

DATA ANALYSIS ON CRYPTOCURRENCY MARKET

An Industry Oriented Project Report Submitted
In partial fulfillment of the requirements for the award of the degree of

**Bachelor of Technology
in
Information Technology**

by

R.Namratha

22N31A12F2

Under the esteemed guidance of

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Assistant Professor**



Department of Information Technology

Malla Reddy College of Engineering & Technology
(Autonomous Institution- UGC, Govt. of India)
(Affiliated to JNTUH, Hyderabad, Approved by AICTE, NBA & NAAC with 'A'
Grade)

Maisammaguda, Kompally, Dhulapally, Secunderabad – 500100
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This is to certify that this is the bonafide record of the project entitled “DATA ANALYSIS ON CRYPTOCURRENCY MARKET”, submitted by R.Namratha (22N31A12F2) of B.Tech in the partial fulfillment of the requirements for the degree of Bachelor of Technology in Information Technology , Department of IT during the year 2023-2024.

Internal Guide

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Head of the Department

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Professor

External Examiner

ABSTRACT

Cryptocurrency, or crypto, is a digital payment platform that eliminates the need to carry physical money. It exists only in digital form, and although people mainly use it for online transactions, you can make some physical purchases. Unlike traditional money printed only by the government, several companies sell cryptocurrency. Cryptocurrencies are fast becoming rivals to traditional currency across the world. The digital currencies are available to purchase in many different places, making them accessible to everyone, and with retailers accepting various cryptocurrencies, it could be a sign that money as we know it is about to go through a major change. Cryptocurrency is stored in digital wallets. Cryptocurrency received its name because it uses encryption to verify transactions. This means advanced coding is involved in storing and transmitting cryptocurrency data between wallets and public ledgers. Encryption aims to provide security and safety. The first cryptocurrency was Bitcoin, which was founded in 2009 and remains the best known today. Much of the interest in cryptocurrencies is to trade for profit, with speculators at times driving prices skyward. Cryptocurrencies continue to draw a lot of attention from investors, entrepreneurs, regulators, and the general public. Many recent public discussions of cryptocurrencies have been triggered by the substantial changes in their prices, claims that the market for cryptocurrencies is a bubble without any fundamental value, and also concerns about evasion of regulatory and legal oversight. These concerns have led to calls for increased regulation or even a total ban.

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INTRODUCTION

- Cryptocurrency or crypto, is a digital payment platform that eliminates the need to carry physical money.
- It exists only in digital form, and although people mainly use it for online transactions, you can make some physical purchases. Unlike traditional money printed only by the government, several companies sell cryptocurrency.
- Cryptocurrencies are fast becoming rivals to traditional currency across the world. The digital currencies are available to purchase in many different places, making it accessible to everyone.
- Cryptocurrency is a digital asset designed to work as a medium exchange that uses strong cryptography to secure financial transactions.

PROPOSED SYSTEM

Here are some trends and potential developments that can be considered as part of a proposed systems.

- Addressing scalability issues, such as high transaction fees and slow processing times, is a key focus area. Proposed solutions include implementing layer-two protocols like the Lightning Network for Bitcoin or exploring alternative consensus mechanisms to increase transaction throughput.
- Improving privacy features to protect financial data and transactional privacy. Zero-knowledge proofs, ring signatures, and other cryptographic techniques are being integrated into various cryptocurrencies to enhance privacy while maintaining transparency and auditability.
- Developing frameworks and tools to ensure regulatory compliance within the cryptocurrency ecosystem, such as Know Your Customer (KYC) and Anti-Money Laundering (AML) measures .Projects focusing on regulatory compliance aim to bridge the gap between traditional finance and decentralized systems.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

