

Tehtävä 5

HUOM: Employees-tietokannassa on koko työntekijän palkkahistoria. Siksi työntekijälle löytyy yleensä monta eri palkkaa. `from_date` ja `to_date` kentät sisältävät tiedon, mistä päivämäärästä mihin asti työntekijällä on ollut kyseinen palkka. `to_date` kentän arvo '9999-01-01' tarkoittaa nykyistä palkkaa.

Samalla lailla kuin palkoissa, `dept_emp`-kenttä sisältää tiedon kaikista osastoista, joissa työntekijä on työskennellyt. `to_date`-kentän arvo '9999-01-01' tarkoittaa tämänhetkistä osastoa.

a) Minkä nimisiä osastoja (Departments) Employees-tietokannassa on ?

```
mysql> USE Employees;
Database changed
mysql> SELECT * from departments;
+-----+-----+
| dept_no | dept_name |
+-----+-----+
| d009    | Customer Service |
| d005    | Development      |
| d002    | Finance          |
| d003    | Human Resources  |
| d001    | Marketing         |
| d004    | Production        |
| d006    | Quality Management |
| d008    | Research          |
| d007    | Sales             |
+-----+-----+
9 rows in set (0.05 sec)
```

b) Tulosta, (yhden kerran kukin) mitä nimikkeitä (title) tietokannassa on.

```
mysql> SELECT DISTINCT title FROM titles;
```

title
Senior Engineer
Staff
Engineer
Senior Staff
Assistant Engineer
Technique Leader
Manager

7 rows in set (0.36 sec)

c) Mikä on suurin ja pienin palkka (salary) ? VIHJE: MIN, MAX

```
mysql> SELECT MIN(salary), MAX(salary) FROM salaries;
```

MIN(salary)	MAX(salary)
38623	158220

1 row in set (1.04 sec)

d) Mikä on keskimääräinen palkka ? VIHJE: AVG

```
mysql> SELECT AVG(salary) FROM salaries;
```

AVG(salary)
63810.7448

1 row in set (1.05 sec)

e) Tulosta kaikki työntekijät, joiden sukunimi on Facello.

```
mysql> SELECT * FROM employees WHERE last_name LIKE "Facello";
```

emp_no	birth_date	first_name	last_name	gender	hire_date
10001	1953-09-02	Georgi	Facello	M	1986-06-26
10327	1954-04-01	Roded	Facello	M	1987-09-18
12751	1964-07-06	Nahum	Facello	M	1995-01-09
15346	1959-09-26	Kirk	Facello	F	1991-12-07
15685	1958-07-12	Kasturi	Facello	M	1992-03-13
18686	1962-02-23	Kwangyoen	Facello	F	1985-05-02
19041	1957-05-29	Billur	Facello	F	1992-08-03
21947	1954-06-18	Taisook	Facello	F	1991-07-30
23938	1955-07-11	Nahum	Facello	M	1985-09-15
24774	1956-09-23	Uno	Facello	F	1989-11-09
24806	1959-09-30	Charmane	Facello	F	1989-03-17
25955	1962-10-09	Christoph	Facello	M	1989-03-24
27732	1955-06-04	Girolamo	Facello	M	1986-06-30
30320	1953-12-21	Kristine	Facello	F	1990-06-10
31107	1962-10-13	Fai	Facello	M	1994-07-11
32138	1955-04-13	Anyuan	Facello	F	1988-10-04
32580	1953-04-25	Kirk	Facello	M	1988-05-31
36371	1961-05-29	Cristinel	Facello	M	1986-10-14
37261	1957-11-06	Zijian	Facello	F	1986-06-30
41667	1953-12-23	Barna	Facello	F	1985-09-13
44502	1962-09-16	Fumitaka	Facello	M	1985-08-25
44934	1957-02-20	Rimli	Facello	M	1991-08-09
48319	1962-09-22	Genta	Facello	F	1989-12-02
48913	1959-07-11	Danny	Facello	F	1996-02-06

....

