**Database Management**

SQL> START C:\DBM\SQL\_HW3.txt

SQL> ---SQL HW3

SQL>

SQL> ---Q1

SQL>

SQL> SELECT emp\_lname ||' '|| emp\_fname AS "Employee", instr\_lname||' '|| instr\_fname AS "Instructor",

2 crs\_id||' '||crs\_title AS "Class", section AS "Section" , sem\_cmpltd AS "Complete time"

3 FROM training JOIN employee USING (emp\_id)

4 JOIN course USING (crs\_id)

5 JOIN class USING (crs\_id, section, sem\_cmpltd)

6 JOIN instructor USING (instr\_id)

7 WHERE (emp\_id, instr\_id) IN (SELECT emp\_id, instr\_id

8 FROM training JOIN class USING (crs\_id, section, sem\_cmpltd)

9 GROUP BY emp\_id, instr\_id

10 HAVING COUNT(\*) > 1)

11 ORDER BY emp\_lname;

Employee Instructor Class Section Complete time

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Belli Willam Smith Joe IS 810 Business Intelligence B Fall 2016

Belli Willam Smith Joe 20 721 Data Visualization A Spr 2017

Boon Pat Miller Adam 201 ACC Accounting A Spr 2013

Boon Pat Miller Adam 205 ACC Corporate Finance A Fall 2014

Boon Pat Hall Steve 211 CIS C++ C Spr 2012

Boon Pat Hall Steve 211 CIS C++ B Fall 2012

Corman Chris Miller Adam 205 ACC Corporate Finance A Fall 2014

Corman Chris Miller Adam 205 ACC Corporate Finance B Fall 2015

Hall Jim McCarthy Chris IS 540 Internet Technologies B Fall 2013

Hall Jim McCarthy Chris IS 700 Internet Marketing A Spr 2014

Krall Mary Chen Peter IS 350 Database Management A Spr 2012

Krall Mary Chen Peter IS 350 Database Management A Spr 2015

Krall Mary Hall Steve 20 542 Java A Spr 2012

Krall Mary Hall Steve 20 451 Systems A. and D. A Spr 2015

Milton Kelly Smith Joe IS 810 Business Intelligence B Fall 2016

Milton Kelly Smith Joe 20 721 Data Visualization A Spr 2017

Nelson Ray Jones Carol 423 CIS Mobile Computing A Spr 2014

Nelson Ray Jones Carol 425 CIS Cloud Computing A Spr 2017

Nelson Ray McCarthy Chris IS 540 Internet Technologies A Fall 2014

Nelson Ray McCarthy Chris IS 750 Web Applications A Spr 2016

Roditi Adam Jones Carol 423 CIS Mobile Computing A Spr 2013

Roditi Adam Jones Carol 445 CIS Hadoop and MapReduce A Spr 2017

Roditi Adam McCarthy Chris IS 540 Internet Technologies B Fall 2013

Roditi Adam McCarthy Chris IS 700 Internet Marketing A Spr 2014

Swift Lisa Smith Joe IS 810 Business Intelligence B Fall 2016

Swift Lisa Smith Joe 20 721 Data Visualization A Spr 2017

26 rows selected.

SQL> ---Q2

SQL>

SQL> ---(a)

SQL> SELECT S AS "Semester"

2 FROM(SELECT sem\_cmpltd AS S,

3 RANK() OVER (ORDER BY COUNT(\*) DESC) AS RANK, COUNT(\*) AS "#Class"

4 FROM training

5 GROUP BY sem\_cmpltd)

6 WHERE RANK = 1;

Semester

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Spr 2017

SQL> ---(b)

SQL> SELECT DISTINCT sem\_cmpltd AS "Semester"

