

MSAN 691 - Homework 2

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Question 1. Answer the following questions using the daily stock data.

- (a) Return a list of all the trading days in 2010.

```
SELECT DISTINCT retdate
FROM stocks2016.d2010;
```

<i>retdate</i>
2010-04-26
2010-08-16
2010-06-16
2010-09-10
2010-12-02
2010-07-28
2010-02-12
2010-10-05
2010-07-01
2010-11-02
...
(252 rows)

- (b) The cusip with the lowest Jan 11th volume that also appears on Dec. 1st.

```
SELECT cusip FROM stocks2016.d2010
WHERE retdate = '2010-01-11' AND cusip IN
(SELECT cusip FROM stocks2016.d2010
WHERE retdate = '2010-12-01')
ORDER BY vol ASC
LIMIT 1;
```

<i>cusip</i>
41959620
(1 row)

- (c) The lowest five cusips by volume from Jan. 11th, 2010 that have a volume between 1 and 10 million on Dec. 1st, 2011.

```
SELECT cusip FROM stocks2016.d2010
WHERE retdate = '2010-01-11' AND cusip IN
(SELECT cusip FROM stocks2016.d2011
WHERE retdate = '2011-12-01' AND vol BETWEEN 1000000 and 10000000)
ORDER BY vol ASC
LIMIT 5;
```

<i>cusip</i>
04231550
81783N20
90187B10
69937430
19217610
(5 rows)

- (d) Return the list of permco's that exist in 2011, but not in 2010.

```
SELECT DISTINCT permco FROM stocks2016.d2011
WHERE permco NOT IN
(SELECT DISTINCT permco FROM stocks2016.d2010);
```

<i>permco</i>
53655
53816
53964
53865
53662
53697
53847
53804
53732
53814
...
(254 rows)

- (e) Of the permco's that existed in 2011, but not in 2010, which had the highest dollar volume traded day in 2011?

```
SELECT permco FROM stocks2016.d2011
WHERE vol*abs(prc) IS NOT null AND permco NOT IN
(SELECT DISTINCT permco FROM stocks2016.d2010)
ORDER BY vol*abs(prc) DESC
LIMIT 1;
```

<i>permco</i>
53616
(1 row)

- (f) Return a list of the distinct cusips that were in the top 50 highest dollar value traded in 2011.

```
SELECT DISTINCT cusip FROM
(SELECT cusip FROM stocks2016.d2011
WHERE vol*abs(prc) IS NOT null
ORDER BY vol*abs(prc) DESC LIMIT 50) AS A;
```

<i>cusip</i>
78462F10

(1 row)

- (g) Of the cusips that were in the top 50 highest dollar value traded in 2011, which were also in the top 100 highest value traded in 2010?

```
SELECT DISTINCT cusip FROM
(SELECT cusip FROM stocks2016.d2010
WHERE vol*abs(prc) IS NOT null
ORDER BY vol*abs(prc) DESC LIMIT 100) AS A WHERE cusip IN
(SELECT DISTINCT cusip FROM
(SELECT cusip FROM stocks2016.d2011
WHERE vol*abs(prc) IS NOT null
ORDER BY vol*abs(prc) DESC LIMIT 50) AS B);
```

<i>cusip</i>
78462F10

(1 row)

- (h) Which permcos were in the top 500 of dollar trading volume on the 2nd, 3rd, and 4th days of Feb. 2011?

```
SELECT DISTINCT permco FROM stocks2016.d2011 WHERE permco IN
(SELECT permco FROM stocks2016.d2011 WHERE vol IS NOT null AND
prc IS NOT null AND retdate = '2011-02-02' ORDER BY vol*abs(prc) DESC LIMIT 500)
AND permco IN
(SELECT permco FROM stocks2016.d2011 WHERE vol IS NOT null AND
prc IS NOT null AND retdate = '2011-02-03' ORDER BY vol*abs(prc) DESC LIMIT 500)
AND permco IN
(SELECT permco FROM stocks2016.d2011 WHERE vol IS NOT null AND
prc IS NOT null AND retdate = '2011-02-04' ORDER BY vol*abs(prc) DESC LIMIT 500);
```

<i>permco</i>
39147
20566
20684
1543
20798
20745
53104
20468
44708
21793
...

(339 rows)

- (i) Of the permcos that had volume between 100,000 and 1,000,000 on the 2nd and 3rd of Feb. 2011, which had volume greater than 5,000,000 on the 4th on Feb.?

```

SELECT DISTINCT permco FROM stocks2016.d2011 WHERE permco IN
(SELECT permco FROM stocks2016.d2011
WHERE vol BETWEEN 100000 AND 1000000 AND retdate = '2011-02-02')
AND permco IN
(SELECT permco FROM stocks2016.d2011
WHERE vol BETWEEN 100000 AND 1000000 AND retdate = '2011-02-03')
AND permco IN
(SELECT permco FROM stocks2016.d2011
WHERE vol > 5000000 AND retdate = '2011-02-04');

```

<i>permco</i>
39147
53104
44072
2589
37493
47872
52915
31600
50846
50699
46431
53101
16762
51814

(14 rows)

Question 2. Answer the following questions using the fnd table.