485964	1964-09-14	Souichi	Facello	M	1994-03-11
486102	1956-09-08	Arfst	Facello	F	1996-07-29
486829	1953-10-11	Mary	Facello	M	1998-02-13
487188	1959-02-20	Richara	Facello	M	1985-08-31
488569	1955-11-15	Satoru	Facello	M	1993-03-20
493549	1960-04-17	Achilleas	Facello	F	1991-11-27

186 rows in set (0.21 sec)

f) Kuinka moni työntekijä on syntynyt 1950-luvulla ?

```
mysql> SELECT COUNT(*) FROM employees WHERE birth_date >= '1950-01-01' AND birth_date <= '1959-12-31';
```

COUNT(*)
182886

1 row in set (0.12 sec)

g) Montako miestä ja montako naista työntekijöissä on ?

```
mysql> SELECT gender, count(*) FROM employees GROUP BY gender;
```

gender	count(*)
M	179973
F	120051

2 rows in set (0.23 sec)

Tehtävä 6

```
Database changed
mysql> CREATE TABLE owner
-> (
-> first_name varchar(255),
-> last_name varchar(255),
-> address varchar(255),
-> ownerID int PRIMARY KEY AUTO_INCREMENT
-> );
Query OK, 0 rows affected (0.12 sec)

mysql> ALTER TABLE pet DROP COLUMN owner;
Query OK, 0 rows affected (0.09 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM pet;
+-----+-----+-----+-----+-----+
| name   | species | sex | birth      | death      |
+-----+-----+-----+-----+-----+
| Fluffy | cat     | f   | 1993-02-04 | NULL       |
| Claws  | cat     | m   | 1994-03-17 | NULL       |
| Buffy  | dog     | f   | 1989-05-13 | NULL       |
| Fang   | dog     | m   | 1990-08-27 | NULL       |
| Bowser | dog     | m   | 1998-08-31 | 1995-07-29 |
| Chirpy | bird    | f   | 1998-09-11 | 2000-09-15 |
| Whistler | bird   |    | 1997-12-09 | NULL       |
| Slim   | snake   | m   | 1996-04-29 | NULL       |
+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> ALTER TABLE pet ADD COLUMN petID INT PRIMARY KEY AUTO_INCREMENT;
Query OK, 0 rows affected (0.14 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> ALTER TABLE pet ADD COLUMN ownerID INT;
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> ALTER TABLE pet ADD CONSTRAINT FOREIGN KEY(ownerID) REFERENCES
-> owner(ownerID);
Query OK, 8 rows affected (0.14 sec)
Records: 8 Duplicates: 0 Warnings: 0
```

```
mysql> desc pet;
```

Field	Type	Null	Key	Default	Extra
name	varchar(20)	YES		NULL	
species	varchar(20)	YES		NULL	
sex	char(1)	YES		NULL	
birth	date	YES		NULL	
death	date	YES		NULL	
petID	int	NO	PRI	NULL	auto_increment
ownerID	int	YES	MUL	NULL	

```
7 rows in set (0.03 sec)
```

```
mysql> INSERT INTO owner VALUES ( 'Harold','Lloyd','Someaddress 1',NULL);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> SELECT * FROM owner;
```

first_name	last_name	address	ownerID
Harold	Lloyd	Someaddress 1	1

```
1 row in set (0.00 sec)
```

```
mysql> SELECT * FROM owner;
```

first_name	last_name	address	ownerID
Harold	Lloyd	Someaddress 1	1
Gwen	Stefani	Someaddress 2	2
Benny	Hill	Someaddress 3	3
iane	Keaton	Someaddress 4	4

```
4 rows in set (0.00 sec)
```

```
mysql> UPDATE pet SET ownerID=1 WHERE name='Fluffy';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> ^C
mysql> UPDATE pet SET ownerID=3 WHERE name='Claws';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> UPDATE pet SET ownerID=1 WHERE name='Buffy';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> UPDATE pet SET ownerID=4 WHERE name='Fang';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> UPDATE pet SET ownerID=4 WHERE name='Bowser';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> UPDATE pet SET ownerID=3 WHERE name='Chirpy' OR name='Whistler';
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2  Changed: 2  Warnings: 0
```

```
mysql> UPDATE pet SET ownerID=4 WHERE name='Slim';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> SELECT * FROM pet;
```