Memory(RAM):4-8GB

Disk Space: 350 GB

ARM chipsets>1GHz

AMD or NVIDIA graphic cards

SOFTWARE REQUIREMENTS

Programming Language— Python

Operating Systems- Windows

DATASET OF BITCOIN OF DIFFERENT COUNTRIES OF YEAR

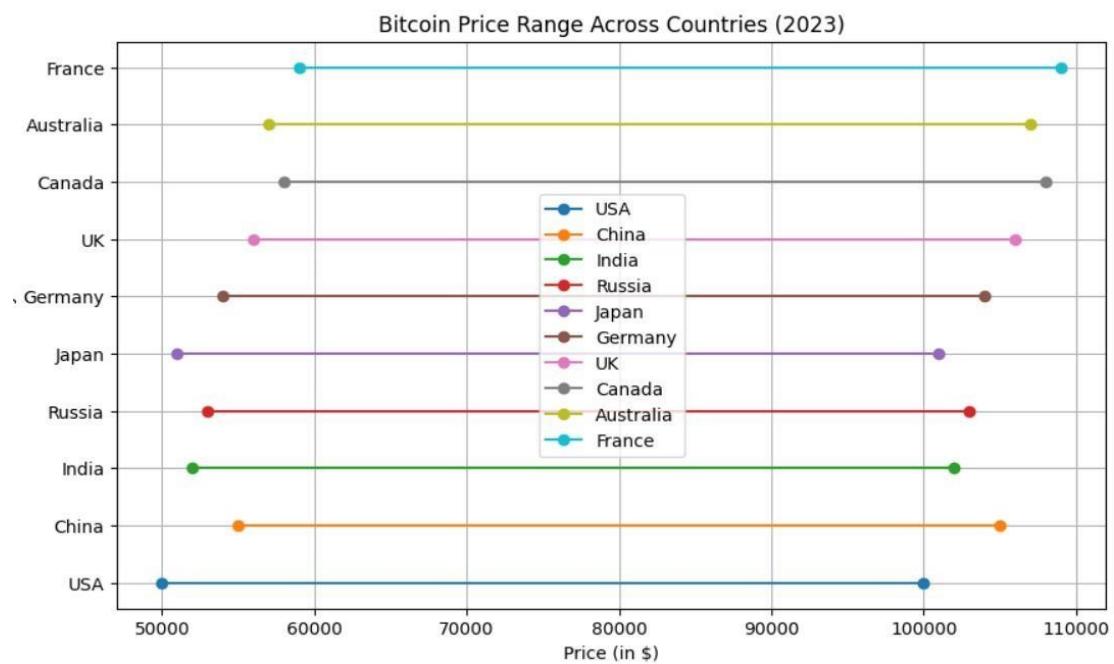
2023

Year	Country	Cryptocurrency	Lowest Price	Highest Price	Volume	Open Price	Close Price	Spread	No. of Investors	Highest month of profit	Market Cap	Close Ratio
2023	USA	Bitcoin	\$50,000	\$100,000	30,000 BTC	\$60,000	\$95,000	\$35,000	3,00,000	May	\$500 billion	0.8
2023	China	Bitcoin	\$55,000	\$105,000	32,000 BTC	\$65,000	\$100,000	\$35,000	3,20,000	June	\$550 billion	0.7
2023	India	Bitcoin	\$52,000	\$102,000	28,000 BTC	\$62,000	\$97,000	\$35,000	2,80,000	April	\$520 billion	0.75
2023	Russia	Bitcoin	\$53,000	\$103,000	29,000 BTC	\$63,000	\$98,000	\$35,000	2,90,000	March	\$530 billion	0.78
2023	Japan	Bitcoin	\$51,000	\$101,000	27,000 BTC	\$61,000	\$96,000	\$35,000	2,70,000	February	\$510 billion	0.77
2023	Germany	Bitcoin	\$54,000	\$104,000	31,000 BTC	\$64,000	\$99,000	\$35,000	3,10,000	November	\$540 billion	0.79
2023	UK	Bitcoin	\$56,000	\$106,000	33,000 BTC	\$66,000	\$101,000	\$35,000	3,30,000	October	\$560 billion	0.81
2023	Canada	Bitcoin	\$58,000	\$108,000	35,000 BTC	\$68,000	\$103,000	\$35,000	3,50,000	September	\$580 billion	0.82
2023	Australia	Bitcoin	\$57,000	\$107,000	34,000 BTC	\$67,000	\$102,000	\$35,000	3,40,000	August	\$570 billion	0.83
2023	France	Bitcoin	\$59,000	\$109,000	36,000 BTC	\$69,000	\$104,000	\$35,000	3,60,000	December	\$590 billion	0.85
2023	Brazil	Bitcoin	\$45,000	\$95,000	25,000 BTC	\$55,000	\$90,000	\$35,000	2,50,000	May	\$450 billion	0.85
2023	South Africa	Bitcoin	\$42,000	\$92,000	22,000 BTC	\$52,000	\$87,000	\$35,000	2,20,000	June	\$420 billion	0.86
2023	Turkey	Bitcoin	\$47,000	\$97,000	27,000 BTC	\$57,000	\$92,000	\$35,000	2,70,000	April	\$470 billion	0.84
2023	Spain	Bitcoin	\$44,000	\$94,000	24,000 BTC	\$54,000	\$89,000	\$35,000	2,40,000	March	\$440 billion	0.87
2023	Nigeria	Bitcoin	\$49,000	\$99,000	29,000 BTC	\$59,000	\$94,000	\$35,000	2,90,000	February	\$490 billion	0.83
2023	Saudi Arabia	Bitcoin	\$46,000	\$96,000	26,000 BTC	\$56,000	\$91,000	\$35,000	2,60,000	January	\$460 billion	0.88
2023	Iran	Bitcoin	\$43,000	\$93,000	23,000 BTC	\$53,000	\$88,000	\$35,000	2,30,000	December	\$430 billion	0.89
2023	Vietnam	Bitcoin	\$48,000	\$98,000	28,000 BTC	\$58,000	\$93,000	\$35,000	2,80,000	November	\$480 billion	0.82
2023	Indonesia	Bitcoin	\$41,000	\$91,000	21,000 BTC	\$51,000	\$86,000	\$35,000	2,10,000	October	\$410 billion	0.9
2023	Argentina	Bitcoin	\$50,000	\$100,000	30,000 BTC	\$60,000	\$95,000	\$35,000	3,00,000	September	\$500 billion	0.85
2023	Netherlands	Bitcoin	\$47,000	\$97,000	27,000 BTC	\$57,000	\$92,000	\$35,000	2,70,000	May	\$470 billion	0.85
2023	Sweden	Bitcoin	\$45,000	\$95,000	25,000 BTC	\$55,000	\$90,000	\$35,000	2,50,000	June	\$450 billion	0.86
2023	Austria	Bitcoin	\$50,000	\$100,000	30,000 BTC	\$60,000	\$95,000	\$35,000	3,00,000	April	\$500 billion	0.84
2023	Iraq	Bitcoin	\$47,000	\$97,000	27,000 BTC	\$57,000	\$92,000	\$35,000	2,70,000	March	\$470 billion	0.87
2023	Germany	Bitcoin	\$49,000	\$99,000	29,000 BTC	\$59,000	\$94,000	\$35,000	2,90,000	February	\$490 billion	0.83
2023	Maldives	Bitcoin	\$46,000	\$96,000	26,000 BTC	\$56,000	\$91,000	\$35,000	2,60,000	January	\$460 billion	0.88
2023	Egypt	Bitcoin	\$43,000	\$93,000	23,000 BTC	\$53,000	\$88,000	\$35,000	2,30,000	December	\$430 billion	0.89
2023	Bangladesh	Bitcoin	\$48,000	\$98,000	28,000 BTC	\$58,000	\$93,000	\$35,000	2,80,000	November	\$480 billion	0.82
2023	Australia	Bitcoin	\$44,000	\$94,000	24,000 BTC	\$54,000	\$89,000	\$35,000	2,40,000	October	\$440 billion	0.9
2023	Singapore	Bitcoin	\$51,000	\$101,000	31,000 BTC	\$61,000	\$96,000	\$35,000	3,10,000	September	\$510 billion	0.85
2023	Mexico	Bitcoin	\$45,000	\$95,000	25,000 BTC	\$55,000	\$90,000	\$35,000	2,50,000	May	\$450 billion	0.85
2023	Philippines	Bitcoin	\$42,000	\$92,000	22,000 BTC	\$52,000	\$87,000	\$35,000	2,20,000	June	\$420 billion	0.86
2023	Thailand	Bitcoin	\$47,000	\$97,000	27,000 BTC	\$57,000	\$92,000	\$35,000	2,70,000	April	\$470 billion	0.84
2023	Brazil	Bitcoin	\$44,000	\$94,000	24,000 BTC	\$54,000	\$89,000	\$35,000	2,40,000	March	\$440 billion	0.87
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2023	Vietnam	Bitcoin	\$48,000	\$98,000	28,000 BTC	\$58,000	\$93,000	\$35,000	2,80,000	November	\$480 billion	0.82
2023	Indonesia	Bitcoin	\$41,000	\$91,000	21,000 BTC	\$51,000	\$86,000	\$35,000	2,10,000	October	\$410 billion	0.9
2023	Argentina	Bitcoin	\$50,000	\$100,000	30,000 BTC	\$60,000	\$95,000	\$35,000	3,00,000	September	\$500 billion	0.85

IMPLEMENTATION

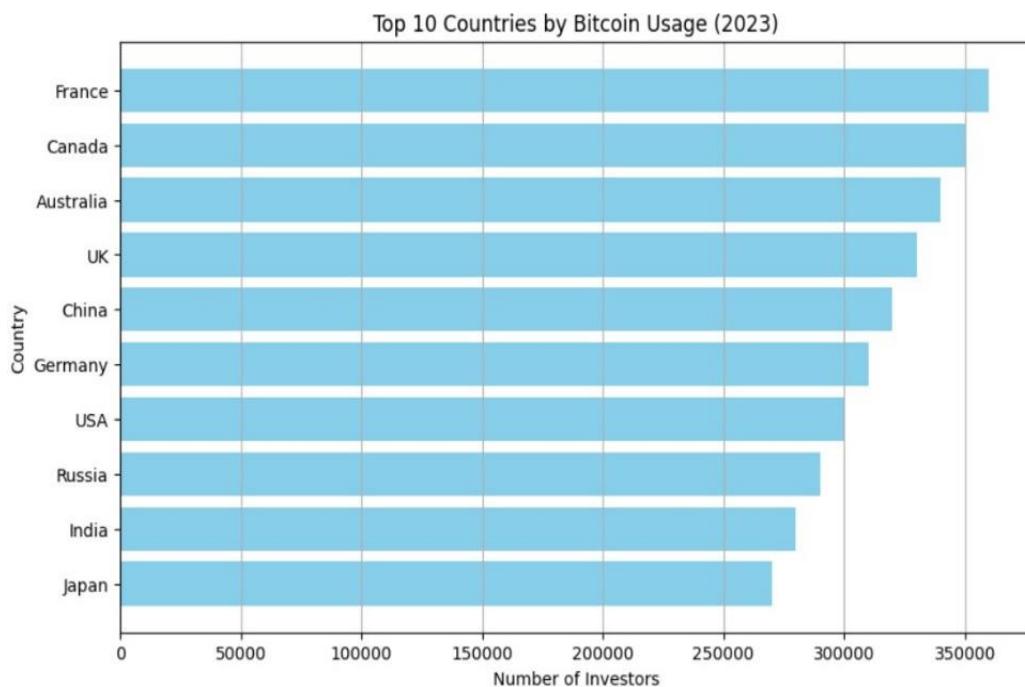
1.What is the range of bitcoin price across the countries ?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = { "Country": ["USA", "China", "India", "Russia", "Japan", "Germany", "UK", "Canada", "Australia", "France"],
        "Lowest_Price": [50000, 55000, 52000, 53000, 51000, 54000, 56000, 58000, 57000, 59000],
        "Highest_Price": [100000, 105000, 102000, 103000, 101000, 104000, 106000, 108000, 107000, 109000],}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
for index, row in df.iterrows():
    plt.plot([row['Lowest_Price'], row['Highest_Price']], [index, index], marker='o', linestyle='-', label=row['Country'])
plt.yticks(range(len(df)), df['Country'])
plt.xlabel('Price (in $)')
plt.ylabel('Country')
plt.title('Bitcoin Price Range Across Countries (2023)')
plt.grid(True)
plt.legend()
plt.show()
```



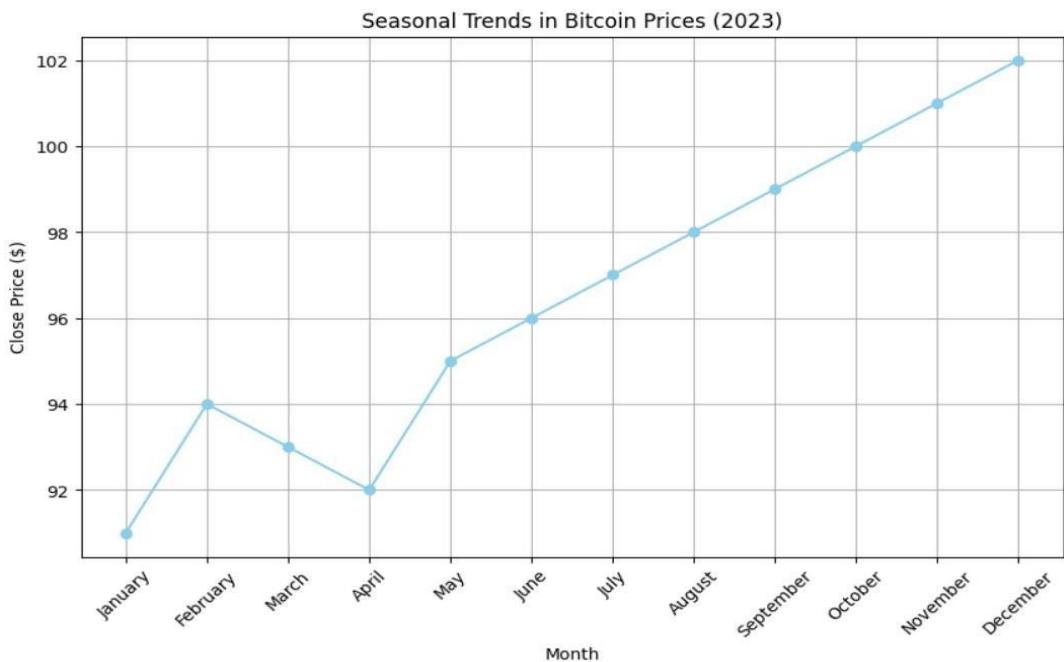
2. What are the top 10 countries with the highest bitcoin usage in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {"Country": ["USA", "China", "India", "Russia", "Japan", "Germany", "UK", "Canada", "Australia", "France"],
        "No_of_Investors": [300000, 320000, 280000, 290000, 270000, 310000, 330000, 350000, 340000, 360000],}
df = pd.DataFrame(data)
df_sorted = df.sort_values(by='No_of_Investors', ascending=False).head(10)
plt.figure(figsize=(10, 6))
plt.barh(df_sorted['Country'], df_sorted['No_of_Investors'], color='skyblue')
plt.xlabel('Number of Investors')
plt.ylabel('Country')
plt.title('Top 10 Countries by Bitcoin Usage (2023)')
plt.gca().invert_yaxis()
plt.grid(axis='x')
plt.show()
```



