Group members:

Ben Aybar,
Joshua Sherwood,
Matt Lee,
Gafur Mammadov

List of Specifications:

We wanted to make a database that would help empower a service that allowed users to trade stocks in companies. This database would also be able to handle queries about market data, and relate various sources of information about companies. The most important thing the database has to do is store market relevant information about companies. Users have to be able to buy stock in a company, and this record needs to be stored in the database. Additionally, users have preferred news sources, which are stored in the database. Companies need to have their stock exchange stored, as well as their industry. The stock exchange must have a currency. This currency must relate to currency exchange rates, which are stored based on time and a particular currency. There are different text documents about companies that are stored in relation to a company. There are articles with information about companies, which can either be press releases or news (distinguished by whether the article was released by the company itself or an independent news source). Press releases must relate to the company they were written by. Companies can also have earnings reports, which store data about a particular earnings report. Companies can have filings, which are SEC filings that store data about the time and the data released in an SEC filing. Companies can have transcripts, which store speeches from company representatives, as well as the date and a foreign key to information about the speaker(s). These are the transcript speakers, which have a title and name.

Entities
1. COMPANY: company info (area, domain, market cap)
2. FILING: Sec filings, belong to a company

Company execs talk, understand how presented / company direction from this

3. TRANSCRIPT: provide written records of a company's earnings calls and give investors insights into financial results, business strategy, and outlook
4. PRICE (of a company's holdings / stock data??)

Information about the speaker in a transcript / their interests

5. TRANSCRIPT_SPEAKER
6. STOCK_EXCHANGE: info about stock exchanges
7. ARTICLE: information about a company contained in text
8. PRESS RELEASE : IS A article, press releases are always authored by a company and have a relationship with company
9. NEWS : IS A Article, always is written not by a company, stores this authorship as an attribute
10. CURRENCY : stores the name of a currency and a unique id, is related to a stock exchange
11. CONVERSION RATES : stores currency conversion rates at a certain point in time, relates to currency
12. USER : (has name, stocks, news sources, amount invested)
13. INDUSTRY : companies belong to an industry, which has a description.
14. STOCK: a stock is owned by a user and was bought at a certain time, and the stock is for a certain company, and it has a quantity
15. EARNINGS REPORT : a company has many earnings reports, which has various statistics.

Relationships in Plain English

- **Companies : Stock Exchange:** Companies belong to a stock exchange
- **Company : Filing:** Companies make filings
- **Company : Transcripts:** Companies produce transcripts
- **Transcripts : Transcript_Speakers:** Each transcript includes many speakers.
- **Transcript_Speakers : Speaker_Sentiment:** Each speaker can have multiple sentiment analysis records.
- **Companies : Prices:** Each company has many daily price records.
- **Articles : Press Release:** A press release is an article.
- **Articles : News:** News is an article.
- **Currency : Stock Exchange:** A stock exchange has a certain currency.
- **Currency : Conversion Rates:** Currencies have conversion rates.
- **Industry : Company:** A company belongs to an industry.
- **Company : Stock:** Stock is in a company
- **User : Stock:** Stock belongs to a user
- **Company : Earnings Report:** Companies have earnings reports
- **User : News:** Users have news source preferences
- **User : Companies:** Users follow companies

Queries:

1. Find all the SEC filings dates from the last month from companies that had an R and D budget over 1 billion in the second quarter of 2025 in the semiconductor industry.
2. Find the 10 industries with the highest company average market capitalization.
3. Find the average revenue of companies in stock exchanges in Vietnam.
4. Find all stocks that have grown more than 50% in the past month
5. Find all the stocks that have grown more than 20% during after-hours at least once from the past three months
6. Find the top 20 stocks from the top growing sectors from the past 6 months
7. From the last 200 IPOs, find the ones with over 1 billion market cap that are located in the US and related to Software Technologies industry
8. From NASDAQ 100 Index Stocks display the 10 companies with highest dividend yields along with their industry type. These companies have to be outside of the US.
9. Find the top 10 news sources preferred by the single most common transcript speaker of the 10 companies with the highest market caps
10. Find the average amount invested for users that use "x" news source
11. Find the 10 most commonly held stocks among users that have Z invested in stock exchange A and Z' invested in stock exchange B.
12. Find stock that was bought in January 2024, and for each stock purchase that is found, find the currency exchange rate of that stocks currency at that timestamp.