name	species	sex	birth	death	petID	ownerID
Fluffy	cat	f	1993-02-04	NULL	1	1
Claws	cat	m	1994-03-17	NULL	2	3
Buffy	dog	f	1989-05-13	NULL	3	1
Fang	dog	m	1990-08-27	NULL	4	4
Bowser	dog	m	1998-08-31	1995-07-29	5	4
Chirpy	bird	f	1998-09-11	2000-09-15	6	3
Whistler	bird		1997-12-09	NULL	7	3
Slim	snake	m	1996-04-29	NULL	8	4

```
8 rows in set (0.00 sec)
```

Tehtävä 7

Lajittelu

a) Tulosta kymmenen aakkosjärjestyksessä ensimmäisen työntekijän tiedot sukunimen mukaan lajiteltuna. *Vihje:* LIMIT rajoittaa tulostettavien tietojen määrän.

```
mysql> SELECT * FROM employees ORDER BY last_name LIMIT 10;
```

emp_no	birth_date	first_name	last_name	gender	hire_date
11761	1964-07-17	Bartek	Aamodt	M	1991-06-12
15427	1959-03-06	Aluzio	Aamodt	M	1985-03-03
18182	1963-02-23	Dekang	Aamodt	F	1988-05-25
16572	1956-11-26	Matt	Aamodt	M	1987-06-16
12791	1960-06-16	Mokhtar	Aamodt	M	1994-08-14
12516	1958-06-25	Sreenivas	Aamodt	F	1990-03-06
12982	1952-12-08	Sachem	Aamodt	F	1992-01-11
17400	1962-03-22	Basim	Aamodt	F	1991-09-15
19898	1957-03-09	Vidar	Aamodt	M	1988-08-06
17885	1954-02-01	Takanari	Aamodt	M	1996-08-19

```
10 rows in set (0.20 sec)
```

b) Sama kuten edellä, mutta sukunimen JA etunimen mukaan lajiteltuna.

```
mysql> SELECT * FROM employees ORDER BY last_name, first_name LIMIT 10;
```

emp_no	birth_date	first_name	last_name	gender	hire_date
258641	1961-05-23	Abdelkader	Aamodt	M	1994-12-02
258005	1953-02-17	Adhemar	Aamodt	F	1991-01-21
455773	1960-05-04	Aemilian	Aamodt	M	1988-04-21
436560	1959-03-16	Alagu	Aamodt	F	1991-10-17
266651	1959-05-28	Aleksander	Aamodt	F	1989-03-29
487598	1962-03-03	Alexius	Aamodt	M	1994-12-30
216963	1960-07-16	Alois	Aamodt	M	1995-08-24
15427	1959-03-06	Aluzio	Aamodt	M	1985-03-03
100860	1964-06-20	Amabile	Aamodt	F	1993-02-06
107070	1954-04-24	Anestis	Aamodt	M	1990-10-30

```
10 rows in set (0.22 sec)
```

c) Tulosta viiden viimeksi palkatun työntekijän tiedot.

```
mysql> SELECT * FROM employees ORDER BY hire_date DESC LIMIT 5;
```

emp_no	birth_date	first_name	last_name	gender	hire_date
463807	1964-06-12	Bikash	Covnot	M	2000-01-28
428377	1957-05-09	Yucai	Gerlach	M	2000-01-23
499553	1954-05-06	Hideyuki	Delgrande	F	2000-01-22
222965	1959-08-07	Volkmar	Perko	F	2000-01-13
47291	1960-09-09	Ulf	Flexer	M	2000-01-12

```
5 rows in set (0.19 sec)
```