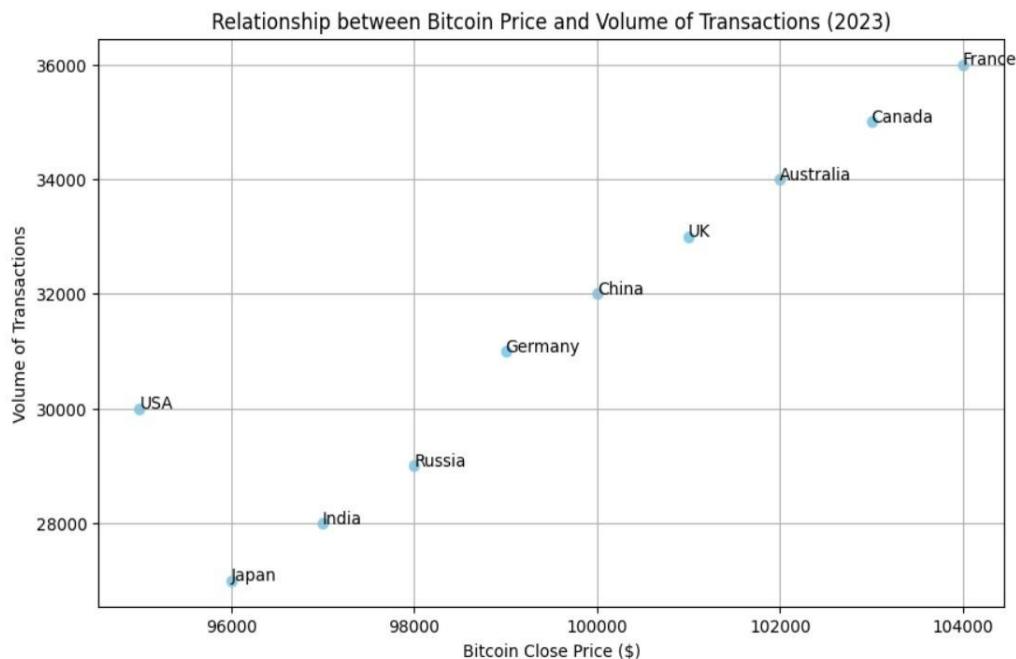
3.What were the bitcoin prices based on months in 2023?

```
import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "Close_Price": [91, 94, 93, 92, 95, 96, 97, 98, 99, 100, 101, 102],
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.plot(df['Month'], df['Close_Price'], marker='o', color='skyblue')
plt.xlabel('Month')
plt.ylabel('Close Price ($)')
plt.title('Seasonal Trends in Bitcoin Prices (2023)')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



4. How does the volume of transactions correlate with the price of Bitcoin throughout 2023?

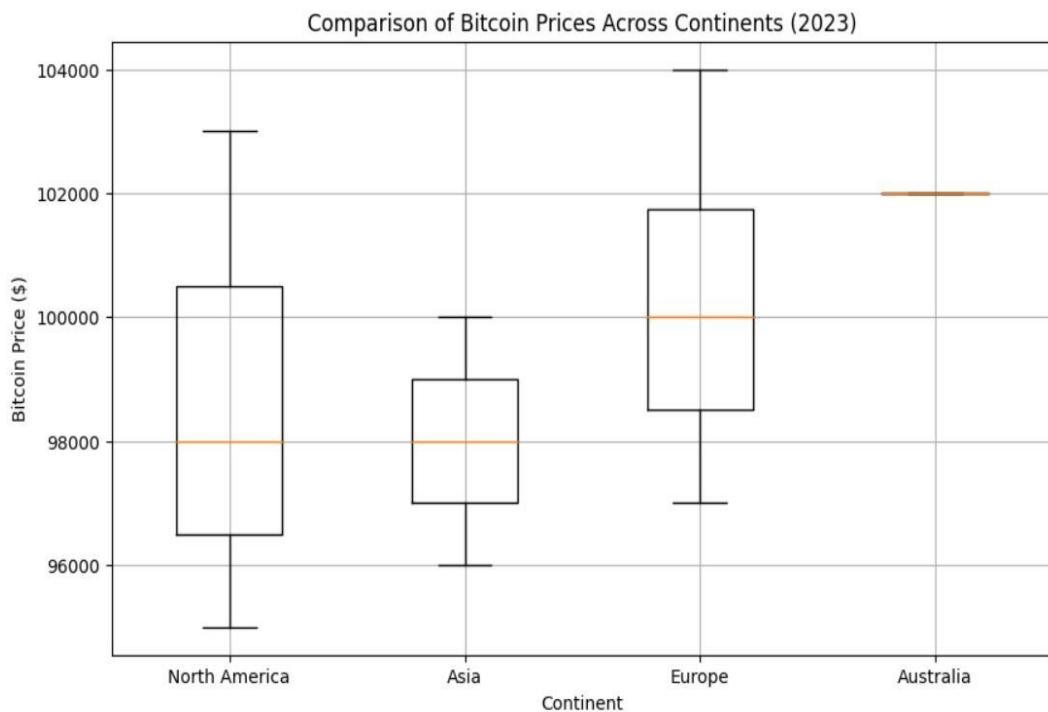
```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Country": ["USA", "China", "India", "Russia", "Japan", "Germany", "UK", "Canada", "Australia", "France"],
    "Close_Price": [95000, 100000, 97000, 98000, 96000, 99000, 101000, 103000, 102000, 104000], # Just using arbitrary values for demonstration
    "Volume": [30000, 32000, 28000, 29000, 27000, 31000, 33000, 35000, 34000, 36000], }
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.scatter(df['Close_Price'], df['Volume'], color='skyblue')
for i, txt in enumerate(df['Country']):
    plt.annotate(txt, (df['Close_Price'][i], df['Volume'][i]))
plt.xlabel('Bitcoin Close Price ($)')
plt.ylabel('Volume of Transactions')
plt.title('Relationship between Bitcoin Price and Volume of Transactions (2023)')
plt.grid(True)
plt.show()
```



5.How do Bitcoin prices vary across different continents?

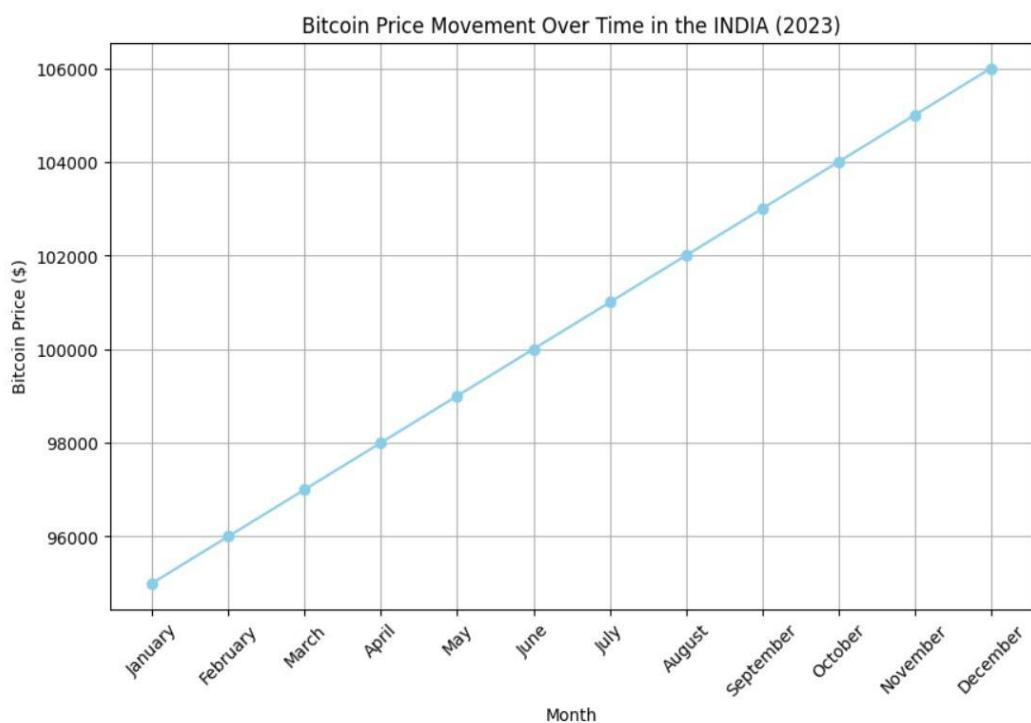


