**Database Management**

SQL> START C:\DBM\SQL\_HW2.txt

SQL> --SQL HW2

SQL> --Q1

SQL> --(1)

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

2 ROUND(MONTHS\_BETWEEN(SYSDATE, MAX(appr\_date)), 0) AS "Month Passed"

3 FROM employee JOIN department USING (dept\_id)

4 JOIN training USING (emp\_id)

5 WHERE dept\_name = 'IT'

6 GROUP BY emp\_id, emp\_lname, emp\_fname

7 ORDER BY emp\_lname;

Employee Month Passed

-------------------- ------------

137: Hall Jim 28

162: Nelson Ray 16

317: Newton Steve 16

153: Roditi Adam 16

316: Whitestar Mary 16

SQL> --(2)

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

2 ROUND((SYSDATE-MAX(appr\_date))/30, 0) AS "Month Passed"

3 FROM employee JOIN department USING (dept\_id)

4 JOIN training USING (emp\_id)

5 WHERE dept\_name = 'IT'

6 GROUP BY emp\_id, emp\_lname, emp\_fname

7 ORDER BY emp\_lname;

Employee Month Passed

-------------------- ------------

137: Hall Jim 28

162: Nelson Ray 17

317: Newton Steve 17

153: Roditi Adam 17

316: Whitestar Mary 17

SQL> --(3)

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

2 TRUNC((EXTRACT(year FROM SYSDATE) - EXTRACT(YEAR FROM MAX(appr\_date))-1) \*12 +

3 TO\_NUMBER(TO\_CHAR(SYSDATE, 'DDD'))/30 +

4 (365 -TO\_NUMBER(TO\_CHAR(MAX(appr\_date), 'DDD')))/30, 0) AS "Month Passed"

5 FROM employee JOIN department USING (dept\_id)

6 JOIN training USING (emp\_id)

7 WHERE dept\_name = 'IT'

8 GROUP BY emp\_id, emp\_lname, emp\_fname

9 ORDER BY emp\_lname;

Employee Month Passed

-------------------- ------------

137: Hall Jim 28

162: Nelson Ray 16

317: Newton Steve 16

153: Roditi Adam 16

316: Whitestar Mary 16

SQL> --Q2

SQL>

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

2 crs\_id ||': '||crs\_title AS "Failed course retake", college\_name AS "College",

3 sem\_cmpltd AS "Completed", grade AS "Grade", X AS "Failed"

4 FROM

5 (

6 SELECT emp\_id, emp\_lname, emp\_fname,

7 crs\_id, crs\_title, college\_name,

8 sem\_cmpltd , grade, X, CID

9 FROM

10 (

11 SELECT emp\_id, emp\_lname, emp\_fname,

12 crs\_id, crs\_title, college\_name,

13 sem\_cmpltd , grade

14 FROM (SELECT emp\_id, emp\_lname, emp\_fname, crs\_id, crs\_title,

15 college\_name, sem\_cmpltd, grade, e, c

16 FROM employee JOIN training USING (emp\_id)

17 JOIN course USING (crs\_id)

18 LEFT OUTER JOIN (SELECT emp\_id AS e, crs\_id AS c

19 FROM training

20 WHERE emp\_id IN (SELECT emp\_id

21 FROM training

22 WHERE grade = 'R')

23 AND crs\_id IN (SELECT crs\_id

24 FROM training

25 WHERE grade = 'R')

26 GROUP BY emp\_id, crs\_id

27 HAVING COUNT(\*) > 1)

28 ON emp\_id = e)

29 WHERE emp\_id = e AND crs\_id = c

30 MINUS

31 SELECT emp\_id, emp\_lname, emp\_fname ,

32 crs\_id ,crs\_title , college\_name,

33 sem\_cmpltd, grade

34 FROM employee JOIN training USING (emp\_id)

35 JOIN course USING (crs\_id)

36 WHERE grade = 'R'

37 ), (SELECT sem\_cmpltd X, crs\_id CID

38 FROM training

39 WHERE grade = 'R')

40 )

41 WHERE crs\_id = CID AND sem\_cmpltd != X;

Employee Failed course retake College Completed Grade Failed

------------------ ------------------------------ -------- ----------- ------ ------------

128: Boon Pat 211 CIS: C++ Oakland Fall 2012 B Spr 2012

168: Corman Chris 205 ACC: Corporate Finance Oakland Fall 2015 A- Fall 2014

SQL> --Q3

SQL> SELECT crs\_id AS "Course ID", crs\_title AS "Course", T AS "Overall Expense"