Seuraavissa tehtävissä tarvitaan tietoja useammasta kuin yhdestä taulusta (JOIN).

d) Kenellä on suurin palkka ? Tulosta etunimi, sukunimi ja palkka.

```
mysql> SELECT first_name, last_name, salary FROM employees JOIN salaries ON employees.emp_no = salaries.emp_no ORDER BY salary DESC LIMIT 1;
```

first_name	last_name	salary
Tokuyasu	Pesch	158220

```
1 row in set (2.58 sec)
```

e) Kenellä on pienin palkka ? Tulosta etunimi, sukunimi ja palkka.

```
mysql> SELECT first_name, last_name, salary FROM employees JOIN salaries ON employees.emp_no = salaries.
emp_no ORDER BY salary LIMIT 1;
+-----+-----+-----+
| first_name | last_name | salary |
+-----+-----+-----+
| Olivera    | Baek      | 38623  |
+-----+-----+-----+
1 row in set (2.56 sec)
```

f) Tulosta työntekijät (etunimi, sukunimi, palkka), jotka ansaitsevat yli 150000.

```
mysql> SELECT first_name, last_name, salary FROM employees JOIN salaries ON employees.emp_no = salaries.
emp_no WHERE (salary >= 150000 AND to_date LIKE '9999-01-01');
+-----+-----+-----+
| first_name | last_name | salary |
+-----+-----+-----+
| Tokuyasu   | Pesch     | 158220 |
| Ibibia     | Junet     | 150345 |
| Xiahua     | Whitcomb  | 155709 |
| Lansing    | Kambil    | 150052 |
| Willard    | Baca      | 154459 |
| Tsutomu    | Alameldin | 155190 |
| Charmane   | Griswold  | 153715 |
| Weicheng   | Hatcliff  | 152687 |
| Mitsuyuki  | Stanfel   | 152220 |
| Sanjai     | Luders    | 155513 |
| Honesty    | Mukaidono | 156286 |
| Weijing    | Chenoweth | 152710 |
| Shin       | Birdsall  | 152412 |
| Mohammed   | Moehrke   | 150740 |
| Lidong     | Meriste   | 154376 |
+-----+-----+-----+
15 rows in set (1.20 sec)
```

g) Kuinka monta työntekijää työskentelee myynnissä (Sales) ? Entä markkinoinnissa (Marketing) ?

```
mysql> SELECT dept_name, COUNT(*) AS Lukumaara FROM employees JOIN dept_emp ON employees.emp_no = dept_e
mp.emp_no JOIN departments ON dept_emp.dept_no = departments.dept_no WHERE dept_name = 'sales';
+-----+-----+
| dept_name | Lukumaara |
+-----+-----+
| Sales     | 52245     |
+-----+-----+
1 row in set (0.42 sec)

mysql> SELECT dept_name, COUNT(*) AS Lukumaara FROM employees JOIN dept_emp ON employees.emp_no = dept_e
mp.emp_no JOIN departments ON dept_emp.dept_no = departments.dept_no WHERE dept_name = 'marketing';
+-----+-----+
| dept_name | Lukumaara |
+-----+-----+
| Marketing | 20211     |
+-----+-----+
1 row in set (0.23 sec)
```

h) Tulosta kaikkien osastonjohtajien (Department Managers) etunimi, sukunimi ja osasto, jolla työskentelee.


```
mysql> SELECT first_name, last_name, dept_name FROM employees JOIN titles ON employees.emp_no = titles.e
mp_no JOIN dept_emp ON titles.emp_no = dept_emp.emp_no JOIN departments ON dept_emp.dept_no = department
s.dept_no WHERE title LIKE 'Manager';
```