2 FROM training

3 WHERE sem\_cmpltd IN (SELECT sem\_cmpltd

4 FROM training

5 GROUP BY sem\_cmpltd

6 HAVING COUNT(\*) = (SELECT MAX(COUNT(\*))

7 FROM training

8 GROUP BY sem\_cmpltd));

Semester

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Spr 2017

SQL>

SQL> ---Q3

SQL> BREAK ON semester

SQL>

SQL> SELECT sem\_cmpltd AS "Semester", crs\_id||' '||crs\_title AS "Class",

2 section AS "Section", COUNT(\*) AS "#Employee"

3 FROM training JOIN course USING (crs\_id)

4 GROUP BY sem\_cmpltd, crs\_id, crs\_title, section

5 ORDER BY REGEXP\_substr(sem\_cmpltd, '[0-9]{4}');

Semester Class Section #Employee

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Spr 2012 20 542 Java A 1

IS 350 Database Management A 1

IS 350 Database Management B 3

211 CIS C++ C 1

Fall 2012 211 CIS C++ B 3

Spr 2013 201 ACC Accounting A 1

Fall 2013 IS 540 Internet Technologies B 2

Spr 2013 423 CIS Mobile Computing A 3

Fall 2013 IS 350 Database Management A 1

Spr 2014 423 CIS Mobile Computing A 1

Fall 2014 205 ACC Corporate Finance A 2

IS 540 Internet Technologies A 1

Spr 2014 IS 700 Internet Marketing A 5

Fall 2015 20 325 Social Networks B 1

Spr 2015 IS 350 Database Management A 1

20 451 Systems A. and D. A 1

20 325 Social Networks B 2

Fall 2015 IS 700 Internet Marketing A 3

205 ACC Corporate Finance B 1

Spr 2015 20 612 Marketing A 2

Spr 2016 IS 750 Web Applications A 1

Fall 2016 IS 810 Business Intelligence B 3

Spr 2016 205 ACC Corporate Finance A 2

Spr 2017 IS 833 Big Data Analytics B 2

425 CIS Cloud Computing A 1

445 CIS Hadoop and MapReduce A 1

20 721 Data Visualization A 3

27 rows selected.

SQL> ---Q4

SQL> SELECT DECODE(emp\_id ||': '||emp\_lname||' '||emp\_fname,

2 NULL, 'Year Total:', emp\_id ||': '||emp\_lname||' '||emp\_fname) "Employee",

3 SUM(DECODE(REGEXP\_substr(sem\_cmpltd, '[0-9]{4}'), 2015, 1, 0)) "2015",

4 SUM(DECODE(REGEXP\_substr(sem\_cmpltd, '[0-9]{4}'), 2016, 1, 0)) "2016",

5 SUM(DECODE(REGEXP\_substr(sem\_cmpltd, '[0-9]{4}'), 2017, 1, 0)) "2017",

6 COUNT(tid) "Total for 2015-2017:"

7 FROM training JOIN employee USING (emp\_id)

8 WHERE REGEXP\_substr(sem\_cmpltd, '[0-9]{4}') IN ('2015', '2016', '2017')

9 GROUP BY GROUPING SETS ((emp\_id, emp\_lname, emp\_fname), ())

10 ORDER BY emp\_id;

Employee 2015 2016 2017 Total for 2015-2017:

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100: Krall Mary 2 0 0 2

137: Hall Jim 1 0 0 1

153: Roditi Adam 0 0 1 1

162: Nelson Ray 1 1 1 3

168: Corman Chris 2 0 0 2

171: Belli Willam 2 1 1 4

172: Swift Lisa 2 1 1 4

173: Milton Kelly 1 1 1 3

314: Gates Bob 0 1 0 1

315: Wheeler Howard 0 1 0 1

316: Whitestar Mary 0 0 1 1

317: Newton Steve 0 0 1 1

Year Total: 11 6 7 24

13 rows selected.