```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = [
    "Continent": ["North America", "Asia", "Europe", "North America", "Asia", "Europe", "Europe", "North America", "Australia", "Europe"],
    "Close_Price": [95000, 100000, 97000, 98000, 96000, 99000, 101000, 103000, 102000, 104000], ]
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.boxplot([df[df['Continent'] == 'North America']['Close_Price'],
            df[df['Continent'] == 'Asia']['Close_Price'],
            df[df['Continent'] == 'Europe']['Close_Price'],
            df[df['Continent'] == 'Australia']['Close_Price']],
            labels=['North America', 'Asia', 'Europe', 'Australia'])
plt.xlabel('Continent')
plt.ylabel('Bitcoin Price ($)')
plt.title('Comparison of Bitcoin Prices Across Continents (2023)')
plt.grid(True)
plt.show()
```



6.What has been the historical movement of Bitcoin prices in India over time?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "Close_Price": [95000, 96000, 97000, 98000, 99000, 100000, 101000, 102000, 103000, 104000, 105000, 106000],
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.plot(df['Month'], df['Close_Price'], marker='o', color='skyblue')
plt.xlabel('Month')
plt.ylabel('Bitcoin Price ($)')
plt.title('Bitcoin Price Movement Over Time in the INDIA (2023)')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



7.How was the distribution of market capitalization for Bitcoin across different countries in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Country": ["USA", "China", "India", "Russia", "Japan", "Germany", "UK", "Canada", "Australia", "France"],
    "Market_Cap": [500, 550, 520, 530, 510, 540, 560, 580, 570, 590], # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.plot(df['Country'], df['Market_Cap'], color='skyblue')
plt.xlabel('Country')
plt.ylabel('Market Capitalization (Billion $)')
plt.title('Market Capitalization Distribution Across Countries (2023)')
plt.xticks(rotation=90) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



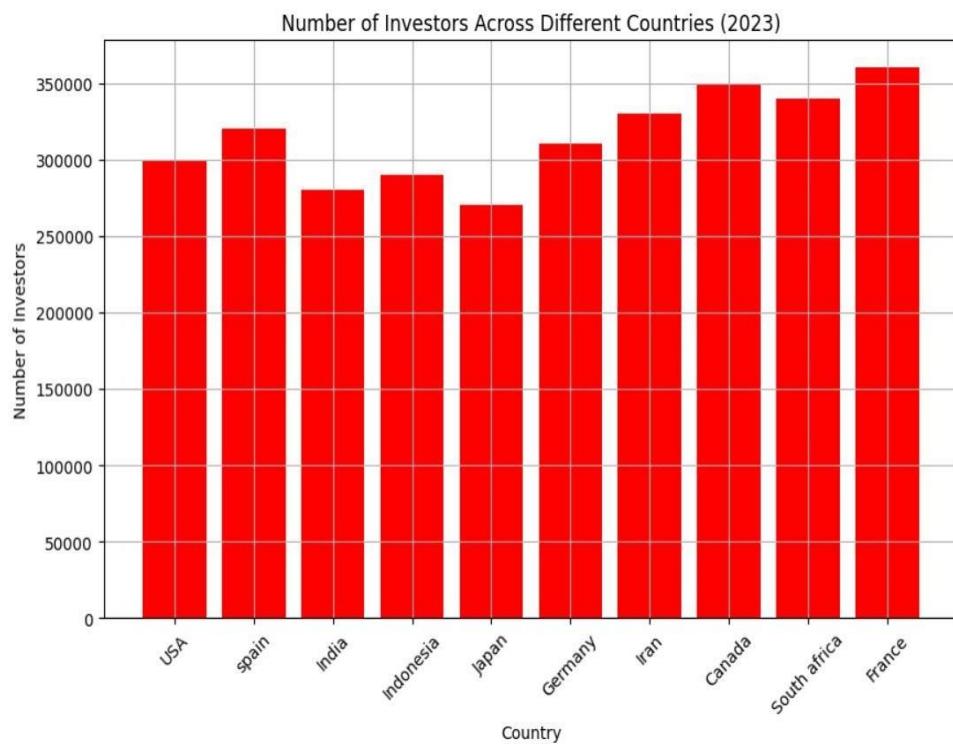
8.How does the number of Bitcoin investors vary across different countries in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt

# Load the dataset
data = {
    "Country": ["USA", "Spain", "India", "Indonesia", "Japan", "Germany", "Iran", "Canada", "South Africa", "France"],
    "No_of_Investors": [300000, 320000, 280000, 290000, 270000, 310000, 330000, 350000, 340000, 360000], # Just using arbitrary values for demonstration