first_name	last_name	dept_name
Margareta	Markovitch	Marketing
Vishwani	Minakawa	Marketing
Ebru	Alpin	Finance
Isamu	Legleitner	Finance
Shirish	Ossenbruggen	Human Resources
Karsten	Sigstam	Human Resources
Krassimir	Wegerle	Production
Rosine	Cools	Production
Shem	Kieras	Production
Oscar	Ghazalie	Production
DeForest	Hagimont	Development
Leon	DasSarma	Development
Peternela	Onuegbe	Quality Management
Rutger	Hofmeyr	Quality Management
Sanjoy	Quadeer	Quality Management
Dung	Pesch	Quality Management
Przemyslaw	Kaelbling	Sales
Hauke	Zhang	Sales
Arie	Staelin	Research
Hilary	Kambil	Research
Tonny	Butterworth	Customer Service
Marjo	Giarratana	Customer Service
Xiaobin	Spinelli	Customer Service
Yuchang	Weedman	Customer Service

```
24 rows in set (0.32 sec)
```

i) Mikä on myynnissä työskentelevien keskipalkka ? Entä markkinoinnissa ?

```
mysql> SELECT AVG(salary) AS Keskipalkka FROM salaries
-> JOIN dept_emp ON salaries.emp_no = dept_emp.emp_no
-> JOIN departments ON dept_emp.dept_no = departments.dept_no
-> WHERE dept_name LIKE 'sales';
```

Keskipalkka
80667.6058

```
1 row in set (0.63 sec)
```

```
mysql> SELECT AVG(salary) AS Keskipalkka FROM salaries
-> JOIN dept_emp ON salaries.emp_no = dept_emp.emp_no
-> JOIN departments ON dept_emp.dept_no = departments.dept_no
-> WHERE dept_name LIKE 'marketing';
```

Keskipalkka
71913.2000

```
1 row in set (0.37 sec)
```

Tehtävä 8

a) Tulosta DVD-elokuvien kielet (language) aakkosjärjestyksessä

```
mysql> SELECT * FROM language ORDER BY name;
```

language_id	name	last_update
1	English	2006-02-15 05:02:19
5	French	2006-02-15 05:02:19
6	German	2006-02-15 05:02:19
2	Italian	2006-02-15 05:02:19
3	Japanese	2006-02-15 05:02:19
4	Mandarin	2006-02-15 05:02:19

```
6 rows in set (0.12 sec)
```

b) Tulosta kaikkien niiden näyttelijöiden elokuvat, joiden sukunimi on Temple.

```
mysql> SELECT title FROM film JOIN film_actor ON film.film_id = film_actor.film_id
-> JOIN actor ON film_actor.actor_id = actor.actor_id
-> WHERE last_name LIKE 'Temple';
```

title
ACADEMY DINOSAUR
ALABAMA DEVIL
BALLOON HOMEWARD
BEACH HEARTBREAKERS
BUTTERFLY CHOCOLAT
CARRIE BUNCH
CASUALTIES ENCINO
CONTACT ANONYMOUS
DROP WATERFRONT
EARLY HOME
ENGLISH BULWORTH
FELLOWSHIP AUTUMN
GILMORE BOILED
GUMP DATE
ICE CROSSING
INTERVIEW LIAISONS
JUMANJI BLADE
LOVERBOY ATTACKS
MADISON TRAP
RANDOM GO
TELEGRAPH VOYAGE
TROJAN TOMORROW
VIRGINIAN PLUTO
WARDROBE PHANTOM
WRONG BEHAVIOR

```
104 rows in set (0.09 sec)
```

c) Tulosta elokuvassa "Ghost Groundhog" näytelleet näyttelijät.

```
mysql> SELECT first_name, last_name FROM actor JOIN film_actor ON actor.actor_id = film_actor.actor_id
-> JOIN film ON film_actor.film_id = film.film_id
-> WHERE title LIKE 'Ghost Groundhog';
```

first_name	last_name
DAN	HARRIS
KENNETH	TORN
KEVIN	GARLAND
RUSSELL	TEMPLE
RENEE	BALL

```
5 rows in set (0.01 sec)
```

