

# CryptoViz: Interactive Crypto Return Analysis and Prediction Tool

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# Data

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## Crypto

All Most Active Top Gainers Top Losers Trending Now

Table View Heatmap View

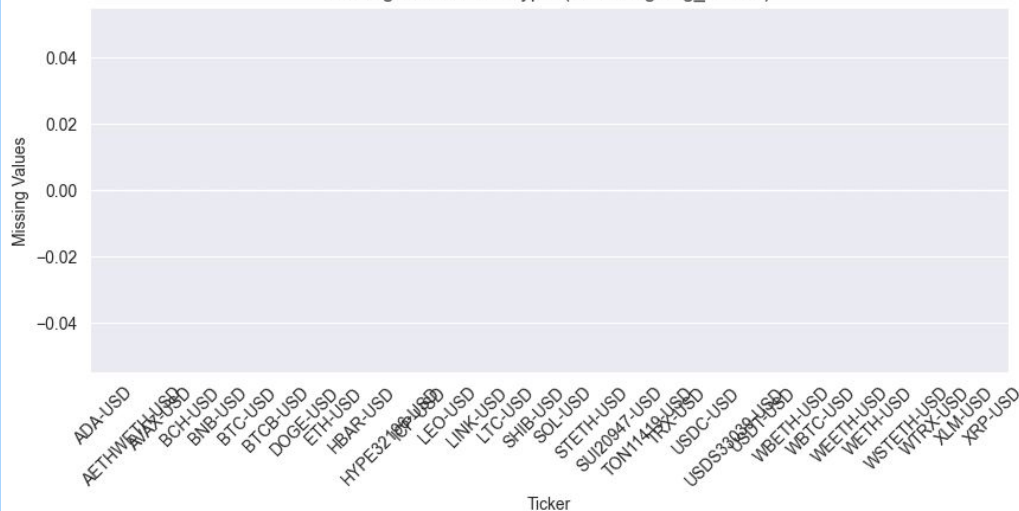
Symbol	Name	Price	Change	Change %	Market Cap	Volume	Volume In Currency (24h)	Total Volume A Currencies (24h)
BTC-USD	Bitcoin USD	105,400.78	+583.88	+0.56%	2.095T	48.104B	48.104B	48.104B
ETH-USD	Ethereum USD	2,608.86	+119.51	+4.80%	314.95B	20.071B	20.071B	20.071B
USDT-USD	Ether USDt USD	1.0004	+0.0001	+0.01%	153.369B	72.018B	72.018B	72.018B
XRP-USD	XRP USD	2.2028	+0.0423	+1.96%	129.435B	2.227B	2.227B	2.227B
BNB-USD	BNB USD	667.29	+10.48	+1.60%	94.013B	1.753B	1.753B	1.753B
SOL-USD	Solana USD	159.33	+4.45	+2.87%	83.238B	3.539B	3.539B	3.539B



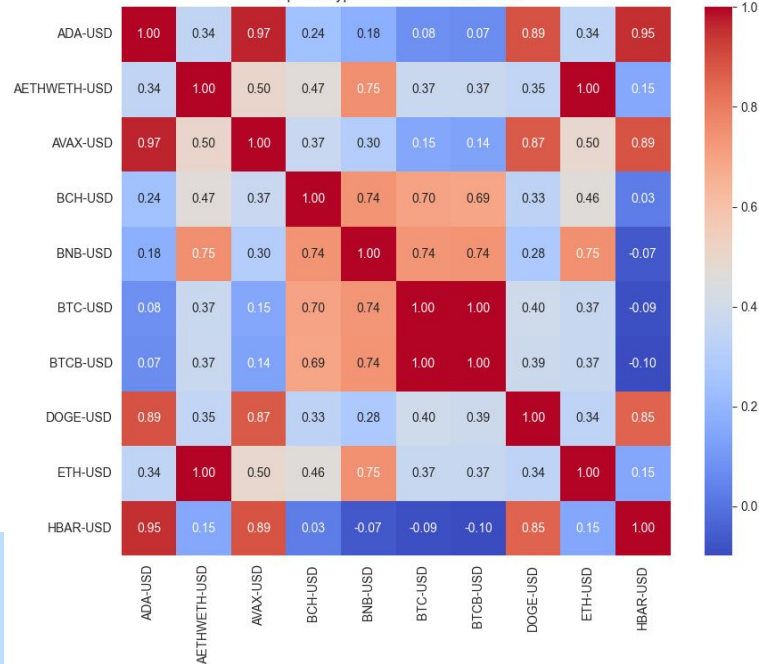
- Data Source: Yahoo! Finance
- Web scraping (Top 30) + Fetching historical market data (yfinance)
- Data Includes:
  - Daily Open, Close, Volume, High, Low
  - Derived metrics: log returns
- Storage: Tabular CSV format, updated daily via scheduled Python script

# Exploratory Data Analysis (EDA)

Missing Values Per Crypto (Excluding Log\_Return)

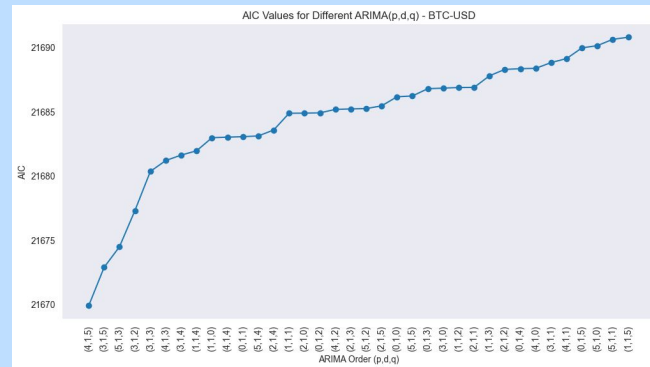


Top 10 Crypto Close Price Correlation



# Deployment

- Frontend: Python Shiny on Google Cloud
- Backend: Flask API hosted on Google Cloud
  - One-step-ahead forecasting using ARIMA(p,d,q) trained on each coin's historical Close prices
  - Model selection via AIC/BIC on rolling basis or fixed window
- Interactive Dashboard:
  - Forecasting Panel:
    - Show the whole close price movement of selected crypto
    - Predicted next-day Close price with confidence interval
    - User-Driven Analysis:
      - Users can type in any coin ID to fetch and analyze new coins (e.g., "arbitrum")
      - App pulls data in real-time from Yahoo Finance and updates visuals
  - Correlation Panel:
    - User selects a timeframe (e.g., 7D, 30D, 90D)
    - App computes log return correlation matrix across selected coins
    - Output: Heatmap with optional numeric values overlay



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Forecast Controls

Select Cryptocurrency:

BTC-USD

▼

Generate Forecast

User-Driven Analysis

Add New Ticker:

e.g., MATIC-USD

Add Ticker

Historical Close Price for BTC-USD



ARIMA Forecast

Predicted Next Day's Close: \$104,835.68

This prediction is **higher than yesterday's close of \$104,638.09 (+0.19%)**

95% Confidence Interval: \$100,191.27 to \$109,480.09