MSAN 691 - Homework 1

Christine Chu, Andre Guimaraes Duarte, Mikaela Hoffman-Stapleton, April Wang

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Question 3

a) In order to get all columns relating to CUSIP 45920010, we use the following query:

```
SELECT *
FROM stocks2016.d2010
WHERE cusip = '45920010';
```

We get 252 resulting rows, of which we only show 10 in this write-up:

cusip	*permno*	*permco*	*issuno*	*hsic*	*retdate*	*bid*	*ask*	*prc*	*vol*	*ret*	*shrout*
45920010	12490	20990	0	7379	2010-01-04	130.85001	132.97	132.45	6155800	0.011841	1313603
45920010	12490	20990	0	7379	2010-01-05	130.10001	131.85001	130.85001	6842500	-0.012080	1313603
45920010	12490	20990	0	7379	2010-01-06	129.81	131.49001	130	5605300	-0.006496	1313603
45920010	12490	20990	0	7379	2010-01-07	128.91	130.25	129.55	5840600	-0.003462	1313603
45920010	12490	20990	0	7379	2010-01-08	129.05	130.91991	130.85001	4197100	0.010035	1313603
45920010	12490	20990	0	7379	2010-01-11	128.67	131.06	129.48	5731200	-0.010470	1313603
45920010	12490	20990	0	7379	2010-01-12	129	131.33	130.50999	8083400	0.007955	1313603
45920010	12490	20990	0	7379	2010-01-13	129.16	131.12	130.23	6458300	-0.002145	1313603
45920010	12490	20990	0	7379	2010-01-14	129.91	132.71001	132.31	7114500	0.015972	1313603
45920010	12490	20990	0	7379	2010-01-15	131.089	132.89	131.78	8502300	-0.004006	1313603
...	...	...	...	...	...	...	...	...	...	...	...

(252 rows)

b) In order to get all columns relating to CUSIP 45920010 on the 7th of January, we use the following query:

```
SELECT *
FROM stocks2016.d2010
WHERE cusip = '45920010'
  AND retdate = '2010-01-07';
```

We get 1 resulting row:

cusip	*permno*	*permco*	*issuno*	*hsic*	*retdate*	*bid*	*ask*	*prc*	*vol*	*ret*	*shrout*
45920010	12490	20990	0	7379	2010-01-07	128.91	130.25	129.55	5840600	-0.003462	1313603

(1 row)

c) In order to get the difference between the bid and the ask for CUSIP 45920010 on the 7th of January, we use the query:

```
SELECT bid-ask AS difference
FROM stocks2016.d2010
WHERE cusip = '45920010'
  AND retdate = '2010-01-07';
```

We get one resulting value for the difference between bid and ask:

difference
-1.34

(1 row)

d) In order to get the days when CUSIP 45920010 has a volume less than 5 million and a bid over $140, we use the query:

```
SELECT retdate
FROM stocks2016.d2010
WHERE cusip = '45920010'
  AND vol < 5000000
  AND bid > 140;
```

We get 31 resulting dates, of which we only the show 10 in this write-up:

retdate
2010-11-02
2010-11-05
2010-11-08
2010-11-11
2010-11-12
2010-11-15
2010-11-17
2010-11-18
2010-11-22
2010-11-23
...

(31 rows)

Question 4

a) In order to get the market capitalization for permno 14593 on the first of February in 2010, we use the following query:

```
SELECT shrout*prc AS market_capitalization
FROM stocks2016.d2010
WHERE permno = 14593
  AND retdate = '2010-02-01';
```

We get one resultin market capitalization value:

market_capitalization
176580190.35

(1 row)

b) In order to get the permnos and market capitalizations for the companies with the top 5 market capitalization-days in 2010, we use the following queries:

```
SELECT permno, shrout*prc AS market_capitalization
FROM stocks2016.d2010
WHERE shrout*prc IS NOT null
ORDER BY market_capitalization DESC
LIMIT 5;
```

We get 5 resulting rows containing the permno and the market capitalization:

permno	*market_capitalization*
11850	370224534.94
11850	369972407.09
11850	369921981.52
11850	369115172.4
11850	368711767.84

(5 rows)

c) In order to get the permnos and market capitalizations for the companies with the top 5 market capitalizations on February 3rd 2010, we use the following query:

```
SELECT permno, shrout*prc AS market_capitalization
FROM stocks2016.d2010
WHERE shrout*prc IS NOT null
  AND retdate = '2010-02-03'
ORDER BY market_capitalization DESC
LIMIT 5;
```

