach

$74.2 million in FY21.

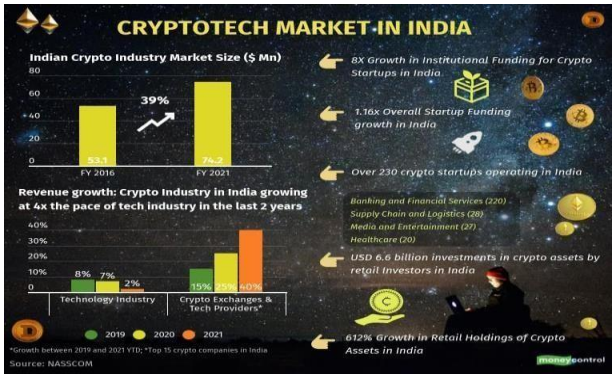


Figure 14: Crypto-Tech Market in India.

The study claims that crypto tech is fundamentally a form of technology protected by encryption that permits data transfer and makes it possible for transactions to be duplicated and dispersed over the full network of computer systems on the blockchain [12]. Retail investors in India have put $6.6 billion into cryptocurrencies, and more are anticipated.

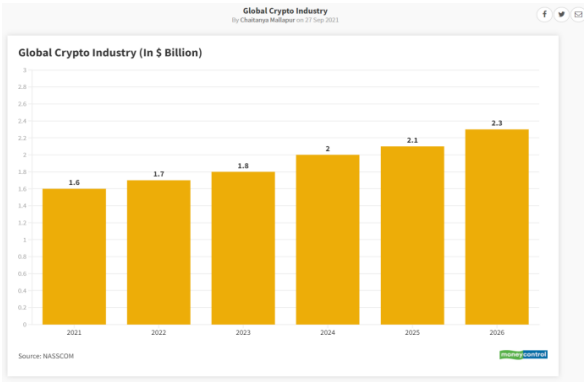


Figure 15: plotted Top X Cryptocurrencies Marketval.

By 2030, the Indian market for crypto tech is anticipated to be worth $241 million, rising at a CAGR of 14%, and having the potential to generate 877,000employments.

Marketing Analysis

According to the method marketing analysis is shown among various currencies flow. However, 66% represents a reduction. The coin had a 100% market share when it first began and was the sole kind of digital cash [13,14]. The declining trend appears to be a sign that competitors to Bitcoin are varying for market share.

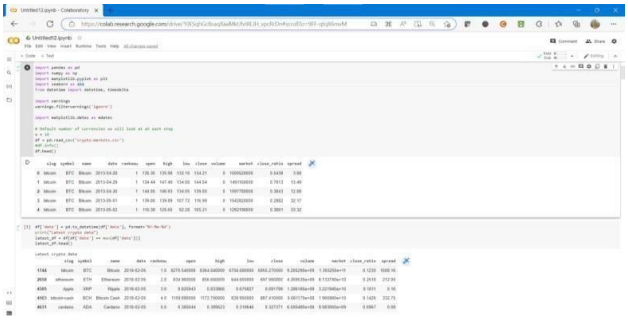


Figure 16: read csv file and printed the various currencies flow rate.

Here in one data is about bitcoin market analysis in different days plotted and other one is various crypto currencies data analysis is plotted with various parameters.

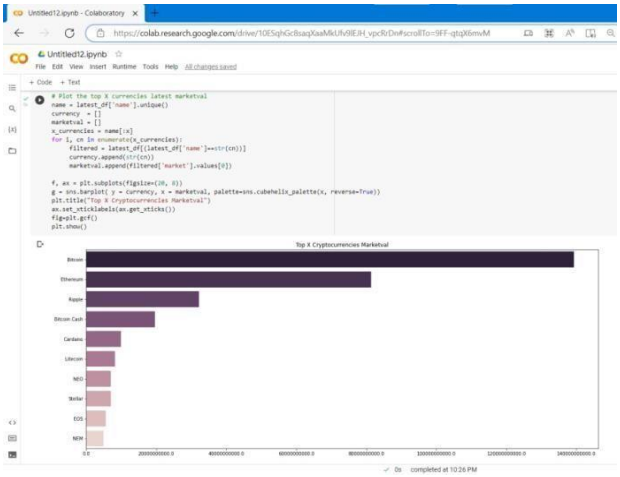


Figure 17: Global CryptoIndustry.

The graph is gradually decreasing and color also moving down lightened to show variation among cryptocurrencies with currency, marketval.

8. Significance

The findings of this study will reveal how cryptocurrency growth can be strengthened using blockchain technology while improving cryptocurrency prices in market productivity. The findings would be critical in determining how the price of cryptocurrency coins can be a major tool in improving cryptocurrency performance in a developing economy by utilizing blockchain technology and price prediction methodology. It helps us trade and invest money as a digital currency. Cryptocurrencies have the potential to give users unprecedented access to a global payment system, where participation is only constrained by access to technology rather than things like having a bank account or a credit history. All transactions made on a peer-to-peer network are recorded in a blockchain, a decentralized ledger. Participants can confirm transactions without a central clearing institution with the aid of this technology.

9. Conclusion

Cryptocurrency a lot of industries could be completely transformed by blockchain technology. Decentralization and cryptographic hashing provide the unalterable and transparent history of digital assets. Cryptocurrency and blockchain technology are intertwined. The best thing about cryptocurrencies is that no single organization or person has control over them. Blockchain technology has grown exponentially since 2008, when it was first utilized to power Bitcoin. The result shows that transaction expenses are kept to a minimum because peer-to- peer bitcoin transactions are used. We can check centralized financial systems have some weaknesses and restrictions that are quite simple to take advantage of. Blockchain technology improves the system's dependability and security. Therefore, this result in Blockchain technology to grow in popularity, and it has fundamentally altered the nature of the IT Sector.

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[3] 63+ Cryptocurrency Statistics, Facts & Trends On January 1,2023 By Jordan Tuwinerkey Cryptocurrency StatisticsLines1-6.
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