2 FROM(SELECT crs\_id, crs\_title, T, X

3 FROM course JOIN(SELECT crs\_id, SUM(tuition) AS "T"

4 FROM course JOIN training USING (crs\_id)

5 GROUP BY crs\_id) USING (crs\_id)

6 ,(SELECT MAX(TOTAL\_TUITION) X

7 FROM course JOIN (SELECT crs\_id, SUM(tuition) AS "TOTAL\_TUITION"

8 FROM course JOIN training USING (crs\_id)

9 GROUP BY crs\_id) USING(crs\_id)))

10 WHERE T = X;

Course ID Course Overall Expense

------------------ ------------------------ ---------------

IS 700 Internet Marketing 24000

SQL> --Q4

SQL> SELECT crs\_id ||': '||crs\_title AS "Most Popular Course",

2 college\_name AS "College", Z AS "Percent %"

3 FROM (SELECT crs\_id, crs\_title, college\_name, COUNT(\*),

4 MP, Y, Round((COUNT(\*)/Y)\*100, 2) AS Z

5 FROM training JOIN course USING (crs\_id)

6 ,(SELECT MAX(P) MP

7 FROM(SELECT Round((COUNT(\*)/X)\*100, 2) AS "P"

8 FROM course JOIN training USING (crs\_id),

9 (SELECT COUNT(\*) AS X FROM training)

10 GROUP BY crs\_id, X))

11 ,(SELECT COUNT(\*) AS Y FROM training)

12 GROUP BY crs\_id, crs\_title, college\_name, MP, Y)

13 WHERE MP = Z;

Most Popular Course College Percent %

--------------------------------- --------------- ----------

IS 700: Internet Marketing Chatham 16.33

SQL> --Q5

SQL> SELECT NVL(SUM(COUNT(\*)), '0') AS "Total number of employees"

2 FROM training JOIN course USING (crs\_id)

3 WHERE EXTRACT(year FROM appr\_date) = EXTRACT(year FROM SYSDATE)

4 AND UPPER(college\_name) = 'OAKLAND'

5 GROUP BY emp\_id;

Total number of employees

-------------------------

0

SQL> --Q6

SQL> SELECT crs\_id ||': '||crs\_title AS "Course Info.", college\_name AS "College",

2 COUNT(\*) AS "#Take", SUM(tuition) AS "Tuition"

3 FROM training JOIN course USING (crs\_id)

4 JOIN employee USING (emp\_id)

5 WHERE UPPER(emp\_lname) = 'BOON' AND UPPER(emp\_fname) = 'PAT'

6 GROUP BY crs\_id, crs\_title, college\_name

7 HAVING COUNT(\*) > 1

8 UNION

9 SELECT 'Total Tuition of all classes', NULL, NULL, SUM(tuition)

10 FROM training JOIN course USING (crs\_id)

11 JOIN employee USING (emp\_id)

12 WHERE UPPER(emp\_lname) = 'BOON' AND UPPER(emp\_fname) = 'PAT'

13 GROUP BY emp\_id;

Course Info. College #Take Tuition

--------------------------------- --------------- ---------- ----------

211 CIS: C++ Oakland 2 5000

IS 350: Database Management Chatham 2 6000

Total Tuition of all classes 19000

SQL>

SQL> --Q7

SQL> SELECT instr\_id||': '||instr\_lname||' '||instr\_fname AS "Instructor",

2 instr\_phone AS "Phone", NVL(C, 0) AS "#Class", NVL(E, 0) AS "#Employee"

3 FROM instructor LEFT OUTER JOIN

4 (SELECT instr\_id, COUNT(\*) AS C

5 FROM instructor JOIN class USING (instr\_id)

6 GROUP BY instr\_id

7 HAVING COUNT(\*) > 1)

8 USING (instr\_id)

9 LEFT OUTER JOIN

10 (SELECT instr\_id, COUNT(DISTINCT(emp\_id)) AS E

11 FROM instructor JOIN class USING (instr\_id)

12 JOIN training USING(crs\_id, section, sem\_cmpltd)

13 GROUP BY instr\_id

14 HAVING instr\_id IN (SELECT instr\_id

15 FROM instructor JOIN class USING (instr\_id)

16 GROUP BY instr\_id

17 HAVING COUNT(\*) > 1))

18 USING (instr\_id)

19 ORDER BY instr\_lname;

Instructor Phone #Class #Employee

------------------------- ------------------- ---------- ----------

502: Chen Peter 121-5689 3 2

501: Codd Jim 121-5689 0 0

521: Hall Steve 555-4532 4 4

533: Jones Carol 389-1289 4 4

545: McCarthy Chris 689-1339 5 9

503: Miller Adam 389-1289 5 6

510: Smith Joe 121-1323 5 8

7 rows selected.

