GAGN2HS05BU Skilaverkefni 2

Due Date: 04-04-2018

Structure and contents of the Review database

FIGURE Q1.1 **Relational diagram**

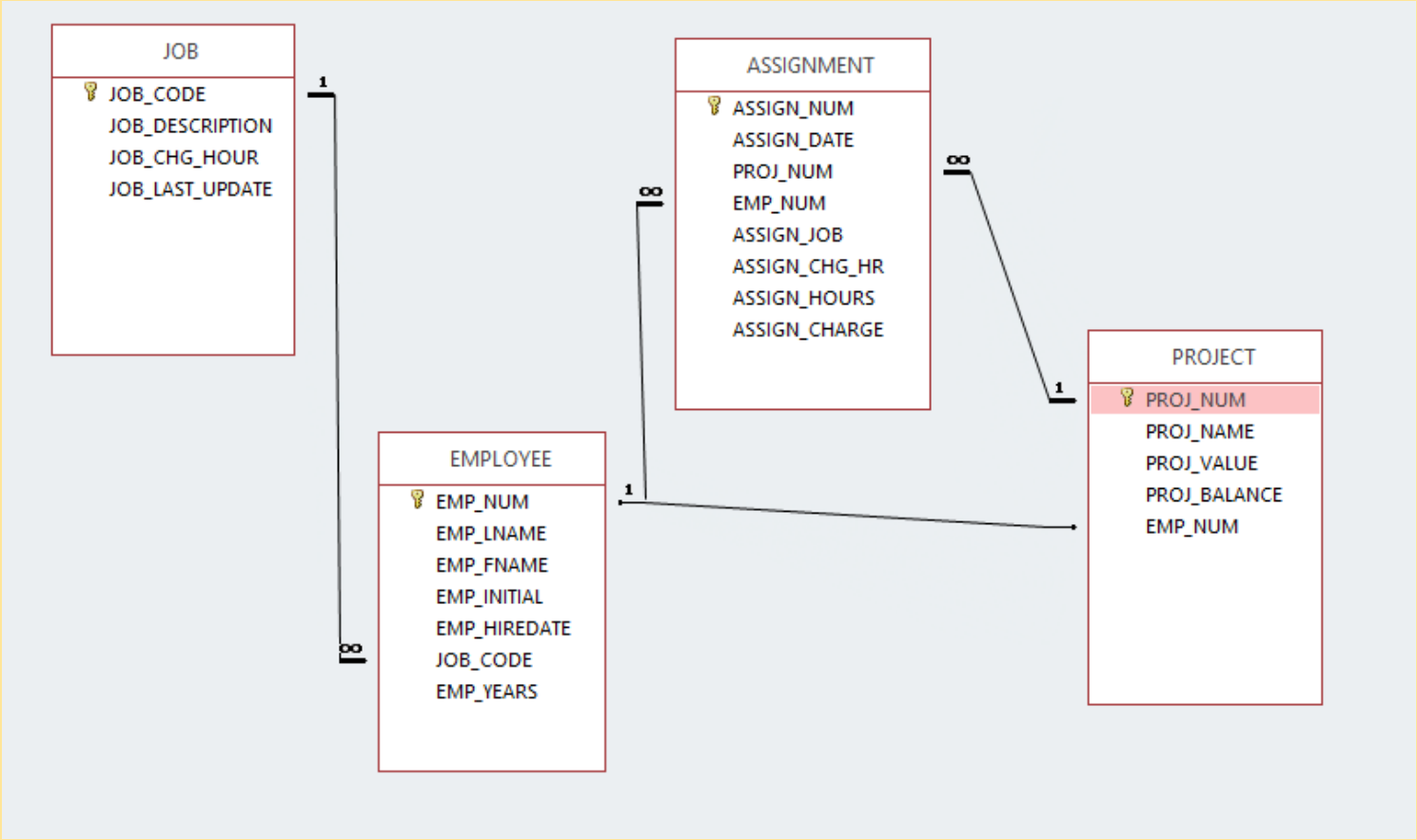

Table name: EMPLOYEE

EMP_NUM	EMP_LNAME	EMP_FNAME	EMP_INITIAL	EMP_HIREDAT	JOB_CODE	EMP_YEAR
101	News	John	G	08-nóv.-00	502	4
102	Senior	David	H	12-júl.-89	501	15
103	Arbough	June	E	01-des.-96	503	8
104	Ramoras	Anne	K	15-nóv.-87	501	17
105	Johnson	Alice	K	01-feb.-93	502	12
106	Smithfield	William		22-jún.-04	500	0
107	Alonzo	Maria	D	10-okt.-93	500	11
108	Washington	Ralph	B	22-ágú.-91	501	13
109	Smith	Larry	W	18-júl.-97	501	7
110	Olenko	Gerald	A	11-des.-95	505	9
111	Wabash	Geoff	B	04-apr.-91	506	14
112	Smithson	Darlene	M	23-okt.-94	507	10
113	Joenbrood	Delbert	K	15-nóv.-96	508	8
114	Jones	Annelise		20-ágú.-93	508	11
115	Bawangi	Travis	B	25-jan.-92	501	13
116	Pratt	Gerald	L	05-mar.-97	510	8
117	Williamson	Angie	H	19-jún.-96	509	8
118	Frommer	James	J	04-jan.-05	510	0

Table name: PROJECT

PROJ_NUM	PROJ_NAME	PROJ_VALUE	PROJ_BALANCE	EMP_NUM
15	Evergreen	1453500,00	1002350,00	103
18	Amber Wave	3500500,00	2110346,00	108
22	Rolling Tide	805000,00	500345,20	102
25	Starflight	2650500,00	2309880,00	107

Table name: ASSIGNMENT

ASSIGN_NUM	ASSIGN_DATE	PROJ_NUM	EMP_NUM	ASSIGN_JOB	ASSIGN_CHG_HR	ASSIGN_HOURS	ASSIGN_CHARGE
1001	22-mar.-07	18	103	503	84,50	3,5	295,75
1002	22-mar.-07	22	117	509	34,55	4,2	145,11
1003	22-mar.-07	18	117	509	34,55	2,0	69,10
1004	22-mar.-07	18	103	503	84,50	5,9	498,55
1005	22-mar.-07	25	108	501	96,75	2,2	212,85
