1. Use python to collect historical BTC/USD prices of the ccix index for the last 30 days using the following endpoint:

https://developers.cryptocompare.com/documentation/data-api/index_cc_v1_historical_days

   a) Calculate the daily returns.

This is included in the Jupyter Notebook.

   b) What was the average, median and standard deviation of daily returns?

This is included in the Jupyter Notebook.

2. In section one - the OHLCV data you collected was from 'CCIX' - this is one of CCData's core products that takes prices from multiple crypto exchanges and combines them to give one final output price.

Often we have to work with data that comes directly from individual exchanges. Binance is one of the biggest crypto exchanges at the minute - question 2 focuses on pulling data directly from the Binance API and comparing it to data from the CCData API.

   a) Using your code from the previous question, use the following endpoint to find the OHLCV data for BTC/USDT from Binance:
   https://developers.cryptocompare.com/documentation/data-api/spot_v1_historical_days

This is included in the Jupyter Notebook.

b) Now use the Binance market data k-lines endpoint to find the BTC/USDT OHLCV data for the same period:

https://binance-docs.github.io/apidocs/spot/en/#kline-candlestick-data

This is included in the Jupyter Notebook.

   b) Comparing the CCData and Binance datasets can you see any problems or discrepancies?

   - CCData's API counts in seconds and Binance is in milliseconds – this is changed for analysis.

   - Timestamp, high and low are all equivalent, implying there is no issue with time zones or actual like-for-like pricing, though there could be specific prices which are incorrect due to other differences

- The differences in volume are negligible compared to overall values.

- Largest discrepancy is in QUOTE_VOLUME, with almost 500k more on average for Binance. This could potentially be due to Binance providing quotes that CCdata isn't able to record. They certainly are working on different data due to the range of differences and no discernible pattern.

The differences between OPEN and CLOSE are also small, but worth investigating as they are such important values.

For OPEN: it seems as though there is around a USDT 0.01 difference between some opening prices, potentially due to how regularly they are updating the price of USDT - as it regularly has small fluctuations around the price of 1 USD.

For CLOSE: all prices match aside from for today, which has a relatively large difference of USDT 37.54. This needs to be investigated further as it is concerning.

d) Plot the price against time for both data sets on a single chart.

This is included in the Jupyter Notebook.