DEM2UE Datenmodellierung und Datenbankdesign SS 2021 Übung 10

Abgabetermine: 27.5.2021, 12 Uhr
Abgabeform: nur elektronisch

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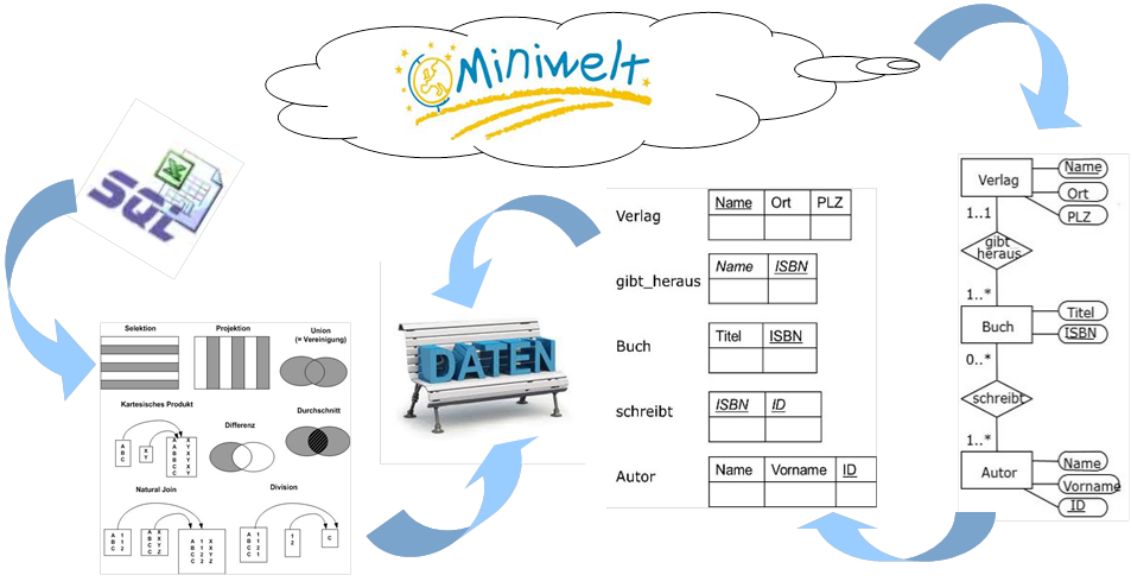
Hinweise und Richtlinien:

- Übungsausarbeitungen müssen den im Syllabus angegebenen Formatierungsrichtlinien entsprechen – Nichtbeachtung dieser Formatierungsrichtlinien führt zu Punkteabzug.
- Zusätzlich zu den allgemeinen Formatierungsrichtlinien sind für diese Übungsausarbeitung folgende zusätzlichen Richtlinien zu beachten:
  - Treffen Sie, falls notwendig, sinnvolle Annahmen und dokumentieren Sie diese nachvollziehbar in ihrer Lösung!

Ziel dieser Übung ist es, ausgewählte Bereiche der Anfragesprache SQL praktisch zu vertiefen.



Aufgabe 1)

1)

```
SELECT last_name,hire_date

FROM employees

WHERE hire_date BETWEEN TO_DATE('1.1.1999','dd.mm.yyyy') AND
TO_DATE('31.12.1999','dd.mm.yyyy');
```

	LAST_NAME	HIRE_DATE
1	Lorentz	07.02.99
2	Mourgos	16.11.99
3	Grant	24.05.99

2)

```
SELECT salary, last_name, commission_pct, ADD_MONTHS(hire_date,24)

FROM employees

WHERE commission_pct IS NOT NULL;
```

	SALARY	LAST_NAME	COMMISSION_PCT	ADD_MONTHS(HIRE_DATE,24)
1	10500	Zlotkey	0,2	29.01.02
2	11000	Abel	0,3	11.05.98
3	8600	Taylor	0,2	24.03.00
4	7000	Grant	0,15	24.05.01

3)

```
SELECT last_name,EXTRACT(year FROM hire_date) -EXTRACT(year FROM (SELECT hire_date
                                    FROM employees
                                    WHERE last_name = 'King')) AS DIF
FROM employees

WHERE department_id = 20 OR department_id = 50

ORDER BY DIF ASC;
```

	LAST_NAME	DIF
1	Rajs	8
2	Hartstein	9
3	Davies	10
4	Fay	10
5	Vargas	11
6	Matos	11
7	Mourgos	12

4)

```
SELECT last_name,hire_date
FROM employees
WHERE EXTRACT(year FROM hire_date) > EXTRACT(year FROM (SELECT hire_date
                                    FROM employees
                                    WHERE last_name = 'Davies'));
```

	LAST_NAME	HIRE_DATE
1	Lorentz	07.02.99
2	Mourgos	16.11.99
3	Matos	15.03.98
4	Vargas	09.07.98
5	Zlotkey	29.01.00
6	Taylor	24.03.98
7	Grant	24.05.99

