1 HW #1: Installing Postgres

In order to complete the assignment, please install PostgreSQL on your computer and then verify that it is installed correctly by doing the following. Note that installing PostgreSQL can be difficult and I recommend researching it before beginning. The purpose of this homework is to load the four tables that we will be using during the rest of this semester into our database.

Each group should turn in a single PDF document, in either hard-copy or emailed to me, before the start of class. This document should contain the query that you ran for each question as well as the first few lines of output that each query returned.

1. We first need to create a destination schema for our data. The command below will create a schema, "stocks2016." After running this, follow the commands in Figure B.1 to create tables within this schema.

   ```
   create schema stocks2016;
   commit;
   ```

2. Now that we have a destination for our data we need to load the following files into the database, all of which can be found on canvas. The commands can do this can be found in Figure B.2, but will need to be modified depending on the specific locations of your files.

3. Using the 2010 data, write a query that returns the following:[1]

   (a) All columns relating to CUSIP 45920010

   ```
   select * FROM stocks2016.d2010 WHERE CUSIP = '45920010';
   ```

   (b) All columns for the symbol 45920010 on the 7th of January

   ```
   select * FROM stocks2016.d2010
   WHERE CUSIP = '45920010' and  retdate = '20100107'
   ```

   (c) The difference between the bid and the ask for 45920010 on the 7th of January

   ```
   select bid - ask FROM stocks2016.d2010
   WHERE CUSIP = '45920010' and  retdate = '20100107'
   ```

   (d) The days when cusip 45920010 has a volume less than 5 million and a bid over $140.

[1] If the query returns a significant number of rows, please only copy a few rows in your response.

```
select retdate from stocks2016.d2010
where cusip = '45920010' and bid > 140 and vol < 5000000;
```

4. We define the market capitalization as the number of shares outstanding multiplied by the price. Using this definition answer the following questions:

   (a) What is the market capitalization for permno 14593 on the first of February in 2010?

```
select abs(prc)* shrout from stocks2016.d2010
WHERE permno = '14593' and retdate = '20100201'
```

   (b) What are the permnos and market capitalizations for the companies with the top 5 market capitalization-days in 2010?

```
select permno, abs(prc)*shrout from stocks2016.d2010
where prc is not null order by prc*shrout desc limit 5;
```

   (c) What are the permnos and market capitalizations for the companies with the top 5 market capitalizations on February 3rd 2010?

```
select permno, abs(prc)*shrout
        from stocks2016.d2010
        where prc is not null
                and retdate = '20100203'
        order by prc*shrout desc
        limit 5;
```

   (d) What are the permnos and market capitalizations for the companies with the bottom 5 market capitalization-days in 2010?

```
select permno, abs(prc)*shrout from stocks2016.d2010
where prc is not null order by prc*shrout asc limit 5;
```

   (e) What are the permnos and market capitalizations for the companies with the bottom 5 market capitalization-days on February 3rd 2010 with stocks that have a trading volume of less than 10 million?

```
select permno, abs(prc)*shrout
FROM stocks2016.d2010
WHERE prc is not null and retdate = '20100203'
        and vol < 10000000
order by prc*shrout asc
limit 5;
```

5. We define the bid ask spread as the bid - ask. Generally this will be positive, but in our data set it is negative.[2]

   (a) Permno of the company with the smallest bid-ask spread in 2010 with a volume less than 25,000?

```
select permno
from stocks2016.d2010
where vol < 25000 and bid is not null
order by bid-ask asc
limit 1;
```

   (b) Permno of the company with the smallest bid-ask spread on February 8th 2010 that also had more than 500000 shares outstanding?

```
select permno
from stocks2016.d2010
where bid is not null
        and shrout > 5000000
        and retdate = '20100208'
order by bid-ask asc
limit 1;
```

   (c) What is the permno and the bid-ask spread of the stock with the smallest bid-ask spread when the volume is less than 1,000?

```
select permno, bid-ask
from stocks2016.d2010
where bid is not null and volume < 1000
order by bid-ask asc limit 1;
```

6. The table fnd has information from company's annual reports. Using that dataset,

[2] See the data dictionary for more information.

write queries which answer the following questions.

(a) Which company (ticker symbol) had the highest net income?

```
select tic from stocks2016.fnd
where netinc is not null
order by netinc desc limit 1
```

(b) Which company (ticker symbol) had the highest net income in fiscal year 2011?

```
select tic from stocks2016.fnd
where netinc is not null and fyear = 2011
order by netinc desc limit 1
```

(c) Which company (ticker symbol) had the lowest net income?

```
select tic from stocks2016.fnd
where netinc is not null
order by netinc asc limit 1
```

(d) Which company (ticker symbol) had the lowest net income in fiscal year 2011?

```
select tic from stocks2016.fnd
where netinc is not null and fyear = 2011
order by netinc asc limit 1
```

(e) Which company (ticker symbol), which had more than 1,000 employees, had the highest net income per employee in 2011?

```
select tic
from
stocks2016.fnd
where netinc is not null and emp  > 1 and fyear = 2011
order by netinc/emp desc
limit 1;
```

(f) Which company (ticker symbol), which had a net-income per employee over $1,000 had the largest number of employees? Keep units in mind!

```
select tic
from
stocks2016.fnd
where netinc is not null and emp > 0 and
netinc /  emp > 1
order by emp desc
limit 1;
```

7. Finally, make sure that you have a photo on your canvas page.