**SQL> SET linesize 4000**

**SQL> SET pagesize 200**

**SQL> --1.**

**SQL> clear columns**

**columns cleared**

**SQL> column Employee format a20**

**SQL> column "Skill" format a20**

**SQL> column "# Trainings" format a10**

**SQL> column "Most Recent Date" format a20**

**SQL> column "Months Since Training" format 99999**

**SQL> column "Skill" format a30**

**SQL>**

**SQL> SELECT emp\_num**

**2 || ': '**

**3 || emp\_first**

**4 || ' '**

**5 || emp\_last "Employee",**

**6 Nvl(description, '--') "Skill",**

**7 Ltrim(To\_char(Count(DISTINCT code))) "# Trainings",**

**8 Ltrim(Nvl(To\_char(Max(date\_acquired)), '--')) "Most Recent Date",**

**9 CASE**

**10 WHEN ( ( sysdate - Max(date\_acquired) ) / 30.4 ) IS NULL THEN '--'**

**11 WHEN ( ( sysdate - Max(date\_acquired) ) / 30.4 ) < 0 THEN '0'**

**12 ELSE To\_char(Trunc(( sysdate - Max(date\_acquired) ) / 30.4))**

**13 END AS "Months Since Training"**

**14 FROM training**

**15 JOIN skill using(code)**

**16 RIGHT JOIN employee using (emp\_num)**

**17 GROUP BY emp\_num,**

**18 emp\_first,**

**19 emp\_last,**

**20 description;**

**Employee Skill # Training Most Recent Date Months Since Training**

**-------------------- ------------------------------ ---------- -------------------- ----------------------------------------**