SQL> --Q8

SQL>

SQL> SELECT DISTINCT s.emp\_id||': '||s.emp\_lname||' '||s.emp\_fname AS "Supervisor",

2 NVL(C, '0') AS "#Employee"

3 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

4 LEFT OUTER JOIN

5 (SELECT DISTINCT(ss.emp\_id) AS i, COUNT(\*) AS C

6 FROM employee ss LEFT OUTER JOIN

7 (employee ee JOIN training ON training.emp\_id = ee.emp\_id

8 JOIN course USING (crs\_id))

9 ON ee.sup\_id = ss.emp\_id

10 WHERE UPPER(crs\_title) = 'JAVA' OR UPPER(crs\_title) = 'C++'

11 GROUP BY ee.emp\_id, ss.emp\_id)

12 ON s.emp\_id = i;

Supervisor #Employee

------------------------- ----------

203: Getz Bill 1

401: Harris Scott 0

225: Evans Stan 2

400: Jones Amelia 0

214: Ramos Ana 1

SQL> --Bonus

SQL>

SQL> SELECT SP AS "Supervisor" , lpad('\*', A, '\*')||' '||A||' A' "Grade bar"

2 FROM(

3 SELECT DISTINCT(s.emp\_id||': '||s.emp\_lname||' '||s.emp\_fname) AS SP,

4 NVL(A, '0') AS A, NVL(B, '0') AS B,

5 NVL(C, '0') AS C, NVL(R, '0') AS R

6 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

7 LEFT OUTER JOIN

8 (SELECT S, SUM(A) AS A, SUM(B) AS B, SUM(C) AS C, SUM(R) AS R

9 FROM (SELECT DISTINCT(e.emp\_id), e.sup\_id AS S, NVL(A, '0') AS A, NVL(B, '0') AS B,

10 NVL(C, '0') AS C, NVL(R, '0') AS R

11 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

12 JOIN training ON e.emp\_id = training.emp\_id

13 LEFT OUTER JOIN

14 (SELECT emp\_id EA, COUNT(\*) AS A

15 FROM training ta

16 WHERE grade LIKE '%A%'

17 GROUP BY emp\_id) ON (e.emp\_id = EA)

18 LEFT OUTER JOIN

19 (SELECT emp\_id EB, COUNT(\*) AS B

20 FROM training

21 WHERE grade LIKE '%B%'

22 GROUP BY emp\_id) ON (e.emp\_id = EB)

23 LEFT OUTER JOIN

24 (SELECT emp\_id EC, COUNT(\*) AS C

25 FROM training

26 WHERE grade LIKE '%C%'

27 GROUP BY emp\_id) ON (e.emp\_id = EC)

28 LEFT OUTER JOIN

29 (SELECT emp\_id ER, COUNT(\*) AS R

30 FROM training

31 WHERE grade LIKE '%R%'

32 GROUP BY emp\_id) ON (e.emp\_id = ER))

33 GROUP BY S) ON s.emp\_id = S)

34 UNION

35 SELECT SP AS "Supervisor" , lpad('\*', B, '\*')||' '||B||' B' "Grade bar"

36 FROM(

37 SELECT DISTINCT(s.emp\_id||': '||s.emp\_lname||' '||s.emp\_fname) AS SP,

38 NVL(A, '0') AS A, NVL(B, '0') AS B,

39 NVL(C, '0') AS C, NVL(R, '0') AS R

40 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

41 LEFT OUTER JOIN

42 (SELECT S, SUM(A) AS A, SUM(B) AS B, SUM(C) AS C, SUM(R) AS R

43 FROM (SELECT DISTINCT(e.emp\_id), e.sup\_id AS S, NVL(A, '0') AS A, NVL(B, '0') AS B,

44 NVL(C, '0') AS C, NVL(R, '0') AS R

45 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

46 JOIN training ON e.emp\_id = training.emp\_id

47 LEFT OUTER JOIN

48 (SELECT emp\_id EA, COUNT(\*) AS A

49 FROM training ta

50 WHERE grade LIKE '%A%'

51 GROUP BY emp\_id) ON (e.emp\_id = EA)

52 LEFT OUTER JOIN

53 (SELECT emp\_id EB, COUNT(\*) AS B

54 FROM training

55 WHERE grade LIKE '%B%'

56 GROUP BY emp\_id) ON (e.emp\_id = EB)

57 LEFT OUTER JOIN

58 (SELECT emp\_id EC, COUNT(\*) AS C

59 FROM training

60 WHERE grade LIKE '%C%'

61 GROUP BY emp\_id) ON (e.emp\_id = EC)

62 LEFT OUTER JOIN

63 (SELECT emp\_id ER, COUNT(\*) AS R

64 FROM training

65 WHERE grade LIKE '%R%'

66 GROUP BY emp\_id) ON (e.emp\_id = ER))

67 GROUP BY S) ON s.emp\_id = S)

