**MSCF Financial Computing I**

**Mini 1, 2022**

**Homework 4**

***Due At 11:59 pm Sunday, Sept. 25***

***You will lose 10 points per hour after that time***

1. **PostgreSQL and the SQL Language**
2. Following the steps shown in the Week 4 lecture video, download and install PostgreSQL version 13.8 on your system. Create the **mydb** database, then connect to the **mydb** database and create the **inv\_attrs** relation (table) with the attributes (colums) show in the lecture video. Insert some records into **inv\_attrs** (you don’t have to do all the examples that I did in the lecture), and then use **SELECT** to display all of the attributes of all of the records in **inv\_attrs**.
3. Use the **dow30\_2018.sql** code file and the **dow30\_2018.csv** data file to create the **dow30\_2018** table, and fill the table with the data for all the DOW 30 stocks and for all the trading days in 2018.
4. Create a SQL program file named **hw4\_1.sql**. (You can use Notepad in Windows or any ordinary text editor for this.) In this code file, write a **SELECT** statement that displays the total number of records (tuples) in the **dow30\_2018** table. In the **psql** shell, execute the **hw4\_1.sql** program and confirm that the output makes sense.
5. Next, at the end of **hw4\_1.sql**, write a **SELECT** statement that displays the total number of records in the **dow30\_2018** table for Caterpillar (**CAT**). Execute the modified program.
6. Add a **SELECT** statement that displays the ticker and the total number of records in the **dow30\_2018** table for each of the DOW 30 stocks. Execute the modified program.
7. Repeat part **1.e**, but with the results displayed in ascending alphabetical order by ticker. Execute the modified program.
8. Add a **SELECT** statement that displays the ticker, open price, and date (in that order) for all records in **dow30\_2018**. Execute the modified program.
9. Add a **SELECT** statement that displays ticker and maximum annual close price, for each of the DOW 30 stocks in the **dow30\_2018** table. Execute the modified program.
10. Repeat part **1.h**, but with the resulting max column named max\_close, and the output stored in a new database table named **dow30\_max\_close\_2018**. Execute the modified program.
11. Add a **SELECT** statement that displays all of the records in **dow30\_max\_close\_2018**. Execute the modified program.
12. Add a **SELECT** statement displays the ticker, close, and date from the **dow30\_2018** table, for each record where the closing price matches the max\_close found in **dow30\_max\_close\_2018**., and where the tickers in the two tables also match. Execute the modified program.
13. Repeat part **1.k**, but with the results displayed in ascending order by ticker. Execute the modified program.
14. Repeat part **1.k**, but with the results displayed in descending order by close. Execute the modified program.
15. Add appropriate **SELECT** statements to produce a table of the tickers and annual percentage returns of the DOW 30 stocks during 2018, ranked in descending order by return, and excluding stocks with negative returns. Execute the modified program.

***REMEMBER*** to put all team members’ names (Andrew IDs) into your source code file.Put your **hw4\_1.sql** file into a **Team\_***N***\_HW4.zip** archive, where *N* is your team number, and upload to Canvas.