**137: Jim Hall -- 0 -- --**

**400: Amelia Jones Business Writing 1 04-DEC-18 11**

**168: Chris Corman Business Writing 1 12-AUG-16 39**

**225: Stan Evans Business Writing 1 30-NOV-15 48**

**225: Stan Evans Data Mining 1 05-FEB-19 9**

**128: Pat Boon -- 0 -- --**

**401: Scott Harris Database Design 1 07-DEC-17 23**

**100: Mary Krall Database Design 1 08-JAN-18 22**

**203: Bill Getz Data Mining 1 02-DEC-13 72**

**153: Adam Roditi -- 0 -- --**

**214: Ana Ramos Data Mining 1 10-DEC-19 0**

**162: Ray Nelson Business Writing 1 06-JUL-19 4**

**12 rows selected.**

**SQL> --2.**

**SQL> column "Level" format a5**

**SQL> column "Employee Info" format a50**

**SQL>**

**SQL> SELECT Ltrim(LEVEL) AS "Level",**

**2 Lpad(' ', 3 \* ( LEVEL - 1 ))**

**3 || emp\_num**

**4 ||' : '**

**5 || emp\_first**

**6 || ' '**

**7 ||emp\_last**

**8 || ' | '**

**9 || d.name "Employee Info"**

**10 FROM employee e,**

**11 department d**

**12 WHERE e.dept\_code = d.dept\_code**

**13 START WITH emp\_num = 400**

**14 CONNECT BY PRIOR emp\_num = super\_id;**

**Level Employee Info**

**----- --------------------------------------------------**

**1 400 : Amelia Jones | executive**

**2 128 : Pat Boon | management consulting**

**3 168 : Chris Corman | management consulting**

**3 225 : Stan Evans | management consulting**

**2 214 : Ana Ramos | technology**

**3 137 : Jim Hall | technology**

**4 153 : Adam Roditi | technology**

**3 162 : Ray Nelson | technology**

**2 401 : Scott Harris | marketing**

**3 100 : Mary Krall | marketing**

**3 203 : Bill Getz | marketing**

**11 rows selected.**

**SQL> --3.**

**SQL> column "Project Info" format a30**

**SQL> column "Start Date" format a10**

**SQL> column "proj\_month" format a10**

**SQL> column "#emp" format a7**

**SQL> column "#hours" format a10**

**SQL> SELECT DISTINCT ( ( proj\_number )**

**2 ||':'**

**3 ||name ) AS "Project Info",**

**4 Ltrim(start\_date) AS "Start Date",**

**5 Ltrim(p\_month) "proj\_month",**

**6 Ltrim(emp\_count) "#emp",**

**7 Nvl(Ltrim(t\_hours), 0) "#hours"**

**8 FROM project**

**9 join(SELECT proj\_number,**

**10 Extract(month FROM date\_assigned) p\_month,**

**11 Count(DISTINCT emp\_num) emp\_Count,**

**12 SUM(hours\_used) t\_hours**

**13 FROM assignment**

**14 join project USING (proj\_number)**

**15 WHERE total\_cost IS NULL**

**16 GROUP BY proj\_number,**

**17 Extract(month FROM date\_assigned)) USING(proj\_number)**

**18 UNION ALL**

**19 SELECT 'TOTAL for '**

**20 || proj\_number**

**21 ||':'**

**22 || name AS "Project Info",**

**23 NULL,**

**24 NULL,**

**25 Ltrim(Count(DISTINCT emp\_num)) "#emp",**

**26 Nvl(Ltrim(SUM(hours\_used)), 0)**

**27 FROM assignment**

**28 join project USING (proj\_number)**

**29 WHERE total\_cost IS NULL**

**30 GROUP BY 'TOTAL for '**

**31 || proj\_number**

**32 ||':'**

**33 || name;**

**Project Info Start Date proj\_month #emp #hours**

**------------------------------ ---------- ---------- ------- ----------**

**20332:Seas the Day 17-NOV-19 11 1 0**

**20327:Smart Mattress 12-SEP-19 9 1 180**

**20332:Seas the Day 17-NOV-19 4 1 50**

**20327:Smart Mattress 12-SEP-19 11 1 0**

**TOTAL for 20327:Smart Mattress 1 180**

**TOTAL for 20332:Seas the Day 1 50**

**6 rows selected.