}

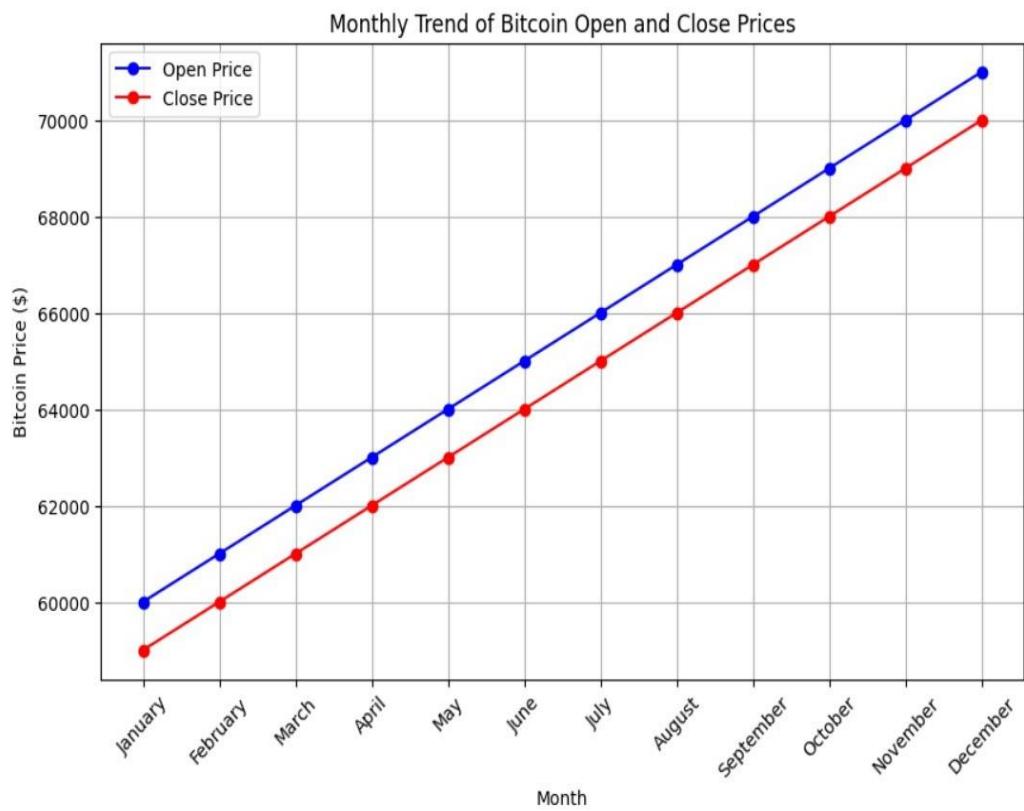
df = pd.DataFrame(data)

# Plotting
plt.figure(figsize=(10, 6))
plt.bar(df['Country'], df['No_of_Investors'], color='red')
plt.xlabel('Country')
plt.ylabel('Number of Investors')
plt.title('Number of Investors Across Different Countries (2023)')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



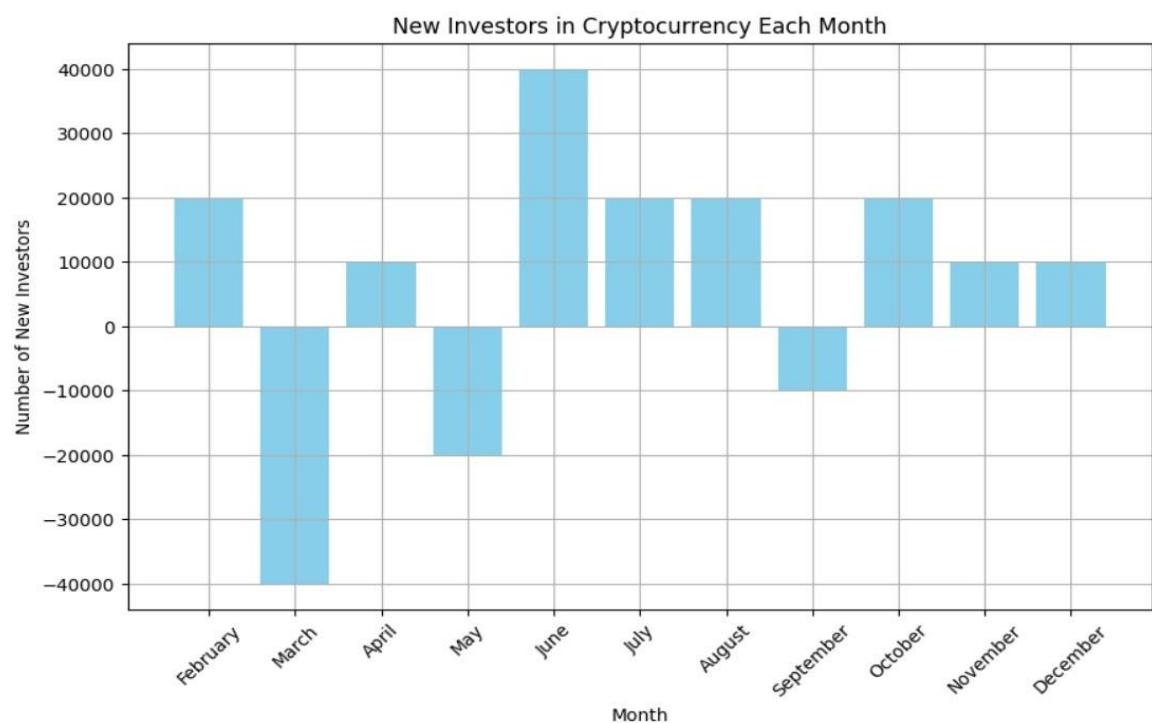
9.What were the monthly trends for Bitcoin's open and close prices throughout 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "Open_Price": [60000, 61000, 62000, 63000, 64000, 65000, 66000, 67000, 68000, 69000, 70000, 71000], # Just using arbitrary values for demonstration
    "Close_Price": [59000, 60000, 61000, 62000, 63000, 64000, 65000, 66000, 67000, 68000, 69000, 70000] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.plot(df['Month'], df['Open_Price'], marker='o', color='blue', label='Open Price')
plt.plot(df['Month'], df['Close_Price'], marker='o', color='red', label='Close Price')
plt.xlabel('Month')
plt.ylabel('Bitcoin Price ($)')
plt.title('Monthly Trend of Bitcoin Open and Close Prices')
plt.legend()
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



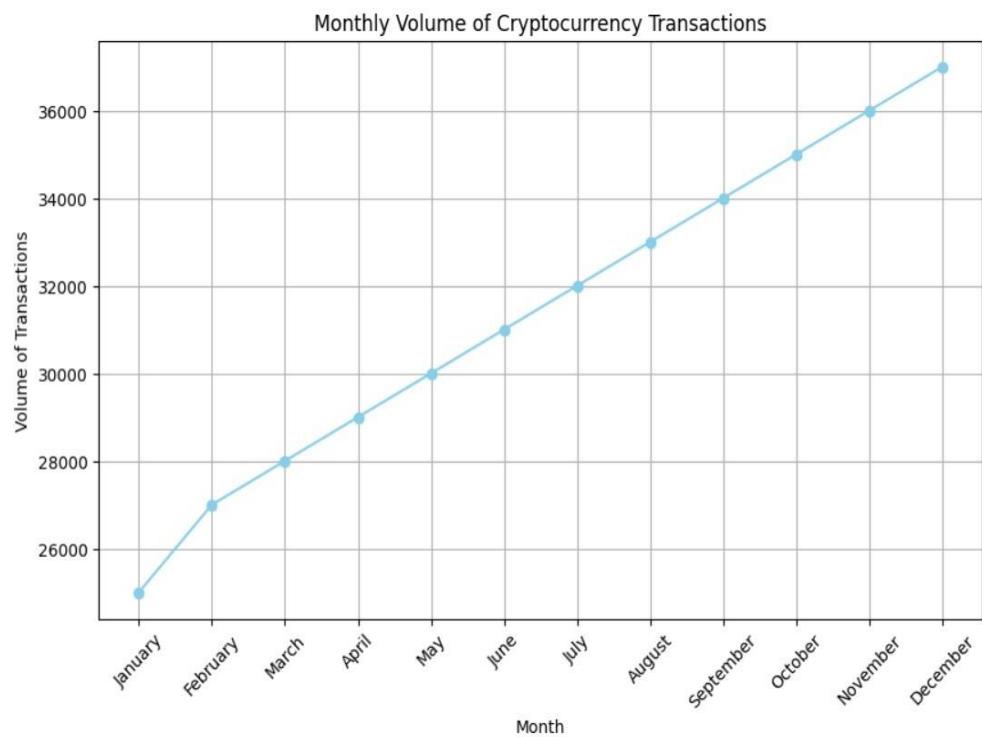
10.How many new investors entered the market in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "No_of_Investors": [300000, 320000, 280000, 290000, 270000, 310000, 330000, 350000, 340000, 360000, 370000, 380000] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
df['New_Investors'] = df['No_of_Investors'].diff()
plt.figure(figsize=(10, 6))
plt.bar(df['Month'], df['New_Investors'], color='skyblue')
plt.xlabel('Month')
plt.ylabel('Number of New Investors')
plt.title('New Investors in Cryptocurrency Each Month')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



11.What was the monthly volume of cryptocurrency transactions throughout 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "Volume": [25000, 27000, 28000, 29000, 30000, 31000, 32000, 33000, 34000, 35000, 36000, 37000] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.plot(df['Month'], df['Volume'], marker='o', color='skyblue')
plt.xlabel('Month')
plt.ylabel('Volume of Transactions')
plt.title('Monthly Volume of Cryptocurrency Transactions')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```

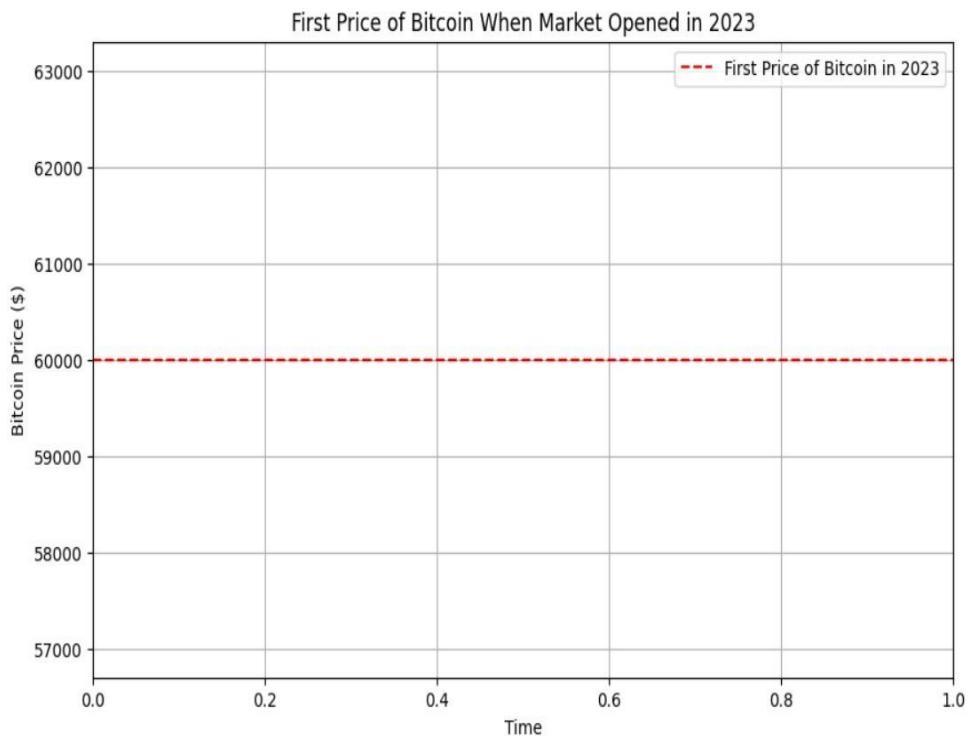


12.What was the initial price of Bitcoin at the beginning of 2023?

