COSC-6336-W01 DBMS
Project Design & Implementation – Team 3
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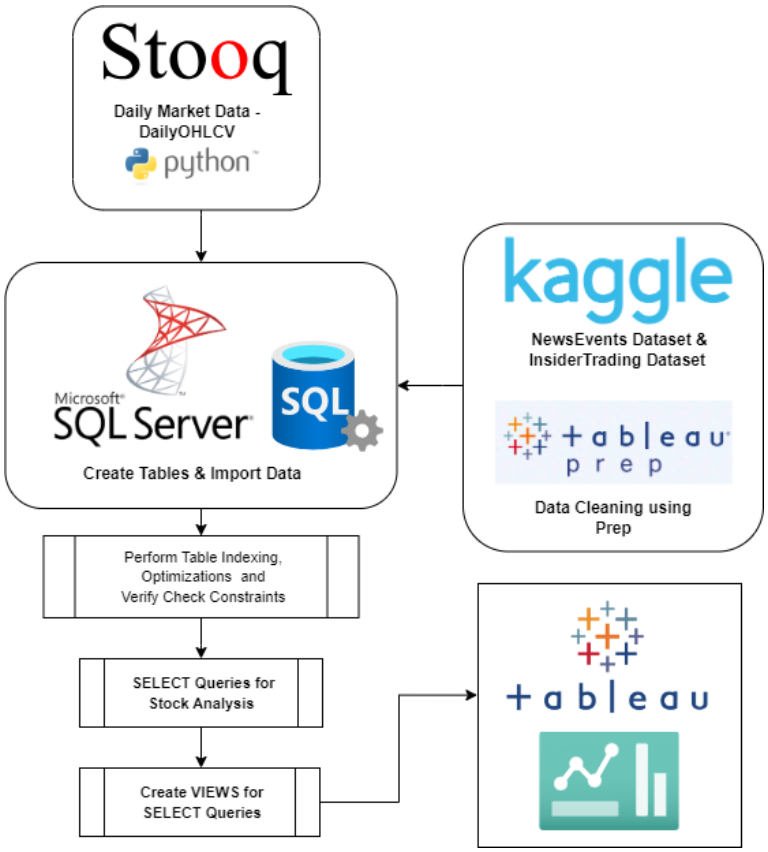
Project Design and Workflow:



Our project involves collecting, cleaning, organizing the US stock listings (listed on NYSE, NASDAQ) from Stooq.com into the SQL Server DB by performing DB optimizations, indexing and created sql-views for different temporal analytics and stock-trading analytics on the financial data.

Later, we connected our DB objects with Tableau Desktop(an industry standard data visualization tool) to provide a visual insight of both overall and individual stock listings.

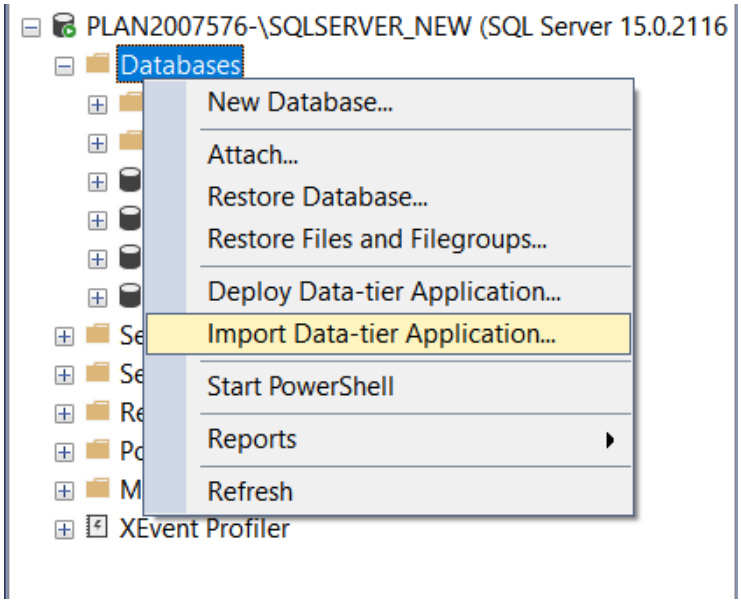
We have visualized multiple calculations and trading related risk related factors that are used to make decisions when investing/trading, also included news articles and their impact on stocks, and covered other important thing - Insider Trading and how trading firms, investors could leverage the patterns between Insider trades and market news in their trade decisions.

Ways to implement our DB:

1. Sample Database : You can run the queries in the SQL file, "**DBMS_Project_Basic_Schema.sql**"

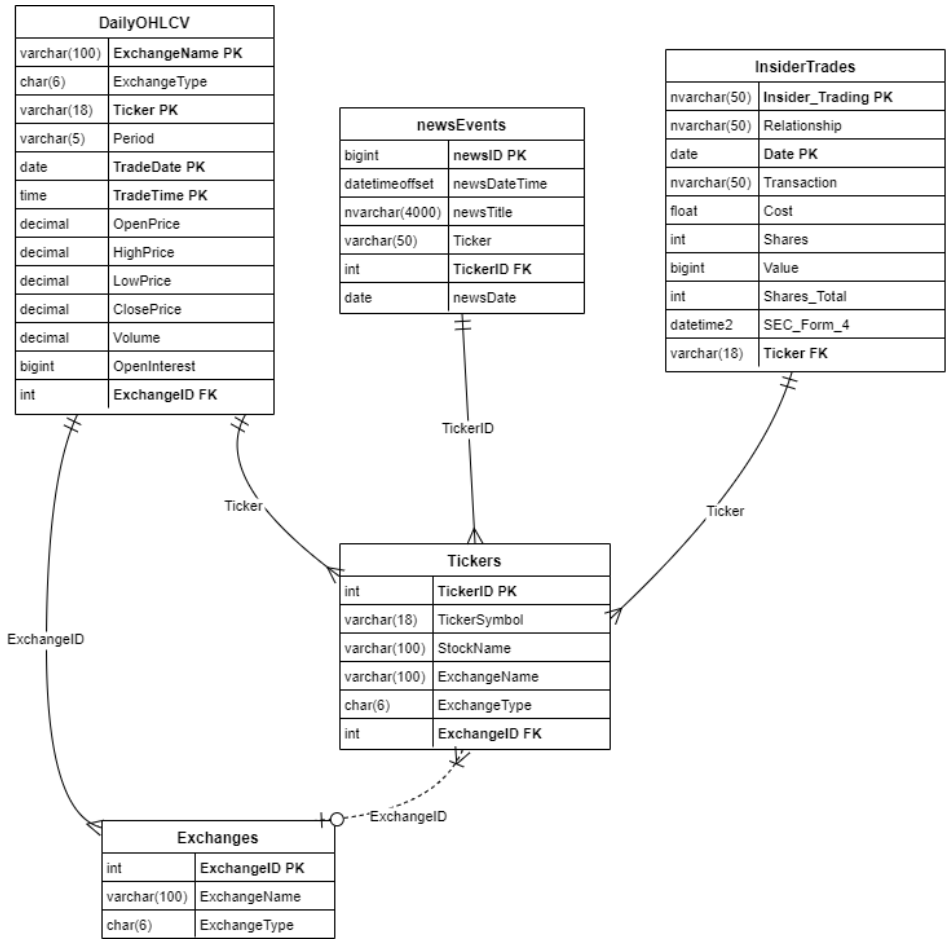
2. **Database with all stocks data**

Using the **.bacpac** file provided (**DBMS_Proj_Summer24.bacpac)** and import it as a data-tier application.



On importing, we get all the tables, and data-records and can get started right-away by just running **only the SELECT** queries in (**DBMS-Summer24-US-stocks-all-queries**) to analyze the data.

ER Diagram:

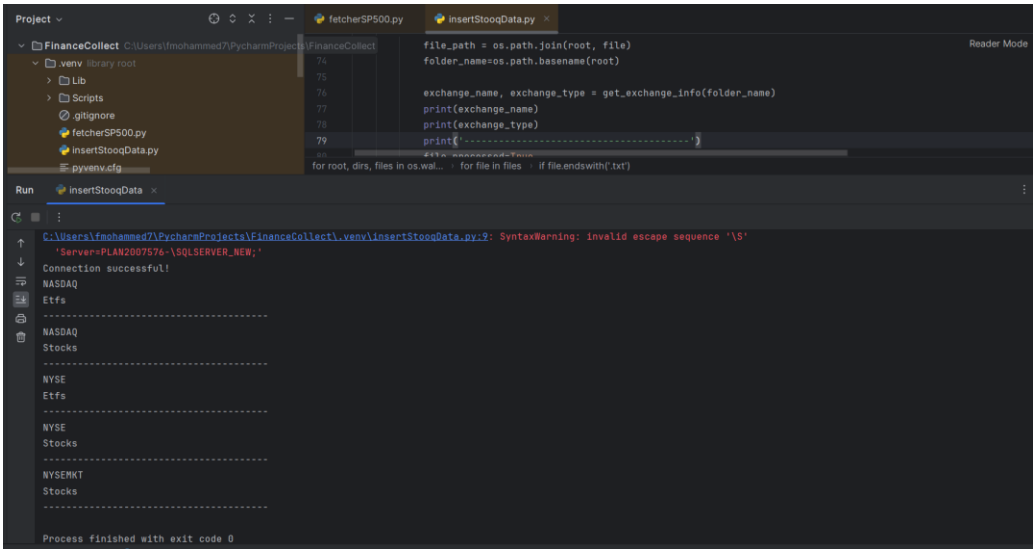


Important files used in this project:
1. Python Script to import the STOOQ stock data (**insertStooqData.py**)

2. SQL Queries (SELECT Queries, CREATING indexes, CREATING VIEWS for required queries)
File:
.**bacpac** file for entire DB with data, schema - **DBMS_STOOQ_DATA_USA.dacpac**
DBMS-Summer24-US-stocks-all-queries.sql

3. Basic schema query to **recreate** DB schema from scratch with sample **insert into** queries.
File: DBMS_Project_Basic_Schema.sql

Screenshot of how the Python script (uses pyodbc, pandas, and os libraries to iterate through US stock listings folders and extracts only mentioned stocks into the SQL Server)
Note: we run this only after creating the DailyOHLCV table in the DB.



Final GUI for the DB:

Current Data Output: Simple tables in the DB as output, is very difficult to make decisions by just looking at numbers without proper analysis and visualizations.

We could solve this problem by connecting our database to a visualization software like Tableau Desktop, and then create worksheets, and dashboards that provide a plethora of visualization options and are very interactive!

Tableau Source file: **DBMS-US_StockEx_Visuals.twbx**

Quick Web Link:
Alternatively, to showcase our valuable work, we have uploaded the dashboard on Tableau Public.
https://public.tableau.com/app/profile/farazuddin.mohammed/viz/Historical-Analysis-of-US-Stocks/0-Intro