**

**SQL> --4.**

**SQL> ALTER TABLE employee**

**2 ADD (bonus\_amt NUMBER(10) DEFAULT 0);**

**Table altered.**

**SQL> UPDATE employee**

**2 SET bonus\_amt = 200**

**3 WHERE emp\_num IN (SELECT emp\_num**

**4 FROM ((SELECT e.emp\_num,**

**5 a.proj\_number**

**6 FROM employee e,**

**7 project p,**

**8 assignment a**

**9 WHERE e.emp\_num = a.emp\_num**

**10 AND a.proj\_number = p.proj\_number**

**11 AND Extract(year FROM p.start\_date) =**

**12 ( Extract(year FROM SYSDATE) - 1 )**

**13 GROUP BY e.emp\_num,**

**14 a.proj\_number,**

**15 p.start\_date)**

**16 INTERSECT**

**17 (SELECT emp\_num,**

**18 proj\_number**

**19 FROM assignment**

**20 HAVING SUM(hours\_used) > 40**

**21 GROUP BY proj\_number,**

**22 emp\_num)));**

**2 rows updated.**

**SQL> SELECT \***

**2 FROM employee;**

**EMP\_NUM EMP\_LAST EMP\_FIRST DOB HIRE\_DATE SUPER\_ID DEPT\_CODE BONUS\_AMT**

**---------- ------------------------- ------------------------- --------- --------- ---------- ---------- ----------**

**400 Jones Amelia 17-MAY-74 01-OCT-02 1003 0**

**401 Harris Scott 28-MAR-72 02-DEC-03 400 1001 0**

**203 Getz Bill 08-OCT-75 05-APR-05 401 1001 0**

**214 Ramos Ana 09-MAR-75 12-JAN-18 400 1002 200**

**100 Krall Mary 11-FEB-88 18-MAY-10 401 1001 0**

**128 Boon Pat 23-NOV-84 20-OCT-09 400 1000 0**

**137 Hall Jim 06-AUG-80 10-NOV-09 214 1002 0**

**153 Roditi Adam 05-MAR-88 02-DEC-19 137 1002 0**

**162 Nelson Ray 24-SEP-91 20-OCT-18 214 1002 0**

**168 Corman Chris 11-AUG-90 20-OCT-11 128 1000 200**

**225 Evans Stan 14-JUL-76 01-JUN-05 128 1000 0**

**11 rows selected.**

**SQL> --5.**

**SQL> COLUMN "Employee Information" format a25**

**SQL> column "Training Date" format a20**

**SQL> column "Training Name" format a27**

**SQL> column "proj\_count" format a11**

**SQL> SELECT emp\_num**

**2 ||' : '**

**3 ||emp\_first**

**4 ||' '**

**5 ||emp\_last "Employee Information"**

**6 ,**

**7 hire\_date,**

**8 training.name "Training Name",**

**9 date\_acquired "Training Date",**

**10 Ltrim(To\_char(Count(DISTINCT( proj\_number )))) "proj\_count",**

**11 Ltrim(training.date\_acquired - employee.hire\_date) "Num of Days Between"**

**12 FROM employee**

**13 left join training USING (emp\_num)**

**14 left join assignment USING (emp\_num)**

**15 left join project USING (proj\_number)**

**16 WHERE Extract(year FROM hire\_date) = ( Extract(year FROM SYSDATE) - 1 )**

**17 GROUP BY emp\_num**

**18 ||' : '**

**19 ||emp\_first**

**20 ||' '**

**21 ||emp\_last,**

**22 hire\_date,**

**23 training.name,**

**24 date\_acquired,**

**25 proj\_number;**

**Employee Information HIRE\_DATE Training Name Training Date proj\_count Num of Days Between**

**------------------------- --------- --------------------------- -------------------- ----------- ----------------------------------------**