```
[ ] import matplotlib.pyplot as plt

# First price of Bitcoin when the market opened in 2023
first_price_2023 = 60000 # Example value, replace with actual first price

# Plotting
plt.figure(figsize=(10, 6))
plt.axhline(y=first_price_2023, color='r', linestyle='--', label='First Price of Bitcoin in 2023')
plt.xlabel('Time')
plt.ylabel('Bitcoin Price ($)')
plt.title('First Price of Bitcoin When Market Opened in 2023')
plt.legend()
plt.grid(True)
plt.show()
```



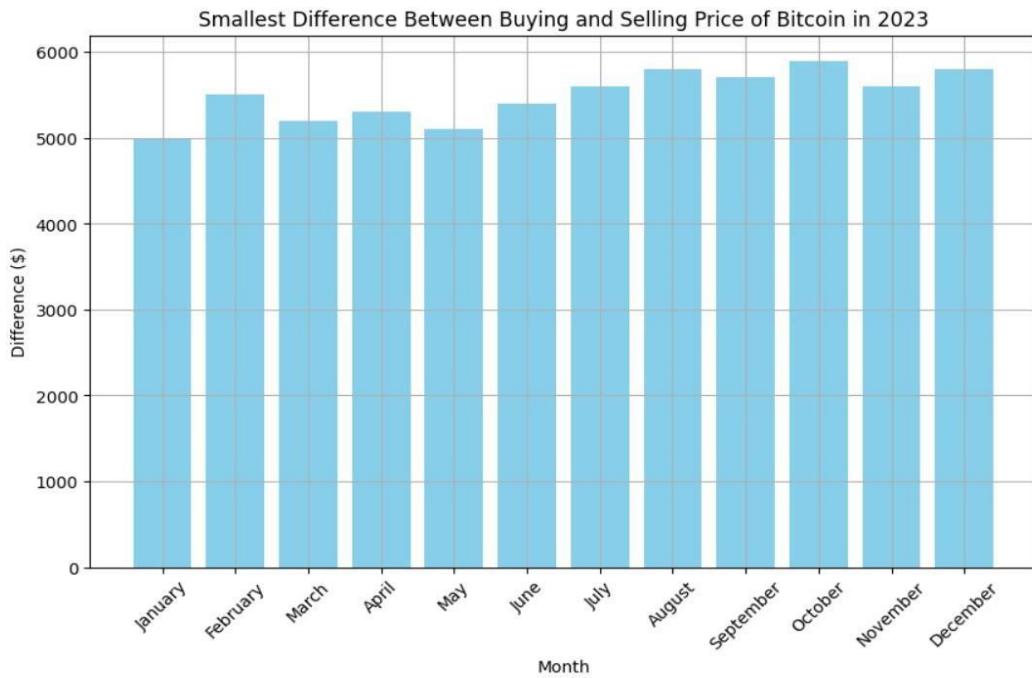
13.What was the smallest difference between the buying and selling prices of Bitcoin in 2023, also known as the spread?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt

# Load the dataset
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "Difference": [5000, 5500, 5200, 5300, 5100, 5400, 5600, 5800, 5700, 5900, 5600, 5800] # Just using arbitrary values for demonstration
}

df = pd.DataFrame(data)

# Plotting
plt.figure(figsize=(10, 6))
plt.bar(df['Month'], df['Difference'], color='skyblue')
plt.xlabel('Month')
plt.ylabel('Difference ($)')
plt.title('Smallest Difference Between Buying and Selling Price of Bitcoin in 2023')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



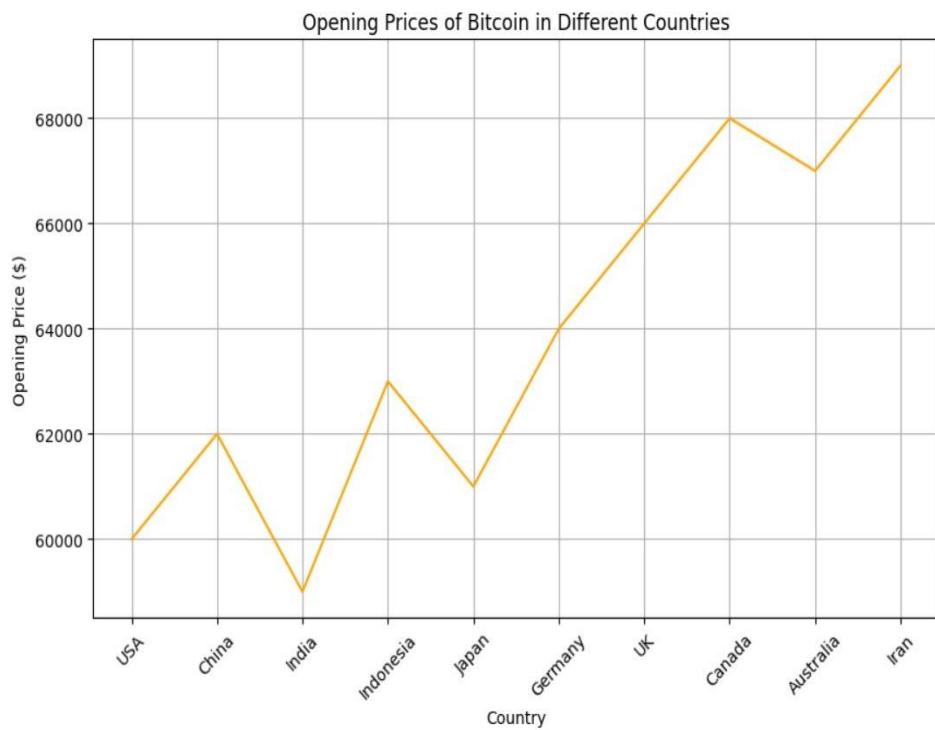
14.Which countries experienced higher opening prices for Bitcoin in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt

# Load the dataset
data = {
    "Country": ["USA", "China", "India", "Indonesia", "Japan", "Germany", "UK", "Canada", "Australia", "Iran"],
    "Open_Price": [60000, 62000, 59000, 63000, 61000, 64000, 66000, 68000, 67000, 69000] # Just using arbitrary values for demonstration
}

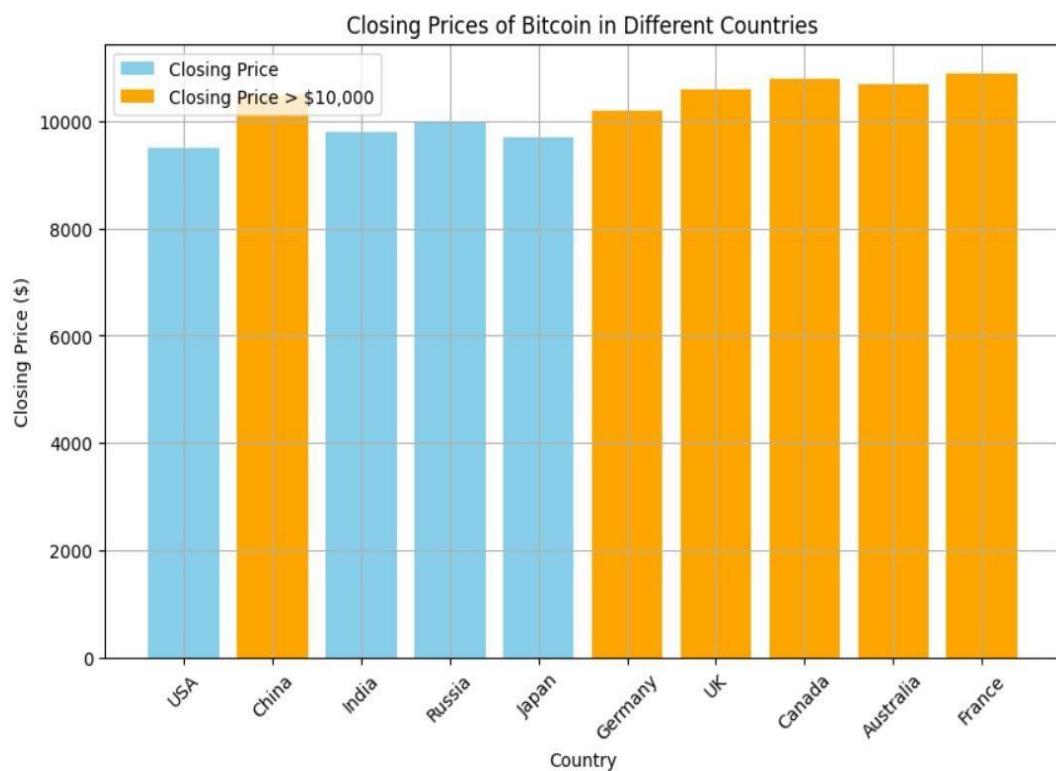
df = pd.DataFrame(data)

# Plotting
plt.figure(figsize=(10, 6))
plt.plot(df['Country'], df['Open_Price'], color='orange')
plt.xlabel('Country')
plt.ylabel('Opening Price ($)')
plt.title('Opening Prices of Bitcoin in Different Countries')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



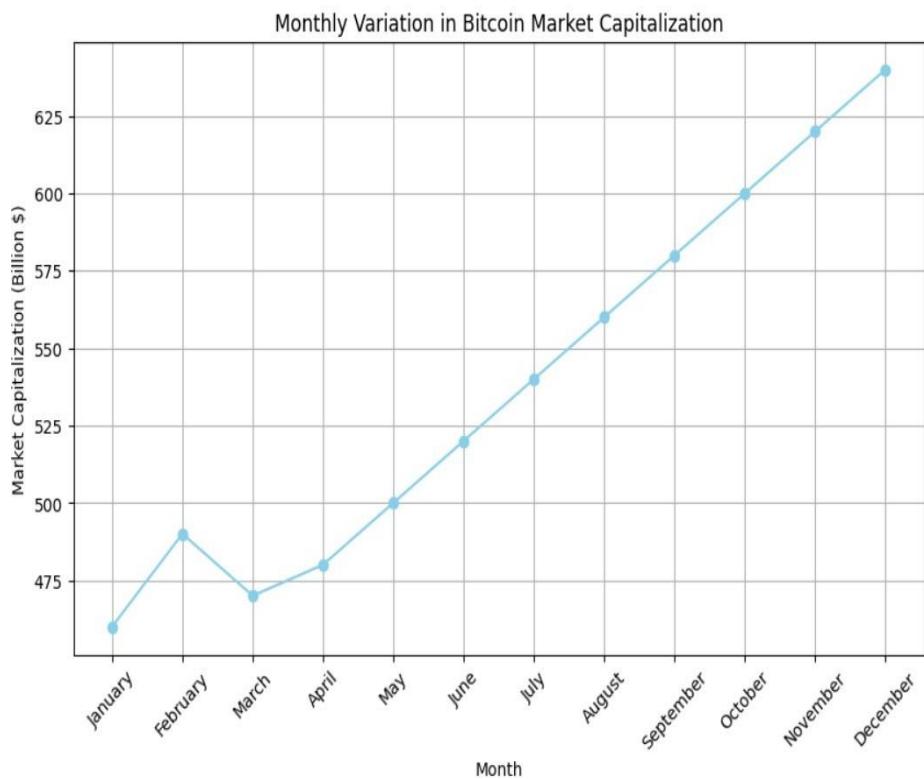
15. In 2023, which countries saw the closing price of Bitcoin surpass \$10,000?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Country": ["USA", "China", "India", "Russia", "Japan", "Germany", "UK", "Canada", "Australia", "France"],
    "Close_Price": [9500, 10500, 9800, 10000, 9700, 10200, 10600, 10800, 10700, 10900] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
df_exceed_10000 = df[df['Close_Price'] > 10000]
plt.figure(figsize=(10, 6))
plt.bar(df['Country'], df['Close_Price'], color='skyblue', label='Closing Price')
plt.bar(df_exceed_10000['Country'], df_exceed_10000['Close_Price'], color='orange', label='Closing Price > $10,000')
plt.xlabel('Country')
plt.ylabel('Closing Price ($)')
plt.title('Closing Prices of Bitcoin in Different Countries')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.legend()
plt.grid(True)
plt.show()
```