1006	22-mar.-07	22	104	501	96,75	4,2	406,35
1007	22-mar.-07	25	113	508	50,75	3,8	192,85
1008	22-mar.-07	18	103	503	84,50	0,9	76,05
1009	23-mar.-07	15	115	501	96,75	5,6	541,80
1010	23-mar.-07	15	117	509	34,55	2,4	82,92
1011	23-mar.-07	25	105	502	105,00	4,3	451,50
1012	23-mar.-07	18	108	501	96,75	3,4	328,95
1013	23-mar.-07	25	115	501	96,75	2,0	193,50
1014	23-mar.-07	22	104	501	96,75	2,8	270,90
1015	23-mar.-07	15	103	503	84,50	6,1	515,45
1016	23-mar.-07	22	105	502	105,00	4,7	493,50
1017	23-mar.-07	18	117	509	34,55	3,8	131,29
1018	23-mar.-07	25	117	509	34,55	2,2	76,01
1019	24-mar.-07	25	104	501	110,50	4,9	541,45
1020	24-mar.-07	15	101	502	125,00	3,1	387,50
1021	24-mar.-07	22	108	501	110,50	2,7	298,35
1022	24-mar.-07	22	115	501	110,50	4,9	541,45
1023	24-mar.-07	22	105	502	125,00	3,5	437,50
1024	24-mar.-07	15	103	503	84,50	3,3	278,85
1025	24-mar.-07	18	117	509	34,55	4,2	145,11
0					0,00	0,0	0,00

Table name: JOB

JOB_CODE	JOB_DESCRIPTION	JOB_CHG_HOUR	JOB_LAST_UPDATE
500	Programmer	35,75	20-nóv.-06
501	Systems Analyst	96,75	20-nóv.-06
502	Database Designer	125,00	24-mar.-07
503	Electrical Engineer	84,50	20-nóv.-07
504	Mechanical Engineer	67,90	20-nóv.-07
505	Civil Engineer	55,78	20-nóv.-07
506	Clerical Support	26,87	20-nóv.-07
507	DSS Analyst	45,95	20-nóv.-07
508	Applications Designer	48,10	24-mar.-07
509	Bio Technician	34,55	20-nóv.-06
510	General Support	18,36	20-nóv.-06

Given the structure and contents of the **Review** database shown in Figure Q1.1, use SQL commands to answer Questions 1–25.