**214 : Ana Ramos 12-JAN-18 Blockchain 10-DEC-19 1 697**

**162 : Ray Nelson 20-OCT-18 Database Normalization 02-NOV-18 0 13**

**162 : Ray Nelson 20-OCT-18 Database Normalization II 06-JUL-19 0 259**

**SQL> --6.**

**SQL> SELECT proj\_number "Project #",**

**2 NAME,**

**3 start\_date,**

**4 b.discontinuity,**

**5 CASE**

**6 WHEN total\_cost > 0 THEN 'Complete'**

**7 ELSE 'On-going'**

**8 END AS "Status"**

**9 FROM assignment**

**10 JOIN (SELECT proj\_number,**

**11 NAME,**

**12 start\_date,**

**13 total\_cost,**

**14 date\_assigned,**

**15 date\_ended,**

**16 Lead(date\_assigned, 1)**

**17 OVER (**

**18 partition BY proj\_number**

**19 ORDER BY date\_ended) - date\_assigned discontinuity**

**20 FROM assignment**

**21 JOIN project using (proj\_number)) b using(proj\_number)**

**22 WHERE b.discontinuity > 45**

**23 GROUP BY proj\_number,**

**24 NAME,**

**25 start\_date,**

**26 b.discontinuity,**

**27 total\_cost**

**28 ORDER BY proj\_number;**

**Project # NAME START\_DAT DISCONTINUITY Status**

**---------- ------------------------- --------- ------------- --------**

**20327 Smart Mattress 12-SEP-19 50 On-going**

**20332 Seas the Day 17-NOV-19 214 On-going**

**SQL> --7.**

**column "Project #" format 9999999**

**column "Start Date" format a20**

**column "# Employees Assigned" format 999**

**column "Average Hours" format 999**

**BREAK ON quarter**

**SELECT CASE**

**WHEN '01-Jan-2019'= p.Start\_Date and p.Start\_Date <= '30-Mar-2019' THEN 'Quarter 1'**

**WHEN'30-Mar-2019'< p.Start\_Date and p.Start\_Date <= '30-Jun-2019' THEN 'Quarter 2'**

**WHEN '30-Jun-2019' < p.Start\_Date and p.Start\_Date <='30-Sep-2019' THEN 'Quarter 3'**

**WHEN '30-Sep-2019' < p.Start\_Date and p.Start\_Date <='31-Dec-2019' THEN 'Quarter 4'**

**END AS Quarter,**

**a.proj\_number "Project #",**

**p.start\_date "Start Date",**

**Count(a.emp\_num) "# Employees Assigned",**

**SUM(hours\_used) / Count(a.proj\_number) "Average Hours",**

**NVL(Count(DISTINCT p.proj\_number) ,0) "Number of Projects"**

**FROM project p,**

**assignment a**

**WHERE p.proj\_number = a.proj\_number**

**and p.start\_date >'01-Jan-2019'**

**GROUP BY a.proj\_number,p.start\_date**

**ORDER BY p.start\_date;**

**QUARTER Project # Start Dat # Employees Assigned Average Hours Number of Projects**

**--------- ---------- --------- -------------------- ------------- ------------------**

**Quarter 3 20327 12-SEP-19 2 90 1**

**Quarter 4 20332 17-NOV-19 2 25 1**

**SQL> --8.**

**SQL> column "emp\_num" format a7**

**SQL> column "EMPLOYEE" format a20**

**SQL> column "Business Writing" format a17**

**SQL> column "Database Design" format a15**

**SQL> column "Analytics" format a17**

**SQL> column "Management Science" format a18**

**SQL> column "Data Mining" format a13**

**SQL> column "Cloud Computing" format a17**

**SQL> column "Digital Media" format a17**

**SQL> column "Blockchain" format a17**

**SQL> column "Be a Better Boss" format a17**

**SQL> COLUMN "Date\_Acquired" format a13**

**SQL> SELECT ltrim(emp\_num) emp\_num,**

**2 ltrim(Decode(emp\_first**

**3 || ' '**

**4 || emp\_last, NULL, 'Number of Trainings:',**

**5 emp\_first**

**6 || ' '**

**7 || emp\_last)) Employee,**

**8 ltrim(to\_char(SUM(Decode(code, 100, 1,**

**9 0)))) "Business Writing",**

**10 CASE**

**11 WHEN emp\_first**

**12 || ' '**

**13 || emp\_last IS NULL THEN '-----'**

**14 ELSE Max(Decode(code, 100, To\_char(date\_acquired),'-----'))**

**15 END AS "Date\_Acquired",**

**16 ltrim(to\_char(SUM(DECODE(Code, 102, 1, 0)))) "Database Design",**

**17 CASE WHEN Emp\_First || ' ' || Emp\_Last IS NULL**

**18 THEN '-----'**

**19 ELSE MAX(DECODE(Code, 102, TO\_CHAR(Date\_Acquired),'-----'))**

**20 END AS "Date\_Acquired",**

**21 ltrim(to\_char(SUM(DECODE(Code,121, 1, 0)))) "Data Mining",**

**22 CASE WHEN Emp\_First || ' ' || Emp\_Last IS NULL**

**23 THEN '-----'**

**24 ELSE MAX(DECODE(Code, 121, TO\_CHAR(Date\_Acquired),'-----'))**

**25 END AS "Date\_Acquired",**

**26 ltrim(to\_char(SUM(Decode(code, NULL, 0,**

**27 1)))) AS "Number of Skills"**

**28 FROM employee**

**29 join training USING (emp\_num)**

**30 join skill USING (code)**

**31 GROUP BY grouping sets ( ( emp\_num, emp\_first**

**32 || ' '**

**33 || emp\_last ), ( ) );**

**EMP\_NUM EMPLOYEE Business Writing Date\_Acquired Database Design Date\_Acquired Data Mining Date\_Acquired Number of Skills**

**------- -------------------- ----------------- ------------- --------------- ------------- ------------- ------------- --------------------------**