d) Montako kauhuelokuvaa ("Horror") tietokannassa on ?

```
mysql> SELECT COUNT(*) FROM film
-> JOIN film_category ON film.film_id = film_category.film_id
-> JOIN category ON film_category.category_id = category.category_id
-> WHERE name LIKE 'Horror';

+-----+
| COUNT(*) |
+-----+
|      56 |
+-----+
1 row in set (0.05 sec)
```

e) Tulosta kaikki kauhuelokuvat.

```
mysql> SELECT * FROM film
-> JOIN film_category ON film.film_id = film_category.film_id
-> JOIN category ON film_category.category_id = category.category_id
-> WHERE name LIKE 'Horror';

+-----+-----+-----+-----+-----+-----+-----+
| film_id | title | description | release_year | language_id | original_language_id |
+-----+-----+-----+-----+-----+-----+
| 2 | ACE GOLDFINGER | A Astounding Epistle of a Database Administrator And a Explorer who must Find a Car in Ancient China | 2006 | 1 | 1 |
| NULL | 3 | 4.99 | 48 | 12.99 | G | Trailers,Deleted Scenes |
+-----+-----+-----+-----+-----+-----+
| 11 | Horror | 2006-02-15 04:46:27 |
+-----+-----+-----+-----+-----+
| 4 | AFFAIR PREJUDICE | A Fanciful Documentary of a Frisbee And a Lumberjack who must Chase a Monkey in A Shark Tank | 2006 | 1 |
| NULL | 5 | 2.99 | 117 | 26.99 | G | Commentaries,Behind the Scenes |
+-----+-----+-----+-----+-----+
| 11 | Horror | 2006-02-15 04:46:27 |
+-----+-----+-----+-----+-----+
| 8 | AIRPORT POLLOCK | A Epic Tale of a Moose And a Girl who must Confront a Monkey in Ancient India | 2006 | 1 |
| NULL | 6 | 4.99 | 54 | 15.99 | R | Trailers |
+-----+-----+-----+-----+-----+
| 11 | Horror | 2006-02-15 04:46:27 |
```

• • • •

```
| 965 | WATERSHIP FRONTIER | A Emotional Yarn of a Boat And a Crocodile who must Meet a Moo  
se in Soviet Georgia | NULL | 6 | 0.99 | 112 | 28.99 | G | 1 |  
| 11 | Horror | 2006-02-15 04:46:27 | | | | | |  
| 990 | WORLD LEATHERNECKS | A Unbelievable Tale of a Pioneer And a Astronaut who must Ove  
rcome a Robot in An Abandoned Amusement Park | NULL | 3 | 0.99 | 171 | 13.99 | PG-13 | 1 |  
Scenes | 11 | Horror | 2006-02-15 05:03:42 | 965 | 11 | 2006-02-15 05:07:09 |  
| 11 | Horror | 2006-02-15 04:46:27 | | | | | |  
| 995 | YENTL IDAHO | A Amazing Display of a Robot And a Astronaut who must Fight a  
Womanizer in Berlin | NULL | 5 | 4.99 | 86 | 11.99 | R | 1 |  
s,Deleted Scenes | 11 | Horror | 2006-02-15 05:03:42 | 990 | 11 | 2006-02-15 05:07:09 |  
| 11 | Horror | 2006-02-15 04:46:27 | | | | | |  
| 998 | ZHIVAGO CORE | A Fateful Yarn of a Composer And a Man who must Face a Boy in  
The Canadian Rockies | NULL | 6 | 0.99 | 105 | 10.99 | NC-17 | 1 |  
| 11 | Horror | 2006-02-15 05:03:42 | 998 | 11 | 2006-02-15 05:07:09 |  
+-----+-----+-----+-----+-----+-----+-----+-----+  
+-----+-----+-----+-----+-----+-----+-----+-----+  
+-----+-----+-----+-----+-----+-----+-----+-----+  
+-----+-----+-----+-----+-----+-----+-----+-----+  
56 rows in set (0.01 sec)  
  
mysql>
```