AUFGABE 2)

1)

```
SELECT last_name
FROM employees
WHERE last_name LIKE '%e_';
```

	LAST_NAME
1	Davies
2	Zlotkey
3	Abel
4	Whalen

2)

```
SELECT last_name
FROM employees
WHERE REGEXP_LIKE(last_name,'e.$');
```

	LAST_NAME
1	Davies
2	Zlotkey
3	Abel
4	Whalen

3)

```
SELECT last_name
FROM employees
WHERE REGEXP_LIKE(last_name,'(a|e)');
```

	LAST_NAME
1	Kochhar
2	De Haan
3	Lorentz
4	Rajs
5	Davies
6	Matos
7	Vargas
8	Zlotkey
9	Abel
10	Taylor
11	Grant
12	Whalen
13	Hartstein
14	Fay
15	Gietz

3)

```
SELECT employee_id,first_name,last_name,
UTL_MATCH.JARO_WINKLER_SIMILARITY(LOWER(last_name),'unhold') AS x

FROM employees

ORDER BY x DESC;
```

1	103	Alexander	Hunold	94
2	200	Jennifer	Whalen	55
3	174	Ellen	Abel	47
4	100	Steven	King	47
5	143	Randall	Matos	45
6	104	Bruce	Ernst	45
7	178	Kimberely	Grant	45
8	107	Diana	Lorentz	43
9	102	Lex	De Haan	43
10	205	Shelley	Higgins	43
11	149	Eleni	Zlotkey	43
12	201	Michael	Hartstein	42
13	176	Jonathon	Taylor	38
14	101	Neena	Kochhar	37
15	124	Kevin	Mourgos	37
16	142	Curtis	Davies	0
17	206	William	Gietz	0
18	202	Pat	Fay	0
19	144	Peter	Vargas	0
20	141	Trenna	Rajs	0

4)

```
SELECT employee_id,first_name,last_name,
UTL_MATCH.JARO_WINKLER_SIMILARITY(LOWER(CONCAT(first_name,last_name)),'Evgeni Lotsy') AS x

FROM employees

ORDER BY x DESC;
```

	EMPLOYEE_ID	FIRST_NAME	LAST_NAME	X
1	149	Eleni	Zlotkey	66
2	124	Kevin	Mourgos	55
3	107	Diana	Lorentz	54
4	141	Trenna	Rajs	51
5	100	Steven	King	49
6	104	Bruce	Ernst	49
7	103	Alexander	Hunold	48
8	200	Jennifer	Whalen	48
9	143	Randall	Matos	47
10	174	Ellen	Abel	46
11	205	Shelley	Higgins	45
12	176	Jonathon	Taylor	45
13	201	Michael	Hartstein	44
14	142	Curtis	Davies	44
15	102	Lex	De Haan	40
16	144	Peter	Vargas	39
17	206	William	Gietz	38
18	101	Neena	Kochhar	38
19	178	Kimberely	Grant	37
20	202	Pat	Fay	0

AUFGABE 3)

1)

```
SELECT country_id, COUNT(employee_id)
FROM Locations
JOIN departments  USING (location_id)
JOIN employees USING (department_id)
WHERE salary NOT BETWEEN 5000 AND 12000
GROUP BY country_id;
```

	COUNT...	COUNT(EMPLOYEE_ID)
1	US	9
2	CA	1

2)

```
SELECT last_name,job_id,salary
FROM employees
WHERE salary NOT IN (2500,3500,7500)
AND REGEXP_LIKE(job_id,'SA_REP|ST_CLERK');
```

	LAST_...	JOB_ID	SALARY
1	Davies	ST_CLERK	3100
2	Matos	ST_CLERK	2600
3	Abel	SA_REP	11000
4	Taylor	SA_REP	8600
5	Grant	SA_REP	7000

3)

```
SELECT last_name AS "Employee",salary AS "Monthly Salary"
FROM employees
WHERE REGEXP_LIKE(job_id,'(IT|AC)')
AND salary BETWEEN 5000 AND 12000;
```

	Employee	Monthly Salary
1	Hunold	9000
2	Ernst	6000
3	Higgins	12000
4	Gietz	8300

4)

```
SELECT d.department_name, j.grade_level, COUNT(e.employee_id) AS "Employee Count"
FROM departments d
JOIN employees e ON d.department_id = e.department_id
JOIN job_grades j ON e.salary >= j.lowest_sal AND e.salary <= j.highest_sal
GROUP BY d.department_name,j.grade_level;
```

	DEPARTMENT_NAME	GRADE_LEVEL	Employee Count
1	Marketing	D	1
2	Marketing	C	1
3	Sales	D	2
4	Administration	B	1
5	Accounting	D	1
6	IT	C	2
7	IT	B	1
8	Sales	C	1
9	Accounting	C	1
10	Shipping	B	3
11	Executive	E	3
12	Shipping	A	2

