**Scenario**

You are a junior data analyst working for a business intelligence consultant. You have been at your job for six months, and your boss

feels you are ready for more responsibility. He has asked you to lead a project for a brand new client — this will involve everything

from defining the business task all the way through presenting your data-driven recommendations. You will choose the topic, ask

the right questions, identify a fresh dataset and ensure its integrity, conduct analysis, create compelling data visualizations, and

prepare a presentation.

**Ask**

***Five questions will guide your case study:***

1. What type of company does your client represent, and what are they asking you to accomplish? **The company my client represents is a new hedge fund that is trying to see the difference in potential returns between Gold and Bitcoin to maximize profit for the portfolios of their clients.**
2. What are the key factors involved in the business task you are investigating? **The key factors involved in this business task are finding accurate data about the price history for the past 10 years of both assets, effectively cleaning and accurately presenting data, and creating effective easy-to-read data visualizations that display the data.**
3. What type of data will be appropriate for your analysis? **Accurate financial data (the % ROI) of both assets from the past 10 years.**
4. Where will you obtain that data? **I will obtain the data from** [**https://www.kaggle.com/datasets/yafethtb/gold-price-historical-data-1969-2022?select=gold\_price\_yearly.csv**](https://www.kaggle.com/datasets/yafethtb/gold-price-historical-data-1969-2022?select=gold_price_yearly.csv) **(a dataset on kaggle) and** [**https://finance.yahoo.com/quote/BTC-USD/history?period1=1410912000&period2=1699920000&interval=1mo&filter=history&frequency=1mo&includeAdjustedClose=true**](https://finance.yahoo.com/quote/BTC-USD/history?period1=1410912000&period2=1699920000&interval=1mo&filter=history&frequency=1mo&includeAdjustedClose=true) **data from yahoo finance.**
5. Who is your audience, and what materials will help you present to them effectively? **My audience are the executives at the hedge fund. I will present them with data visualizations that clearly and effectively display the price return between Gold and BTC.**

***You will produce a report with the following deliverables:***

1. A clear statement of the business task you have selected to investigate
2. A description of all data sources used
3. Documentation of any cleaning or manipulation of data
4. A summary of your analysis
5. Supporting visualizations and key findings
6. Based on what you discover, a list of additional deliverables you think would be helpful to include for further exploration
7. Your top high-level insights based on your analysis

***Guided Questions:***

* What topic are you exploring? **The topic I am exploring are the historical prices of gold & bitcoin prices from the year 2015 to the year 2022.**
* What is the problem you are trying to solve? **I am trying to determine which asset would be a better investment based on the price performance between the years 2015 and 2022.**
* What metrics will you use to measure your data to achieve your objective? **I will use the yearly price increase and overall percentage increase between the specified years to determine which asset has provided the best return for investors.**
* Who are the stakeholders? **A new investment firm is the stakeholder**
* Who is your audience? **The audience are the board members of an established hedge fund.**
* How can your insights help your client make decisions? **The insights from this analysis will provide the audience with information that will help decide which asset to allocate more client funds to in order to ensure a higher yearly return for their portfolios.**

***Key Tasks:***

1. Identify the business task
2. Determine key stakeholders
3. Choose a dataset
4. Establish metrics

***Deliverable -***

**Business Task: Provide our stakeholders with detailed and efficient analysis regarding the yearly price performance of Gold and Bitcoin to determine which asset will provide a higher yearly return.**

**Prepare**

***Data Analysis Process:***

* Uploaded the raw data for the 2 assets to google sheets and clean data.
* Cleaned the raw data for both assets to only include the open price, lowest price, highest price, and close price for each year of the asset’s price history.
* The column containing the date in the raw data has been formatted to only include the year associated with the above price metrics and any unnecessary columns have been deleted.
* The numeric price values have been formatted to be displayed in dollar format and rounded to two decimal places.
* Only data for the years between 2015-2022 is displayed and the rest of the data has been deleted.

***Guided Questions:***

* Where is your data located? **Data is located in a data labeled ‘Raw\_Data’ in the ‘BTC\_vs\_Gold\_Case\_Study’ folder associated with this case study.**
* How is the data organized? **The data is organized by year in chronological order between the years 2015-2022 where the lowest price, highest price, yearly open, and yearly close for each year is included.**
* Are there issues with bias or credibility in this data? **There appears to be no issues with the bias or credibility of this data, it is from verified sites and cited and sourced properly.**
* How are you addressing licensing, privacy, security, and accessibility? **The data I am using is open source data available to the public. My cleaned version of the data will be stored securely on my computer where only I have the access to it.**
* How did you verify the data’s integrity? **This data is a combination of historical and current prices that have been recorded and tracked and are currently being recorded and tracked. The prices recorded in these data have been corroborated across multiple other data sets and are less likely to be manipulated because it is only numerical.**
* How does it help answer your question? **It helps answer my question by providing the historical and current prices for each asset so that I am able to compare and contrast the price history of each asset.**
* Are there any problems with the data? **I see no apparent problems with the data.**

***Deliverable -***

**A description of all data sources used:**

1. The first data set for the gold price is a data set from kaggle. This dataset provides the year the price was recorded, the average closing price, the yearly opening price, the highest yearly price, the lowest yearly price, the yearly range price, and the yearly close.
2. The second dataset for the bitcoin price is from yahoo finance. This data provides the yearly open, the yearly high, the yearly low, the yearly close, the trading volume, and the market cap.

**Process**

***Guided Questions:***

* What tools are you choosing and why? **The tool I will be using are google sheets and google slides. I will be using google sheets to clean and create visuals like charts to display the data.**

**Analyze**

***Guided Questions:***

* What surprises did you discover in the data? **I discovered that the price increase for bitcoin the last 10 years has been extremely large, but also very volatile. The gold prices, however, have been fairly consistent. Some would say stagnant.**
* What trends or relationships did you find in the data? **A trend I noticed involving the bitcoin price is that it starts off very low then in the year 2017 the price explodes upward and after then it continues to rise. There are also wild price swings so this is obviously a very volatile asset. The trend I discovered with the gold price is that it has risen over the last 10 years, but very slowly and not by very much. Compared to bitcoin, the volatile is almost non-existent.**
* How will these insights help answer your business question? **These insights will help me answer my business question by providing me with the data and visuals to show my stakeholders which asset will perform better. After analyzing the data, it is clear that bitcoin would have provided that highest yearly return, even accounting for the volatility. Gold appears to be an asset that will not provide you with high return on investment, but is a much more stable asset.**

***Deliverable -***

**A summary of your analysis:**

The analysis that I have done on this data has revealed a number of things. The first, most apparent thing that was revealed is that bitcoin’s price performance is wild to say the least. The yearly percentage in price change for bitcoin is very large in both directions but even with the large swings downward in price, the price swings upward more than compensate for these large losses. When being compared to gold, the return on investment is much more worthwhile. Gold does not suffer from the large drops in price that bitcoin does, but it also does not benefit from the significant increases in price as well.

**Share**

***Guided Questions:***

* Who is your audience? What is the best way to communicate with them? **My audience are the board members of a hedge fund who are contemplating which asset to allocate more of their clients’ funds. The best way to communicate with them is to present my findings in a professional manner and focus on why bitcoin is a better return on investment for the future of their clients’ portfolios.**