**100 Mary Krall 0 ----- 1 08-JAN-18 0 ----- 1**

**400 Amelia Jones 1 04-DEC-18 0 ----- 0 ----- 1**

**162 Ray Nelson 2 06-JUL-19 0 ----- 0 ----- 2**

**168 Chris Corman 1 12-AUG-16 0 ----- 0 ----- 1**

**203 Bill Getz 0 ----- 0 ----- 1 02-DEC-13 1**

**214 Ana Ramos 0 ----- 0 ----- 1 10-DEC-19 1**

**225 Stan Evans 1 30-NOV-15 0 ----- 1 05-FEB-19 2**

**401 Scott Harris 0 ----- 1 07-DEC-17 0 ----- 1**

**Number of Trainings: 5 ----- 2 ----- 3 ----- 10**

**9 rows selected.**

**SQL> --9.**

**SQL> column "Description" format a45**

**SQL> BREAK ON "Department"**

**SQL> SELECT Upper(d.name) "Department",**

**2 s.description "Description",**

**3 Count(t.code) "Num Trainings",**

**4 Rank()**

**5 over(**

**6 PARTITION BY d.name**

**7 ORDER BY Count(t.code) DESC) rank**

**8 FROM training t,**

**9 skill s,**

**10 employee e,**

**11 department d**

**12 WHERE s.code = t.code**

**13 AND t.emp\_num = e.emp\_num**

**14 AND d.dept\_code = e.dept\_code**

**15 GROUP BY s.description,**

**16 e.dept\_code,**

**17 d.name**

**18 ORDER BY e.dept\_code,**

**19 Count(t.code) DESC;**

**Department Description Num Trainings RANK**

**------------------------- --------------------------------------------- ------------- ----------**

**MANAGEMENT CONSULTING Business Writing 2 1**

**Data Mining 1 2**

**MARKETING Database Design 2 1**

**Data Mining 1 2**

**TECHNOLOGY Business Writing 2 1**

**Data Mining 1 2**

**EXECUTIVE Business Writing 1 1**

**7 rows selected.**

**--10**

**COLUMN "Employee" format a20**

**COLUMN "Supervisor" format a18**

**COLUMN "Training Info" format a32**

**COLUMN "Date\_Acquired" format a10**

**COLUMN "Skill" format a20**

**COLUMN "Months" format 99**

**COLUMN "#Trainings" format 99**

**BREAK ON "Employee" ON "Supervisor"**

**select a.Emp\_Num || ': '||b.Emp\_First ||' ' ||b.Emp\_Last "Employee",**

**case when (b.Super\_ID) is null then '--'else to\_char(b.Super\_ID || ':'||b.sfirst || ' ' || b.slast) end as "Supervisor",**

**a.Train\_Num ||': '|| a.Name "Training Info",**

**a.Date\_Acquired "Date\_Acquired",**

**(trunc((sysdate-a.Date\_Acquired)/30.4)) "Months", b.tnums "#Trainings", a.Description "Skill"**

**from(**

**(select e.Emp\_Num, t.Train\_Num,t.Name,t.Date\_Acquired,s.Description, ROUND(sysdate-t.Date\_Acquired)**

**from Employee e, Training t, Skill s**

**where e.Emp\_Num = t.Emp\_Num**

**and t.Code = s.Code**

**group by e.Emp\_Num, e.Emp\_First, e.Emp\_Last,t.Train\_Num,t.Name,t.Date\_Acquired,s.Description,e.Super\_ID) a**

**join (**

**select t.Emp\_Num, e.Emp\_First, e.Emp\_Last, count(Train\_Num) tnums, e.super\_id, e2.emp\_first sfirst, e2.emp\_last slast**

**from training t, employee e, employee e2**

**where t.emp\_num = e.emp\_num**

**and e.super\_id = e2.emp\_num**

**GROUP BY t.Emp\_Num, e.Emp\_First, e.Emp\_Last,e.super\_id , e2.emp\_first, e2.emp\_last) b**

**on a.emp\_num = b.emp\_num)**

**GROUP BY a.Emp\_Num, b.Emp\_First, b.Emp\_Last,b.Super\_ID, b.sfirst, b.slast,**

**a.Train\_Num ||': '|| a.Name, a.Date\_Acquired , a.Description, b.tnums**

**order by a.Emp\_Num, b.Emp\_First, b.Emp\_Last,b.Super\_ID, b.sfirst, b.slast;**

**Employee Supervisor Training Info Date\_Acqui Months #Trainings Skill**

**-------------------- ------------------ -------------------------------- ---------- ------ ---------- --------------------**