We get 5 resulting rows containing the permno and the market capitalization:

permno	*market_capitalization*
11850	315144406.8
10107	251098298.43
55976	206778034.44
18163	181972751.45
14593	180660767.85

(5 rows)

d) In order to get the permnos and market capitalizations for the companies with the bottom 5 market capitalization-days in 2010, we use the following queries:

```
SELECT permno, shrout*prc AS market_capitalization
FROM stocks2016.d2010
ORDER BY market_capitalization ASC
LIMIT 5;
```

We get 5 resulting rows containing the permno and the market capitalization:

permno	*market_capitalization*
88335	-5641098.965
79977	-4748698.4
91462	-1674922.53
88811	-1356934.75
83264	-1276178.53

(5 rows)

e) In order to get the permnos and market capitalizations for the companies with the bottom 5 market capitalizations on February 3rd 2010 with stocks that have a trading volume of less than 10 million, we use the following query:

```
SELECT permno, shrout*prc AS market_capitalization
FROM stocks2016.d2010
WHERE retdate = '2010-02-03'
  AND vol < 10000000
ORDER BY market_capitalization ASC
LIMIT 5;
```

We get 5 resulting rows containing the permno and the market capitalization:

permno	*market_capitalization*
61508	-484627.92
92394	-484163.35
29014	-402096.45
91278	-314288.595
90228	-242844.48

(5 rows)

Question 5

a) In order to get the permno of the company with the smallest bid-ask spread in 2010 with a volume less than $25,000$, we use the following query:

```
SELECT permno
FROM stocks2016.d2010
WHERE vol < 25000
ORDER BY abs(bid-ask) ASC
LIMIT 1;
```

We get one resulting permno:

permno
10001

(1 row)

b) In order to get the permno of the company with the smallest bid-ask spread on February 8th 2010 that also had more than 500,000 shares outstanding, we use the following query:

```
SELECT permno
FROM stocks2016.d2010
WHERE retdate = '2010-02-08'
  AND shrout > 500000
ORDER BY abs(bid-ask) ASC
LIMIT 1;
```

We get one resulting permno:

permno
75789

(1 row)

c) In order to find the permno and the bid-ask spread of the stock with the smallest bid-ask apread when the colume is less than 1,000, we use the following query:

```
SELECT permno, abs(bid-ask) AS spread
FROM stocks2016.d2010
WHERE vol < 1000
ORDER BY spread ASC
LIMIT 1;
```

We get one resulting row with the permno and the bid-ask spread:

permno	*spread*
10001	0

(1 row)

Question 6

a) In order to get the company that had the highest net income, we use the following query:

```
SELECT tic
FROM stocks2016.fnd
WHERE netinc IS NOT null
ORDER BY netinc DESC
LIMIT 1;
```

We get one resulting tic:

tic
GM

(1 row)

b) In order to get the company that had the highest net income in fiscal year 2011, we use the following query:

```
SELECT tic
FROM stocks2016.fnd
WHERE fyear = 2011
  AND netinc IS NOT null
ORDER BY netinc DESC
LIMIT 1;
```

We get one resulting tic:

tic
XOM

(1 row)

c) In order to get the company which had the lowest net income, we use the following query:

```
SELECT tic
FROM stocks2016.fnd
ORDER BY netinc ASC
LIMIT 1;
```

We get one resulting tic:

tic
FNMA

(1 row)

d) In order to get the company which had the lowest net income in fiscal year 2011, we use the following query:

```
SELECT tic
FROM stocks2016.fnd
WHERE fyear = 2011
ORDER BY netinc ASC
LIMIT 1;
```

We get one resulting tic:

tic
FNMA

(1 row)

e) In order to get the company which had more than $1,000$ employees, had the highest net income per employee in 2011, we use the following query (note: emp is in thousands of employees):

```
SELECT tic
FROM stocks2016.fnd
WHERE emp > 1
  AND fyear = 2011
  AND netinc IS NOT null
ORDER BY netinc/emp DESC
LIMIT 1;
```

We get one resulting tic:

tic
CEO

(1 row)

f) In order the find the company which had a net-income per employee over $\$1,000$ had the largest number of employees, we use the following query (note: emp is in thousands of employees, and netinc is in millions of dollars):

```
SELECT tic
FROM stocks2016.fnd
WHERE emp > 0
  AND netinc/emp > 1
ORDER BY emp DESC
LIMIT 1;
```

We get one resulting tic:

tic
WMT

(1 row)