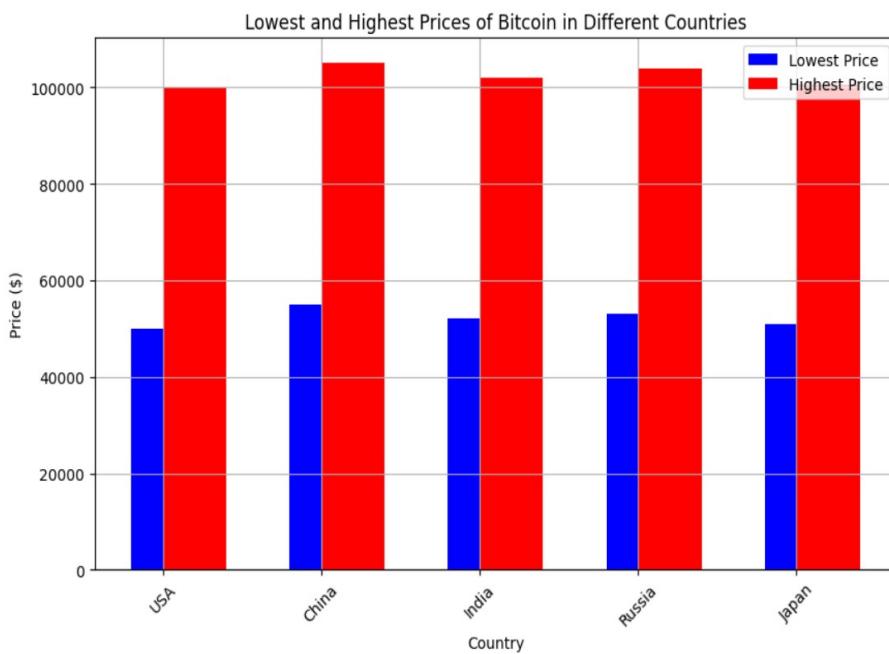
16.How did the Bitcoin market capitalization vary on a monthly basis throughout 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "Market_Cap": [460, 490, 470, 480, 500, 520, 540, 560, 580, 600, 620, 640] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.plot(df['Month'], df['Market_Cap'], marker='o', color='skyblue')
plt.xlabel('Month')
plt.ylabel('Market Capitalization (Billion $)')
plt.title('Monthly Variation in Bitcoin Market Capitalization')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