**100: Mary Krall 401:Scott Harris 878: Dig Media for Influencers 08-JAN-18 22 1 Database Design**

**162: Ray Nelson 214:Ana Ramos 675: Database Normalization II 06-JUL-19 4 2 Business Writing**

**823: Database Normalization 02-NOV-18 13 2 Business Writing**

**168: Chris Corman 128:Pat Boon 824: Database Normalization 12-AUG-16 39 1 Business Writing**

**203: Bill Getz 401:Scott Harris 857: Data Mining 02-DEC-13 72 1 Data Mining**

**214: Ana Ramos 400:Amelia Jones 897: Blockchain 10-DEC-19 0 1 Data Mining**

**225: Stan Evans 128:Pat Boon 835: Analytics 05-FEB-19 9 2 Data Mining**

**899: Big Data 30-NOV-15 48 2 Business Writing**

**401: Scott Harris 400:Amelia Jones 826: Dig.Med for the Elderly 07-DEC-17 23 1 Database Design**

**9 rows selected.**

**SQL> --11.**

**SQL> column utilization format 99.9999**

**SQL> SELECT b.\*,**

**2 Ltrim(To\_char(11000 - ( rank \* 1000 ), '$999,999.00')) "Bonus Amt"**

**3 FROM (SELECT DISTINCT e.emp\_num**

**4 ||': '**

**5 ||e.emp\_first**

**6 ||' '**

**7 ||e.emp\_last**

**8 "Employee",**

**9 e.hire\_date,**

**10 SUM(hours\_used) / ( 40 \* ( ( SYSDATE - hire\_date ) / 7 )**

**11 )**

**12 "Utilization",**

**13 Rank()**

**14 over(**

**15 ORDER BY (SUM(hours\_used)/(40\*((SYSDATE-hire\_date)/7)**

**16 ))**

**17 DESC nulls last)**

**18 Rank**

**19 FROM employee e,**

**20 assignment a**

**21 WHERE e.emp\_num = a.emp\_num**

**22 GROUP BY e.emp\_num,**

**23 e.hire\_date,**

**24 e.emp\_first,**

**25 e.emp\_last) b**

**26 WHERE rank <= 5**

**27 ORDER BY rank;**

**Employee HIRE\_DATE Utilization RANK Bonus Amt**

**-------------------- --------- ----------- ---------- ------------**

**214: Ana Ramos 12-JAN-18 .0608 1 $10,000.00**

**168: Chris Corman 20-OCT-11 .0301 2 $9,000.00**

**137: Jim Hall 10-NOV-09 .0110 3 $8,000.00**

**100: Mary Krall 18-MAY-10 .0080 4 $7,000.00**

**128: Pat Boon 20-OCT-09 .0047 5 $6,000.00**

**SQL> --12.**

**SQL> column "f\_table\_name" format a15**

**SQL> column "Table\_Name" format a15**

**SQL> column "column\_name" format a15**

**SQL> column constraint\_name format a30**

**SQL> column constraint\_type format a10**

**SQL> column "search\_condition" format a30**

**SQL>**

**SQL> BREAK on "Table\_Name"**

**SQL> SELECT ut.table\_name "Table\_Name",**

**2 ut.column\_name "column\_name",**

**3 Ltrim(Nvl(uc.constraint\_name,'--')) constraint\_name,**

**4 CASE**

**5 WHEN ac.constraint\_type IS NULL THEN '--'**

**6 WHEN ac.constraint\_type='C' THEN 'CK'**

**7 WHEN ac.constraint\_type='P' THEN 'PK'**

**8 WHEN ac.constraint\_type='R' THEN 'FK'**

**9 WHEN ac.constraint\_type='U' THEN 'UK'**

**10 END AS constraint\_type,**

**11 ac.search\_condition "search\_condition",**

**12 Ltrim(Nvl(fkt.table\_name,'--')) f\_table\_name,**

**13 Ltrim(Nvl(fkt.column\_name,'--')) column\_name**

**14 FROM user\_tab\_columns ut**

**15 LEFT JOIN user\_cons\_columns uc**

**16 ON ((**

**17 ut.table\_name=uc.table\_name)**

**18 AND (**

**19 ut.column\_name=uc.column\_name) )**

**20 LEFT JOIN all\_constraints ac**

**21 ON (**

**22 ac.constraint\_name=uc.constraint\_name)**

**23 LEFT JOIN user\_cons\_columns fkt**

**24 ON ac.r\_constraint\_name = fkt.constraint\_name**

**25 ORDER BY ut.table\_name,ut.column\_name;**

**Table\_Name column\_name CONSTRAINT\_NAME CONSTRAINT search\_condition F\_TABLE\_NAME COLUMN\_NAME**

**--------------- --------------- ------------------------------ ---------- ------------------------------ --------------- ---------------**