- (a) Of the stocks that have a net income to employee ratio greater than \$1,000 in fiscal year 2010, which have a net income between 20 and 30 million dollars in 2011?

```

SELECT tic FROM stocks2016.fnd
WHERE fyear = 2011 AND netinc BETWEEN 20 AND 30 AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE netinc/emp > 1 AND emp > 0 AND fyear = 2010);

```

<i>tic</i>
AE
ATRI
AVD
AP
AROFB
ATRO
BGG
CTS
CMN
CPK
...

(224 rows)

- (b) Of the stocks that have a net income to revenue ratio greater than 20%, which have more than 25,000 employees in fiscal year 2011?

```
SELECT tic FROM stocks2016.fnd
WHERE fyear = 2011 AND emp > 25 AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE netinc/rev > .2 AND rev <> 0);
```

<i>tic</i>
AIG
AAPL
BMJ
KO
GLW
USB
GM
INTC
JNJ
LLY
...

(52 rows)

- (c) Of the stocks that have profit margin greater than 20% in 2010, which had a profit margin greater than 30% in fiscal year 2011?

```
SELECT tic FROM stocks2016.fnd
WHERE netinc/rev > .3 AND rev <> 0 AND fyear = 2011 AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE netinc/rev > .2 AND rev <> 0 AND fyear = 2010);
```

<i>tic</i>
ALX
AXP1
APAGF
AOXY
ATW
ABX
CGP1
GLW
DMLP
GNI
...

(283 rows)

- (d) Of the stocks that have a net-income to employee ratio greater than \$1,000 in fiscal year 2010 and more than 1,000 employees in 2011, what is the highest profit margin in fiscal year 2011 and what is the ticker symbol?

```
SELECT tic, netinc/rev AS profit_margin FROM stocks2016.fnd
WHERE emp > 1 AND fyear = 2011 AND rev <> 0
```

```

AND netinc/rev IS NOT null AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE netinc/emp > 1 AND emp > 0 AND fyear = 2010)
ORDER BY profit_margin DESC LIMIT 1;

```

<i>tic</i>	<i>profit_margin</i>
BOWFF	2.89805477293856

(1 row)

- (e) Of the stocks that have a net-income to employee ratio greater than \$1,000 in fiscal year 2010 and more than 1,000 employees in 2011, what is the lowest profit margin in fiscal year 2011?

```

SELECT netinc/rev AS profit_margin FROM stocks2016.fnd
WHERE fyear = 2011 AND emp > 1 AND rev <> 0
AND netinc/rev IS NOT null AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE netinc/emp > 1 AND emp > 0 AND fyear = 2010)
ORDER BY profit_margin ASC LIMIT 1;

```

<i>profit_margin</i>
-2.13162877220126

(1 row)

- (f) Of the stocks that have a net-income to employee ratio greater than \$1,000 in fiscal year 2010 and between 1,000 and 2,000 employees in 2011, what is the highest profit margin in fiscal year 2011 and what is the ticker symbol?

```

SELECT tic, netinc/rev AS profit_margin FROM stocks2016.fnd
WHERE fyear = 2011 AND emp BETWEEN 1 AND 2 AND rev <> 0
AND netinc/emp IS NOT null AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE netinc/emp > 1 AND emp > 0 AND fyear = 2010)
ORDER BY profit_margin DESC LIMIT 1;

```

<i>tic</i>	<i>profit_margin</i>
BOWFF	2.89805477293856

(1 row)

- (g) For companies with revenue between 1 and 2 million dollars in 2010, what company has the highest turnover in 2011?

```

SELECT tic FROM stocks2016.fnd
WHERE fyear = 2011 AND invt > 0 AND rev/invt IS NOT null AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE rev BETWEEN 1 AND 2 AND fyear = 2010)
ORDER BY rev/invt DESC LIMIT 1;

```

<i>tic</i>
PRVW

(1 row)

- (h) Of the companies with turnover between 1 and 2 in 2010, which companies also had a net income to employee ratio greater than \$1,000 in 2010?

```
SELECT tic FROM stocks2016.fnd
WHERE netinc/emp > 1 AND emp > 0 AND fyear = 2010
AND rev/invnt BETWEEN 1 AND 2 AND invnt > 0;
```

<i>tic</i>
FEIM
ALLY
HOV
MFCB
WFC
VIDE
ZGCO
CGC
TIF
ANFI
...

(68 rows)

- (i) Of the companies with turnover between 1 and 2 in 2010, which companies also had a net income to employee ratio greater than \$1,000 in 2011?

```
SELECT tic FROM stocks2016.fnd
WHERE netinc/emp > 1 AND emp > 0 AND fyear = 2011 AND tic IN
(SELECT tic FROM stocks2016.fnd
WHERE rev/invnt BETWEEN 1 AND 2 AND invnt > 0 AND fyear = 2010);
```

<i>tic</i>
HURC
MFCB
MCPIQ
WFC
ZGCO
CXA.B
BMO
HGBL
RTI
CPF
...