SQL> ---Q5

SQL>

SQL> SELECT crs\_id||': '||crs\_title AS "Course", COUNT(\*) AS "#Employee",

2 RANK() OVER (ORDER BY COUNT(\*) DESC) AS "Rank"

3 FROM training JOIN course USING (crs\_id)

4 GROUP BY crs\_id, crs\_title;

Course #Employee Rank

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IS 700: Internet Marketing 8 1

IS 350: Database Management 6 2

205 ACC: Corporate Finance 5 3

211 CIS: C++ 4 4

423 CIS: Mobile Computing 4 4

20 721: Data Visualization 3 6

IS 810: Business Intelligence 3 6

20 325: Social Networks 3 6

IS 540: Internet Technologies 3 6

IS 833: Big Data Analytics 2 10

20 612: Marketing 2 10

201 ACC: Accounting 1 12

425 CIS: Cloud Computing 1 12

20 542: Java 1 12

445 CIS: Hadoop and MapReduce 1 12

20 451: Systems A. and D. 1 12

IS 750: Web Applications 1 12

17 rows selected.

SQL>

SQL> ---Q6

SQL>

SQL> SELECT Y AS "Year", TO\_CHAR(T, '$999,999.99') AS "Total Tuition",

2 TO\_CHAR(AVG(T) OVER (

3 ORDER BY Y ROWS BETWEEN 1 PRECEDING AND 1 FOLLOWING), '$999,999.99') AS "MA(3)"

4 FROM(SELECT REGEXP\_substr(sem\_cmpltd, '[0-9]{4}') Y, SUM(tuition) T

5 FROM training JOIN course USING (crs\_id)

6 GROUP BY REGEXP\_substr(sem\_cmpltd, '[0-9]{4}'));

Year Total Tuition MA(3)

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2012 $24,000.00 $21,500.00

2013 $19,000.00 $22,833.33

2014 $25,500.00 $23,666.67

2015 $26,500.00 $23,000.00

2016 $17,000.00 $20,816.67

2017 $18,950.00 $17,975.00

6 rows selected.

SQL> ---Q7

SQL> SELECT \*

2 FROM(SELECT emp\_id||': '||emp\_lname||' '||emp\_fname AS "Employee",

3 TO\_CHAR(SUM(tuition), '$999,999') AS "Spent Tuition",

4 RANK() OVER (ORDER BY SUM(tuition) DESC) rank, COUNT(\*) AS "#Class"

5 FROM training JOIN course USING (crs\_id)

6 JOIN employee USING (emp\_id)

7 GROUP BY emp\_id, emp\_lname, emp\_fname)

8 WHERE rank <= 2;

Employee Spent Tuition RANK #Class

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128: Boon Pat $19,000 1 7

137: Hall Jim $16,000 2 6

SQL>

SQL> ---Q8

SQL> SELECT emp\_id||': '||emp\_lname||' '||emp\_fname AS "Employee", crs\_id||' '||crs\_title AS "Class",

2 TO\_CHAR(tuition- (FIRST\_VALUE (tuition) OVER

3 (PARTITION BY emp\_id ORDER BY tuition)), '$999,999') AS difference

4 FROM employee JOIN training USING (emp\_id)

5 JOIN course USING (crs\_id)

6 WHERE REGEXP\_substr(sem\_cmpltd, '[0-9]{4}') = '2015'

7 ORDER BY emp\_id, difference;

Employee Class DIFFERENCE

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100: Krall Mary 20 451 Systems A. and D. $0

100: Krall Mary IS 350 Database Management $1,000

137: Hall Jim 20 325 Social Networks $0

162: Nelson Ray 20 325 Social Networks $0

168: Corman Chris 20 325 Social Networks $0

168: Corman Chris 205 ACC Corporate Finance $500

171: Belli Willam 20 612 Marketing $0

171: Belli Willam IS 700 Internet Marketing $1,000

172: Swift Lisa 20 612 Marketing $0

172: Swift Lisa IS 700 Internet Marketing $1,000

173: Milton Kelly IS 700 Internet Marketing $0

11 rows selected.

SQL> SPOOL OFF