**ASSIGNMENT ASSIGN\_NUM ASSIGNMENT\_ASSIGN\_NUM\_PK PK -- --**

**DATE\_ASSIGNED ASSIGNMENT\_DATE\_ENDED\_CK CK Date\_Assigned<Date\_Ended -- --**

**DATE\_ENDED ASSIGNMENT\_DATE\_ENDED\_CK CK Date\_Assigned<Date\_Ended -- --**

**EMP\_NUM ASSIGNMENT\_EMP\_NUM\_FK FK EMPLOYEE EMP\_NUM**

**HOURS\_USED -- -- -- --**

**PROJ\_NUMBER ASSIGNMENT\_PROJ\_NUMBER\_FK FK PROJECT PROJ\_NUMBER**

**CLIENT CITY -- -- -- --**

**CLIENT\_ID CLIENT\_CLIENT\_ID\_PK PK -- --**

**CONTACT\_NAME CLIENT\_CONTACT\_NAME\_NN CK "CONTACT\_NAME" IS NOT NULL -- --**

**INDUSTRY -- -- -- --**

**NAME CLIENT\_NAME\_CK CK Name=UPPER(Name) -- --**

**NAME CLIENT\_NAME\_NN CK "NAME" IS NOT NULL -- --**

**PHONE CLIENT\_PHONE\_NN CK "PHONE" IS NOT NULL -- --**

**STATE -- -- -- --**

**STREET -- -- -- --**

**WEB\_ADDRESS -- -- -- --**

**ZIP\_CODE -- -- -- --**

**DEPARTMENT DEPT\_CODE DEPARTMENT\_DEPT\_CODE\_PK PK -- --**

**LOCATION DEPARTMENT\_LOCATION\_NN CK "LOCATION" IS NOT NULL -- --**

**MANAGER\_ID DEPARTMENT\_MANAGER\_ID\_FK FK EMPLOYEE EMP\_NUM**

**NAME DEPARTMENT\_NAME\_NN CK "NAME" IS NOT NULL -- --**

**PHONE DEPARTMENT\_PHONE\_NN CK "PHONE" IS NOT NULL -- --**

**EMPLOYEE BONUS\_AMT -- -- -- --**

**DEPT\_CODE EMPLOYEE\_DEPT\_CODE\_FK FK DEPARTMENT DEPT\_CODE**

**DOB -- -- -- --**

**EMP\_FIRST EMPLOYEE\_EMP\_FIRST\_NN CK "EMP\_FIRST" IS NOT NULL -- --**

**EMP\_LAST -- -- -- --**

**EMP\_NUM EMPLOYEE\_EMP\_NUM\_PK PK -- --**

**EMP\_NUM EMPLOYEE\_EMP\_NUM\_FK FK EMPLOYEE EMP\_NUM**

**EMP\_NUM EMPLOYEE\_EMP\_NUM\_CK CK Emp\_Num between 1 and 99999 -- --**

**HIRE\_DATE -- -- -- --**

**SUPER\_ID EMPLOYEE\_SUPER\_ID\_FK FK EMPLOYEE EMP\_NUM**

**PROJECT CLIENT\_ID PROJECT\_CLIENT\_ID\_FK FK CLIENT CLIENT\_ID**

**DEPT\_CODE PROJECT\_DEPT\_CODE\_FK FK DEPARTMENT DEPT\_CODE**

**NAME PROJECT\_NAME\_NN CK "NAME" IS NOT NULL -- --**

**PROJ\_NUMBER PROJECT\_PROJ\_NUMBER\_PK PK -- --**

**START\_DATE -- -- -- --**

**TOTAL\_COST -- -- -- --**

**SKILL CODE SKILL\_CODE\_PK PK -- --**

**DESCRIPTION -- -- -- --**

**TRAINING CODE TRAINING\_CODE\_FK FK SKILL CODE**

**COMMENTS -- -- -- --**

**DATE\_ACQUIRED -- -- -- --**

**EMP\_NUM TRAINING\_EMP\_NUM\_FK FK EMPLOYEE EMP\_NUM**

**NAME -- -- -- --**

**TRAIN\_NUM TRAINING\_TRAIN\_NUM\_PK PK -- --**

**46 rows selected.**