1. Write the SQL code that will create the table structure for a table named EMP_1. This table is a subset of the EMPLOYEE table. The basic EMP_1 table structure is summarized in the table below. (Note that the JOB_CODE is the FK to JOB.)

2. Having created the table structure in Question 1, write the SQL code to enter the first two rows for the table shown in Figure Q1.2.

ATTRIBUTE (FIELD) NAME	DATA DECLARATION
EMP_NUM	CHAR(3)
EMP_LNAME	VARCHAR(15)
EMP_FNAME	VARCHAR(15)
EMP_INITIAL	CHAR(1)
EMP_HIREDATE	DATE
JOB_CODE	CHAR(3)

FIGURE Q1.2 The contents of the EMP_1 table

EMP_NUM	EMP_LNAME	EMP_FNAME	EMP_INITIAL	EMP_HIREDATE	JOB_CODE
101	News	John	G	08-Nov-00	502
102	Senior	David	H	12-Jul-89	501
103	Arbough	June	E	01-Dec-96	500
104	Ramoras	Anne	K	15-Nov-87	501
105	Johnson	Alice	K	01-Feb-93	502
106	Smithfield	William		22-Jun-04	500
107	Alonzo	Maria	D	10-Oct-93	500
108	Washington	Ralph	B	22-Aug-91	501
109	Smith	Larry	W	18-Jul-97	501

3. Assuming the data shown in the EMP_1 table have been entered, write the SQL code that will list all attributes for a job code of 502.

4. Write the SQL code that will save the changes made to the EMP_1 table.

5. Write the SQL code to change the job code to 501 for the person whose employee number (EMP_NUM) is 107. After you have completed the task, examine the results, and then reset the job code to its original value.

6. Write the SQL code to delete the row for the person named William Smithfield, who was hired on June 22, 2004, and whose job code classification is 500. (*Hint*: Use logical operators to include all of the information given in this problem.)

7. Write the SQL code that will restore the data to its original status; that is, the table should contain the data that existed before you made the changes in Questions 5 and 6.

8. Write the SQL code to create a copy of EMP_1, naming the copy EMP_2. Then write the SQL code that will add the attributes EMP_PCT and PROJ_NUM to its structure.
The EMP_PCT is the bonus percentage to be paid to each employee. The new attribute characteristics are: EMP_PCTNUMBER(4,2)
PROJ_NUMCHAR(3)
(*Note*: If your SQL implementation allows it, you may use DECIMAL(4,2) rather than NUMBER(4,2).)

9. Write the SQL code to change the EMP_PCT value to 3.85 for the person whose employee number (EMP_NUM) is 103. Next, write the SQL command sequences to change the EMP_PCT values as shown in Figure Q1.3.

Figure Q1.3 **The contents of the EMP_2 table**

EMP_NUM	EMP_LNAME	EMP_FNAME	EMP_INITIAL	EMP_HIREDATE	JOB_CODE	EMP_PCT	PROJ_NUM
101	News	John	G	08-Nov-00	502	5.00	
102	Senior	David	H	12-Jul-89	501	8.00	
103	Arbough	June	E	01-Dec-96	500	3.85	
104	Ramoras	Anne	K	15-Nov-87	501	10.00	
105	Johnson	Alice	K	01-Feb-93	502	5.00	
106	Smithfield	William		22-Jun-04	500	6.20	
107	Alonzo	Maria	D	10-Oct-93	500	5.15	
108	Washington	Ralph	B	22-Aug-91	501	10.00	
109	Smith	Larry	W	18-Jul-97	501	2.00	

10. Using a single command sequence, write the SQL code that will change the project number (PROJ_NUM) to 18 for all employees whose job classification (JOB_CODE) is 500.

11. Using a single command sequence, write the SQL code that will change the project number (PROJ_NUM) to 25 for all employees whose job classification (JOB_CODE) is 502 or higher. When you finish Questions 10 and 11, the EMP_2 table will contain the data shown in Figure Q7.11. (You may assume that the table has been saved again at this point.)