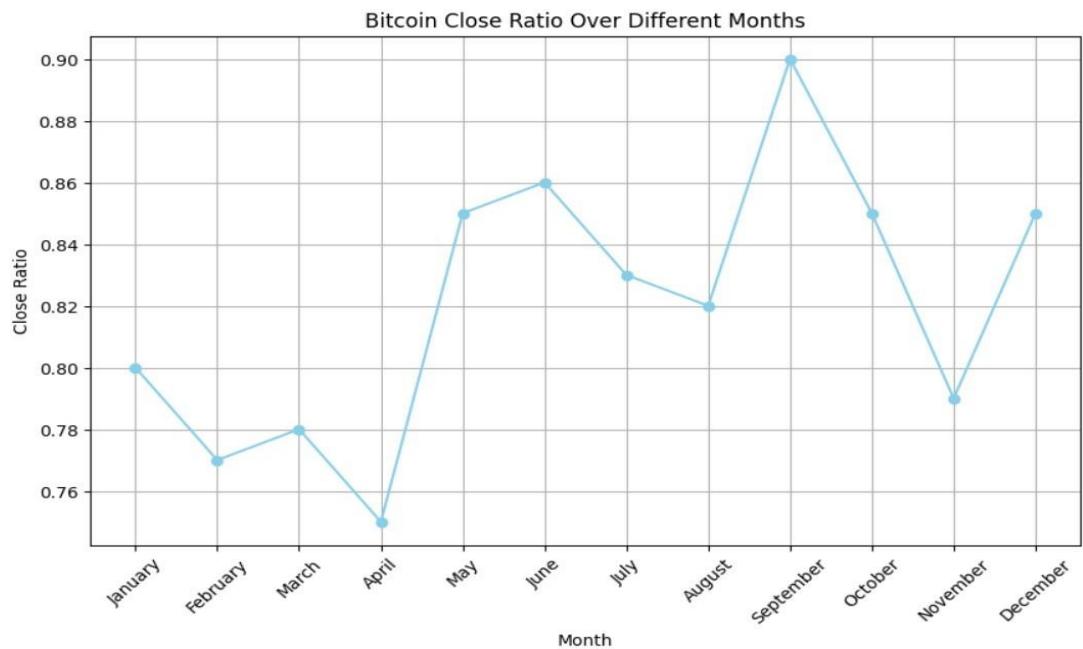
17.What were the lowest and highest prices of Bitcoin recorded in different countries during 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Country": ["USA", "China", "India", "Russia", "Japan"],
    "Lowest_Price": [50000, 55000, 52000, 53000, 51000], # Just using arbitrary values for demonstration
    "Highest_Price": [100000, 105000, 102000, 104000, 100500] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.bar(df['Country'], df['Lowest_Price'], color='blue', width=0.4, align='center', label='Lowest Price')
plt.bar(df['Country'], df['Highest_Price'], color='red', width=0.4, align='edge', label='Highest Price')
plt.xlabel('Country')
plt.ylabel('Price ($)')
plt.title('Lowest and Highest Prices of Bitcoin in Different Countries')
plt.legend()
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



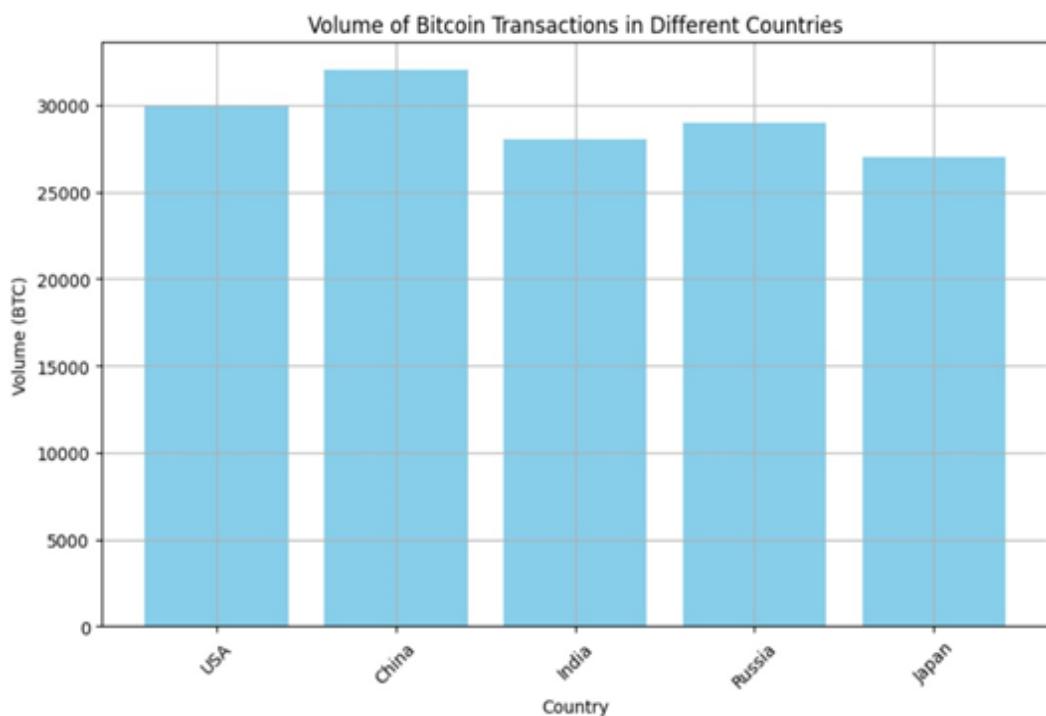
18.What was the close ratio of Bitcoin over different months in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Month": ["January", "February", "March", "April", "May", "June", "July", "August", "September", "October", "November", "December"],
    "Close_Ratio": [0.8, 0.77, 0.78, 0.75, 0.85, 0.86, 0.83, 0.82, 0.9, 0.85, 0.79, 0.85] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.plot(df['Month'], df['Close_Ratio'], marker='o', color='skyblue')
plt.xlabel('Month')
plt.ylabel('Close Ratio')
plt.title('Bitcoin Close Ratio Over Different Months')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



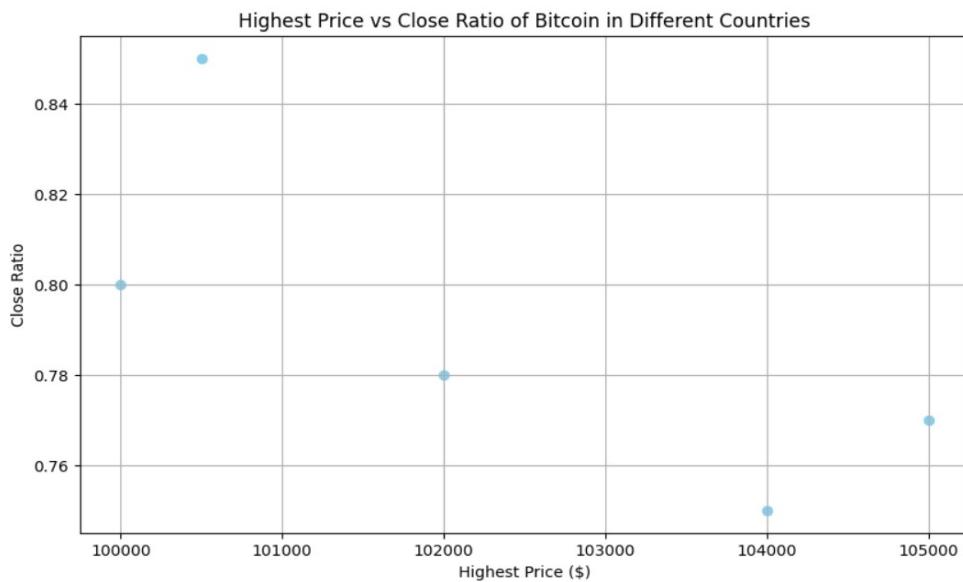
19.What was the relationship between countries and the volume of Bitcoin transactions in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Country": ["USA", "China", "India", "Russia", "Japan"],
    "Volume": [30000, 32000, 28000, 29000, 27000] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.bar(df['Country'], df['Volume'], color='skyblue')
plt.xlabel('Country')
plt.ylabel('Volume (BTC)')
plt.title('Volume of Bitcoin Transactions in Different Countries')
plt.xticks(rotation=45) # Rotate x-axis labels for better readability
plt.grid(True)
plt.show()
```



20.What was the relationship between the highest price and the close ratio of Bitcoin in 2023?

```
[ ] import pandas as pd
import matplotlib.pyplot as plt
data = {
    "Country": ["USA", "China", "India", "Russia", "Japan"],
    "Highest_Price": [100000, 105000, 102000, 104000, 100500], # Just using arbitrary values for demonstration
    "Close_Ratio": [0.8, 0.77, 0.78, 0.75, 0.85] # Just using arbitrary values for demonstration
}
df = pd.DataFrame(data)
plt.figure(figsize=(10, 6))
plt.scatter(df['Highest_Price'], df['Close_Ratio'], color='skyblue')
plt.xlabel('Highest Price ($)')
plt.ylabel('Close Ratio')
plt.title('Highest Price vs Close Ratio of Bitcoin in Different Countries')
plt.grid(True)
plt.show()
```



CONCLUSION

After analyzing the data, we've found that the cryptocurrency market is like a rollercoaster, with prices going up and down frequently. It's important to know that investing in cryptocurrencies can be risky because their prices can change dramatically in a short period. Governments and regulators are also keeping an eye on cryptocurrencies, which affects their value.

Despite the risks, cryptocurrencies have become more popular over time, with more people investing in them. Technology is a big part of cryptocurrencies, especially blockchain, which is like a digital ledger. People use blockchain to make sure that transactions are secure and transparent. But not all cryptocurrencies are the same ,some have different purposes, like being faster or more private.

Overall, the cryptocurrency market is exciting but also unpredictable. It's like a wild ride that can lead to big gains or big losses. So, if you're thinking about investing in cryptocurrencies, make sure you understand the risks before jumping in.

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