5)

```
SELECT d.department_name,NVL(e.last_name,'position vacant')
FROM departments d
LEFT JOIN employees e ON d.manager_id = e.manager_id;
```

	DEPARTMENT_NAME	NVL(E.LAST_NAME,'POSITIONVACANT')
1	Executive	Kochhar
2	Executive	De Haan
3	IT	Ernst
4	IT	Lorentz
5	Executive	Mourgos
6	Shipping	Rajs
7	Shipping	Davies
8	Shipping	Matos
9	Shipping	Vargas
10	Executive	Zlotkey
11	Sales	Abel
12	Sales	Taylor
13	Sales	Grant
14	Executive	Hartstein
15	Marketing	Fay
16	Accounting	Gietz
17	Administration	position vacant
18	Contracting	position vacant

6)

```
SELECT last_name, salary
FROM employees
WHERE department_id IN (SELECT department_id
                        FROM employees
                        WHERE REGEXP_LIKE(last_name,'(Fay|Gietz)'))
AND salary > 10000;
```

	LAST_NAME	SALARY
1	Hartstein	13000
2	Higgins	12000

7)

```
SELECT department_id, department_name,location_id
FROM departments
JOIN employees USING (department_id)
WHERE job_id != 'SA_REP';
```

	DEPARTMENT_ID	DEPARTMENT_NAME	LOCATION_ID
1	10	Administration	1700
2	20	Marketing	1800
3	20	Marketing	1800
4	50	Shipping	1500
5	50	Shipping	1500
6	50	Shipping	1500
7	50	Shipping	1500
8	50	Shipping	1500
9	60	IT	1400
10	60	IT	1400
11	60	IT	1400
12	80	Sales	2500
13	90	Executive	1700
14	90	Executive	1700
15	90	Executive	1700
16	110	Accounting	1700
17	110	Accounting	1700

8)

```
SELECT department_id
FROM departments
JOIN employees USING (department_id)
WHERE job_id=job_id;
```

	DEPARTMENT_ID
1	90
2	90
3	90
4	60
5	60
6	60
7	50
8	50
9	50
10	50
11	50
12	80
13	80
14	80
15	10
16	20
17	20
18	110
19	110

9)

```
SELECT e.last_name,e.job_id,e.department_id
FROM employees e
WHERE e.department_id IN (SELECT c.department_id
                          FROM employees c
                          WHERE c.employee_id IN (103,142)
                          AND e.job_id = c.job_id);
```

	LAST_NAME	JOB_ID	DEPARTMENT_ID
1	Hunold	IT_PROG	60
2	Ernst	IT_PROG	60
3	Lorentz	IT_PROG	60
4	Rajs	ST_CLERK	50
5	Davies	ST_CLERK	50
6	Matos	ST_CLERK	50
7	Vargas	ST_CLERK	50

10)

```
SELECT (e.last_name||', '||e.job_id) AS "Employee And Title"
FROM employees e
ORDER BY (SELECT AVG(salary)
        FROM employees
        GROUP BY e.department_id) DESC;
```

	Employee And Title
1	King, AD_PRES
2	Gietz, AC_ACCOUNT
3	De Haan, AD_VP
4	Hunold, IT_PROG
5	Ernst, IT_PROG
6	Lorentz, IT_PROG
7	Mourgos, ST_MAN
8	Rajs, ST_CLERK
9	Davies, ST_CLERK
10	Matos, ST_CLERK
11	Vargas, ST_CLERK
12	Zlotkey, SA_MAN
13	Abel, SA_REP
14	Taylor, SA_REP
15	Grant, SA_REP
16	Whalen, AD_ASST
17	Hartstein, MK_MAN
18	Fay, MK_REP
19	Higgins, AC_MGR
20	Kochhar, AD_VP

11.a)

```
SELECT department_id,department_name,COUNT(*)
FROM departments
JOIN employees USING(department_id)
GROUP BY department_id,department_name
HAVING COUNT(*) < 3;
```

	DEPARTMENT_ID	DEPARTMENT_NAME	COUNT(*)
1	110	Accounting	2
2	10	Administration	1
3	20	Marketing	2

11.b)

```
SELECT department_id, department_name, count(*)
FROM departments JOIN employees USING (department_id)
GROUP BY department_id, department_name
HAVING count(*) = (SELECT max(count(*))
                   FROM employees
                   GROUP BY department_id);
```

	DEPARTMENT_ID	DEPARTMENT_NAME	COUNT(*)
1	50	Shipping	5

11.c)

```
SELECT department_id, department_name, count(*)
FROM departments JOIN employees USING (department_id)
GROUP BY department_id, department_name
HAVING count(*) IN (SELECT min(count(*))
                    FROM employees
                    GROUP BY department_id);
```

	DEPARTMENT_ID	DEPARTMENT_NAME	COUNT(*)
1	10	Administration	1