68 UNION

69 SELECT SP AS "Supervisor" , lpad('\*', C, '\*')||' '||C||' C' "Grade bar"

70 FROM(

71 SELECT DISTINCT(s.emp\_id||': '||s.emp\_lname||' '||s.emp\_fname) AS SP,

72 NVL(A, '0') AS A, NVL(B, '0') AS B,

73 NVL(C, '0') AS C, NVL(R, '0') AS R

74 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

75 LEFT OUTER JOIN

76 (SELECT S, SUM(A) AS A, SUM(B) AS B, SUM(C) AS C, SUM(R) AS R

77 FROM (SELECT DISTINCT(e.emp\_id), e.sup\_id AS S, NVL(A, '0') AS A, NVL(B, '0') AS B,

78 NVL(C, '0') AS C, NVL(R, '0') AS R

79 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

80 JOIN training ON e.emp\_id = training.emp\_id

81 LEFT OUTER JOIN

82 (SELECT emp\_id EA, COUNT(\*) AS A

83 FROM training ta

84 WHERE grade LIKE '%A%'

85 GROUP BY emp\_id) ON (e.emp\_id = EA)

86 LEFT OUTER JOIN

87 (SELECT emp\_id EB, COUNT(\*) AS B

88 FROM training

89 WHERE grade LIKE '%B%'

90 GROUP BY emp\_id) ON (e.emp\_id = EB)

91 LEFT OUTER JOIN

92 (SELECT emp\_id EC, COUNT(\*) AS C

93 FROM training

94 WHERE grade LIKE '%C%'

95 GROUP BY emp\_id) ON (e.emp\_id = EC)

96 LEFT OUTER JOIN

97 (SELECT emp\_id ER, COUNT(\*) AS R

98 FROM training

99 WHERE grade LIKE '%R%'

100 GROUP BY emp\_id) ON (e.emp\_id = ER))

101 GROUP BY S) ON s.emp\_id = S)

102 UNION

103 SELECT SP AS "Supervisor" , lpad('\*', R, '\*')||' '||R||' R' "Grade bar"

104 FROM(

105 SELECT DISTINCT(s.emp\_id||': '||s.emp\_lname||' '||s.emp\_fname) AS SP,

106 NVL(A, '0') AS A, NVL(B, '0') AS B,

107 NVL(C, '0') AS C, NVL(R, '0') AS R

108 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

109 LEFT OUTER JOIN

110 (SELECT S, SUM(A) AS A, SUM(B) AS B, SUM(C) AS C, SUM(R) AS R

111 FROM (SELECT DISTINCT(e.emp\_id), e.sup\_id AS S, NVL(A, '0') AS A, NVL(B, '0') AS B,

112 NVL(C, '0') AS C, NVL(R, '0') AS R

113 FROM employee e JOIN employee s ON e.sup\_id = s.emp\_id

114 JOIN training ON e.emp\_id = training.emp\_id

115 LEFT OUTER JOIN

116 (SELECT emp\_id EA, COUNT(\*) AS A

117 FROM training ta

118 WHERE grade LIKE '%A%'

119 GROUP BY emp\_id) ON (e.emp\_id = EA)

120 LEFT OUTER JOIN

121 (SELECT emp\_id EB, COUNT(\*) AS B

122 FROM training

123 WHERE grade LIKE '%B%'

124 GROUP BY emp\_id) ON (e.emp\_id = EB)

125 LEFT OUTER JOIN

126 (SELECT emp\_id EC, COUNT(\*) AS C

127 FROM training

128 WHERE grade LIKE '%C%'

129 GROUP BY emp\_id) ON (e.emp\_id = EC)

130 LEFT OUTER JOIN

131 (SELECT emp\_id ER, COUNT(\*) AS R

132 FROM training

133 WHERE grade LIKE '%R%'

134 GROUP BY emp\_id) ON (e.emp\_id = ER))

135 GROUP BY S) ON s.emp\_id = S);

Supervisor Grade bar

------------------------- --------------------

203: Getz Bill \* 1 R

203: Getz Bill \*\*\* 3 C

203: Getz Bill \*\*\*\*\*\* 6 B

203: Getz Bill \*\*\*\*\*\*\*\*\*\*\* 11 A

214: Ramos Ana 0 R

214: Ramos Ana \*\*\* 3 C

214: Ramos Ana \*\*\*\*\* 5 A

214: Ramos Ana \*\*\*\*\*\*\*\*\*\*\* 11 B

225: Evans Stan 0 C

225: Evans Stan \* 1 R

225: Evans Stan \*\*\* 3 A

225: Evans Stan \*\*\*\*\* 5 B

400: Jones Amelia 0 A

400: Jones Amelia 0 B

400: Jones Amelia 0 C

400: Jones Amelia 0 R

401: Harris Scott 0 A

401: Harris Scott 0 B

401: Harris Scott 0 C

401: Harris Scott 0 R

20 rows selected.

SQL> SPOOL OFF