(68 rows)

- (j) Which companies, in fiscal year 2010 had a profit margin greater than 20%, turnover more than 2 and more than 10,000 employees?

```
SELECT conm FROM stocks2016.fnd
WHERE fyear = 2010 AND netinc/rev > .2 AND rev <> 0
AND rev/invt > 2 AND invt > 0 AND emp > 10;
```

```

conm
-----
AMGEN INC
APPLE INC
RESOLUTE FOREST PRODUCTS INC
CANADIAN NATIONAL RAILWAY CO
COCA-COLA CO
MOLSON COORS BREWING CO
CORNING INC
HYDRO QUEBEC
INTEL CORP
SMURFIT-STONE CONTAINER CORP
...
(51 rows)
```

Question 3. Write a single query which generates a dataset with the specified columns.

```
(a) SELECT conm, tic, rev, invt, emp,
CASE
  WHEN invt > 0 AND rev/invt > 2 THEN 1
  ELSE 0
END AS turnflag
FROM stocks2016.fnd
WHERE fyear = 2010 AND rev > 0 AND invt > 0 AND emp > 0 AND conm IN
(SELECT conm FROM stocks2016.fnd
WHERE rev > 0 AND invt > 0 AND emp > 0 AND fyear = 2011);
```

<i>conm</i>	<i>tic</i>	<i>rev</i>	<i>invt</i>	<i>emp</i>	<i>turnflag</i>
AMERICAN AIRLINES GROUP INC	AAL	22170	594	78.25	1
CECO ENVIRONMENTAL CORP	CECE	140.602	12.777	0.556	1
PINNACLE WEST CAPITAL CORP	PNW	3263.645	202.989	6.74	1
AARON'S INC	AAN	1876.847	11.2	10.4	1
ABBOTT LABORATORIES	ABT	35166.721	3188.734	90	1
ACETO CORP	ACET	346.631	74.857	0.216	1
ACME UNITED CORP	ACU	63.149	22.292	0.132	1
RELM WIRELESS CORP	RWC	25.954	11.942	0.096	1
ADAMS RESOURCES & ENERGY INC	AE	2211.97	14.591	0.74	1
ADVANCED MICRO DEVICES	AMD	6494	632	11.1	1
...

(3934 rows)

```
(b) SELECT conm, tic, rev, invt, emp,
CASE
  WHEN invt > 0 AND rev/invt BETWEEN 2 AND 3 THEN 1
  WHEN invt > 0 AND rev/invt BETWEEN 3 AND 4 THEN 2
  WHEN invt > 0 AND rev/invt > 4 THEN 5
  ELSE 0
```



```

END AS invtflag,
CASE
  WHEN rev <> 0 AND netinc/rev < .2 AND invt > 0 AND rev/invt > 2 THEN 1
  WHEN rev <> 0 AND netinc/rev > .4 AND invt > 0 AND rev/invt > 2 THEN 2
  ELSE 0
END AS invtProfit,
CASE
  WHEN rev <> 0 AND netinc/rev BETWEEN .2 AND .4 AND emp > 10 THEN 0
  WHEN rev <> 0 AND netinc/rev < .2 THEN netinc/rev
  WHEN rev <> 0 AND netinc/rev > .4 AND emp IS NOT null THEN 2*emp
  ELSE -1
END AS EmployeeProfit
FROM stocks2016.fnd
WHERE fyear = 2010 OR fyear = 2011;

```

<i>conm</i>	<i>tic</i>	<i>rev</i>	<i>invt</i>	<i>emp</i>	<i>invtflag</i>	<i>invtprofit</i>	<i>employeeprofit</i>
AAR CORP	AIR	1775.782	507.274	6.1	2	1	0.0393212680385318
ADC TELECOMMUNICATIONS INC	ADCT	1156.6	106.4	9.3	5	1	0.0536053951236383
AMERICAN AIRLINES GROUP INC	AAL	22170	594	78.25	5	1	-0.0212449255751015
AMERICAN AIRLINES GROUP INC	AAL	24022	617	80.1	5	1	-0.0823828157522271
CECO ENVIRONMENTAL CORP	CECE	140.602	12.777	0.556	5	1	0.0149713375343167
CECO ENVIRONMENTAL CORP	CECE	139.192	14.987	0.524	5	1	0.0594287027990114
ASA GOLD AND PRECIOUS METALS	ASA	4.956	0		0	0	-1
ASA GOLD AND PRECIOUS METALS	ASA	6.003	0		0	0	-5.32750291520906
AVX CORP	AVX	1653.176	496.495	11.2	2	1	0.147596505151297
PINNACLE WEST CAPITAL CORP	PNW	3263.645	202.989	6.74	5	1	0.107258295556042
...

(21553 rows)