Week 05 Assignment
Carl Fletcher

Problem:
How to create an economic forecasting algorithm that can handle complex and complicated market and economic conditions.

1. Current algorithms you can find online related to trading and forecasting.
    a. Nice to have
    b. 4
2. Data from financial institutions
    a. Absolutely critical
    b. 3
3. Research papers on market patterns
    a. Nice to have
    b. 3
4. Data on financial assets like stocks and commodities
    a. Absolutely critical
    b. 4
5. Data on market sentiment from individuals
    a. Nice to have
    b. 3
6. Data on the job market
    a. Absolutely critical
    b. 4
7. Data on interest rates and trends
    a. Absolutely critical
    b. 4
8. Data on bank and financial institution reserves
    a. Nice to have
    b. 2
9. CAPEX Spending data
    a. Probably unnecessary / Nice to have
    b. 2
10. Data on average income per capita
    a. Nice to have
    b. 4
11. Data on weather severity overtime
    a. Probably unnecessary
    b. 4
12. Insurance usage overtime
    a. Probably unnecessary
    b. 2

13. Credit usage Data
    a. Nice to have
    b. 3
14. Buy Now Pay Later Data
    a. Nice to have
    b. 3
15. Data from large scale essential businesses
    a. Nice to have
    b. 2
16. Health Data from Hospitals
    a. Probably unnecessary
    b. 2
17. Historical growth (GDP) data
    a. Absolutely critical
    b. 4
18. Data on innovation growth
    a. Nice to have
    b. 2
19. Data on educational quality
    a. Nice to have
    b. 3
20. Data on market saturation and competition
    a. Nice to have
    b. 2

Data / Resource	Priority Level	Rating	Reason
Current algorithms related to trading and forecasting	Nice to have	4	The reason I rated it this way is due to the fact that we have tons of open source resources around creating bots and algorithms for trading stocks and predicting the economy. From GitHub to Reddit there are tons of resources for it. But you can always start from scratch.
Data from financial institutions	Absolutely critical	3	Financial institutions impact the markets. If you don't know how

			they;re thinking, and their condition you don't know how the economy will do later in the future. Unfortunately some of this data is kept in order to block out competition or protect internal company data.
Research papers on market patterns	Nice to have	3	Research can be good to train with and could help you find gaps in your work. Some research papers are behind a pay wall but there are a lot of tools you can use to get around that (ex. books that use the paper as a source)
Data on financial assets (stocks, commodities)	Absolutely critical	4	Tons of tools like Kragle and Bloomberg exist which provide VERY needed financial data. This data helps us understand performance, expectations and it gives us insight into the past.This information is important for checking your algorithm and training any tools you may use.
Data on market sentiment from individuals	Nice to have	2-3	We get reports on sentiment consistently through surveys. But the issue is getting deeper data requires subscriptions or can

			be hard to access. It is useful to use but can often times be disproven due to events like "Black Swans"
Data on the job market	Absolutely critical	4	We get frequent releases on market data and we have a lot of tools we can use to analyze the market. With that, the job market is critical for the economy so using this data is a must.
Data on interest rates and trends	Absolutely critical	4	Interest rate data is critical because it directly impacts inflation data and it impacts how financial groups act. This is automatically a must, and this data is openly given to everyone so it's easy to access.
Data on bank and financial institution reserves	Nice to have	2	Banks can make it hard to get insight on what they are thinking at times. With that, sometimes you need to do very deep research in order to get the data you would want on reserves.
CAPEX spending data	Probably unnecessary / Nice to have	2-3	You can get a lot of data on CAPEX online but exact and granular data requires a deep dive. This is useful tool to use if you are a speculator.
Data on average income per capita	Nice to have	4	This data is published

			frequently and we have a lot of access to this specific metric. With that, since this isn't about quality of life and just economic performance I labeled it a nice to have.
Data on weather severity over time	Probably unnecessary	4	You can get tons of this data. Sometimes weather can have an on the US GDP.
Insurance usage over time	Probably unnecessary	2	Insurance data can be very hard to get data on. There is data there but it takes more investigation and cleaning to make the data useful. It doesn't seem to be very impactful to the economy.
Credit usage data	Nice to have	3	This data is out there and published but will require you to break it down, analyze it and clean it up due to how many factors tie into credit. I think it can be a great tool for predicting the market and understanding crashes, but it isn't a guarantee.
Buy Now Pay Later data	Nice to have	2-3	This is a new industry with only some data published on it. The data will need to be cleaned up and it will likely need context added to it.
Data from large-scale essential businesses	Nice to have	2	This is data used by a lot of economists to understand consumer sentiment. It think it is amazing to have but

			it isn't something that HAS to be included. It can also be hard to get this data if you're not in the right circles, or an investor.
Health data from hospitals	Probably unnecessary	2	This data can be hard to get consistently and cleaned up. With that, this is also more of a quality of life metric vs a GDP metric.
Historical GDP growth data	Absolutely critical	4	GDP is the most valuable tool for figuring out an economy's output. This is a must, and we get plenty of data on it.
Data on innovation growth	Nice to have / Absolutely critical	2	This is a new area of study but it can be a very useful tool. No one has been able to fully capture all of its value and impact yet so it is hard to say the priority.
Data on educational quality	Nice to have	3	This is more of a quality of life tool and it is something that isn't hard to get access to.
Data on market saturation and competition	Nice to have	2	This would be a very good tool to understand things in the long term and for understanding the impact of market structures like monopolies on the economy. It would be a very nice - nice to have for predicting.

	Easy to Get	Hard to Get
Critical	Data from financial institutions Data on financial assets (stocks, commodities) Data on the job market Data on interest rates and trends Historical GDP growth data Current algorithms related to trading and forecasting Data on market sentiment from individuals Data on bank and financial institution reserves Credit usage data Buy Now Pay Later data Data on average income per capita Data from large-scale essential businesses Data on innovation growth Data on educational quality Data on market saturation and competition	Data on innovation growth Data from large-scale essential businesses Data on innovation growth Data on market saturation and competition
Not Needed	Data on weather severity over time Research papers on market patterns	CAPEX spending data Insurance usage over time Health data from hospitals

Reflection:
The problem we want to solve is how we can create an algorithm that can properly estimate and forecast the future of our economy. With that, this algorithm will need to be robust, meaning that even something that isn't considered critical can end up becoming highly valuable when paired with the right data. As I laid out the top 20 I had in my mind and started to break them down I realized I was still missing some data points. Our economy is huge and has tons of transactions, assets, people, institutions and more. It is very easy to overlook data that could be helpful. An example is inflation. I have data that ties into inflation like GDP and interest rates. But I forgot to consider the real value of assets and the dollar. I also forgot to include inflation itself when I could list many other, less important data points. This miss on my end made me realize that sometimes you can replace data unintentionally with substitutes. This substitution could be useful or harmful depending on what you are analyzing and doing with your data. This also made me realize that, some things you don't have to include in data models, but they can be very useful enablers that can still make your results substantially stronger.