12. Write the SQL code that will change the PROJ_NUM to 14 for those employees who were hired before January 1, 1994 and whose job code is at least 501. (You may assume that the table will be restored to its condition preceding this question.)

13. Write the two SQL command sequences required to:

a. Create a temporary table named TEMP_1 whose structure is composed of the EMP_2 attributes EMP_NUM and EMP_PCT.

b. Copy the matching EMP_2 values into the TEMP_1 table.

14. Write the SQL command that will delete the newly created TEMP_1 table from the database.

15. Write the SQL code required to list all employees whose last names start with *Smith*. In other words, the rows for both Smith and Smithfield should be included in the listing. Assume case sensitivity.

16. Using the EMPLOYEE, JOB, and PROJECT tables in the **Review** database (see Figure Q7.1), write the SQL code that will produce the results shown in Figure Q1.4.

FIGURE Q1.4 **The query results for Question 16**

PROJ_NAME	PROJ_VALUE	PROJ_BALANCE	EMP_LNAME	EMP_FNAME	EMP_INITIAL	JOB_CODE	JOB_DESCRIPTION	JOB_CHG_HOUR
Rolling Tide	805000.00	500345.20	Senior	David	H	501	Systems Analyst	96.75
Evergreen	1453500.00	1002350.00	Arbough	June	E	500	Programmer	35.75
Starflight	2650500.00	2309880.00	Alonzo	Maria	D	500	Programmer	35.75
Amber Wave	3500500.00	2110346.00	Washington	Ralph	B	501	Systems Analyst	96.75

17. Write the SQL code that will produce a virtual table named REP_1. The virtual table should contain the same information that was shown in Question 16.

18. Write the SQL code to find the average bonus percentage in the EMP_2 table you created in Question 8.

19. Write the SQL code that will produce a listing for the data in the EMP_2 table in ascending order by the bonus percentage.

20. Write the SQL code that will list only the distinct project numbers found in the EMP_2 table.

21. Write the SQL code to calculate the ASSIGN_CHARGE values in the ASSIGNMENT table in the **Review** database. (See Figure Q1.7.) Note that ASSIGN_CHARGE is a derived attribute that is calculated by multiplying ASSIGN_CHG_HR by ASSIGN_HOURS.

22. Using the data in the ASSIGNMENT table, write the SQL code that will yield the total number of hours worked for each employee and the total charges stemming from those hours worked. The results of running that query are shown in Figure Q1.5.

FIGURE Q1.5 **Total hours and charges by employee**

EMP_NUM	EMP_LNAME	SumOfASSIGN_HOURS	SumOfASSIGN_CHARGE
101	News	3.1	387.50
103	Arbough	19.7	1664.65
104	Ramoras	11.9	1218.70
105	Johnson	12.5	1382.50
108	Washington	8.3	840.15
113	Joenbrood	3.8	192.85
115	Bawangi	12.5	1276.75
117	Williamson	18.8	649.54

23. Write a query to produce the total number of hours and charges for each of the projects represented in the ASSIGNMENT table. The output is shown in Figure Q1.6.

FIGURE Q1.7 **Total hour and charges by project**

PROJ_NUM	SumOfASSIGN_HOURS	SumOfASSIGN_CHARGE
15	20.5	1806.52
18	23.7	1544.80
22	27.0	2593.16
25	19.4	1668.16

24. Write the SQL code to generate the total hours worked and the total charges made by all employees. The results are shown in Figure Q1.8. (*Hint:* This is a nested query. If you use Microsoft Access, you can generate the result by using the query output shown in Figure Q1.6 as the basis for the query that will produce the output shown in Figure Q1.8.)

FIGURE Q1.8 **Total hours and charges, all employees**

SumOfSumOfASSIGN_HOURS	SumOfSumOfASSIGN_CHARGE
90.6	7612.64

25. Write the SQL code to generate the total hours worked and the total charges made to all projects. The results should be the same as those shown in Figure Q1.8. (*Hint:* This is a nested query. If you use Microsoft Access, you can generate the result by using the query output shown in Figure Q1.7 as the basis for this query.)

Note: The assignment to be submitted before the due date, in word or pdf format, you can include screen-shots or image in the document.

19-Mars-2018, Tækniskolinn.