```
1   # Modify this code to update the DB schema d:
2
3   departments
4   ---
5   dept_no varchar PK
6   dept_name varchar
7
8   dept_emp
9   ---
10  emp_no int FK >- employees.emp_no
11  dept_no varchar FK >- departments.dept_no
12  from_date date
13  to_date date
14
15  dept_manager
16  ---
17  dept_no varchar FK >- departments.dept_no
18  emp_no int PK FK >- employees.emp_no
19  from_date date
20  to_date date
21
22
23  employees
24  ----
25  emp_no int PK
26  birth_date date
27  first_name varchar
28  last_name varchar
29  gender varchar
30  hire_date date
31
32  salaries
33  ---
34  emp_no int PK FK - employees.emp_no
35  salary int
36  from_date date
37  to_date date
38
39  titles
40  ---
41  emp_no int FK >- employees.emp_no
42  title varchar
43  from_date date
44  to_date date
45
```

departments

| dept_no | ⚷ varchar |
| dept_name | varchar |

dept_manager

dept_no	varchar
emp_no	⚷ int
from_date	date
to_date	date

salaries

emp_no	⚷ int
salary	int
from_date	date
to_date	date

dept_emp

emp_no	int
dept_no	varchar
from_date	date
to_date	date

employees

emp_no	⚷ int
birth_date	date
first_name	varchar
last_name	varchar
gender	varchar
hire_date	date

titles

emp_no	int
title	varchar
from_date	date
to_date	date

1. **List** the following details of each employee: employee number, last name, first name, gender, and salary.

```
select employees.emp_no, employees.last_name, employees.first_name, employees.gender, salaries.salary
from employees
inner join salaries on salaries.emp_no = employees.emp_no
```

Data Output   Explain   Messages   Notifications

	emp_no integer	last_name character varying	first_name character varying	gender character varying	salary integer
1	10001	Facello	Georgi	M	60117
2	10005	Maliniak	Kyoichi	M	78228
3	10010	Piveteau	Duangkaew	F	72488
4	10011	Sluis	Mary	F	42365
5	10013	Terkki	Eberhardt	M	40000
6	10017	Bouloucos	Cristinel	F	71380
7	10018	Peha	Kazuhide	F	55881
8	10019	Haddadi	Lillian	M	44276
9	10026	Berztiss	Yongqiao	M	47585
10	10035	Chappelet	Alain	M	41538

2. **List** employees who were hired in 1986.

```sql
select count(employees.emp_no) from employees
where employees.hire_date >= '01/01/1986' and employees.hire_date <= '12-31-1986'
```
Count of all employees hired during 1986

Data Output   Explain   Messages   Notifications

	count bigint
1	36150

```sql
select employees.emp_no, employees.last_name, employees.first_name, employees.hire_date
from employees
where employees.hire_date >= '01/01/1986' and employees.hire_date <= '12-31-1986'
order by employees.hire_date desc
```
Descending by Hire Date

Data Output   Explain   Messages   Notifications

	emp_no [PK] integer	last_name character varying	first_name character varying	hire_date date
1	425165	Erva	Chirstian	1986-12-31
2	492362	Avouris	Angus	1986-12-31
3	34878	Merks	Aamer	1986-12-31
4	447054	Wynblatt	Khatoun	1986-12-31
5	19762	Valiente	Sushant	1986-12-31
6	11671	Babu	Pranjal	1986-12-31
7	10856	Peck	Sreenivas	1986-12-31
8	415645	Luef	Shiv	1986-12-31
9	448861	Noriega		

✔ Successfully run. Total query runtime: 141 msec 36150 rows affected.

Ascending by Hire Date

Data Output   Explain   Messages   Notifications

	emp_no [PK] integer	last_name character varying	first_name character varying	hire_date date
1	64978	Janocha	Youssef	1986-01-01
2	265749	Asmuth	Uri	1986-01-01
3	29708	Undy	Sachar	1986-01-01
4	13415	Speer	Nathalie	1986-01-01
5	496085	Reinhard	Yongqiao	1986-01-01
6	255744	Muntz	Mayuri	1986-01-01
7	475924	Herath	Tran	1986-01-01
8	219621	Brookman	Constantino	1986-01-01
9	498761	Kaiserswerth		

✔ Successfully run. Total query runtime: 126 msec 36150 rows affected.

3. **List** the manager of each department with the following information: department number, department name, the manager's employee number, last name, first name, and start and end employment dates.

Note: Margareta Markovitch was hired on 1/1/1985 but since there is no Termination date I used the last date of her performing as a manager as the employment end-date (10/1/1991).

```sql
Select  dept_manager.dept_no as "Dept_Number",
        dept_manager.to_date as "Dept_Mgr_Last_Date",
        dept_manager.emp_no as "Dept_Mgr_Employee_Number",
        employees.last_name as "Dept_Mgr_Last_Name",
        employees.first_name as "Dept_Mgr_First_Name",
        employees.hire_date as "Dept_Mgr_Hire_Date",
        departments.dept_name as "Dept_Name"
from dept_manager
inner join employees on employees.emp_no = dept_manager.emp_no
inner join departments on departments.dept_no = dept_manager.dept_no
```

Data Output | Explain | Messages | Notifications

	Dept_Number character varying	Dept_Mgr_Last_Date date	Dept_Mgr_Employee_Number integer	Dept_Mgr_Last_Name character varying	Dept_Mgr_First_Name character varying	Dept_Mgr_Hire_Date date	Dept_Name character varying
1	d001	1991-10-01	110022	Markovitch	Margareta	1985-01-01	Marketing
2	d001	9999-01-01	110039	Minakawa	Vishwani	1986-04-12	Marketing
3	d002	1989-12-17	110085	Alpin	Ebru	1985-01-01	Finance
4	d002	9999-01-01	110114	Legleitner	Isamu	1985-01-14	Finance
5	d003	1992-03-21	110183	Ossenbruggen	Shirish	1985-01-01	Human Resources
6	d003	9999-01-01	110228	Sigstam	Karsten	1985-08-04	Human Resources
7	d004	1988-09-09	110303	Wegerle	Krassimir	1985-01-01	Production
8	d004	1992-08-02	110344	Cools	Rosine	1985-11-22	Production
9	d004	1996-08-30	110386	Kieras	Shem	1988-10-14	Production
10	d004	9999-01-01	110420	Ghazalie	Oscar	1992-02-05	Production
11	d005	1992-04-25	110511	Hagimont	DeForest	1985-01-01	Development
12	d005	9999-01-01	110567	DasSarma	Leon	1986-10-21	Development
13	d006	1989-05-06	110725	Onuegbe	Peternela	1985-01-01	Quality Management
14	d006	1991-09-12	110765	Hofmeyr	Rutger	1989-01-07	Quality Management
15	d006	1994-06-28	110800	Quadeer	Sanjoy	1986-08-12	Quality Management
16	d006	9999-01-01	110854	Pesch	Dung	1989-06-09	Quality Management
17	d007	1991-03-07	111035	Kaelbling	Przemyslawa	1985-01-01	Sales
18	d007	9999-01-01	111133	Zhang	Hauke	1986-12-30	Sales
19	d008	1991-04-08	111400	Staelin	Arie	1985-01-01	Research
20	d008	9999-01-01	111534	Kambil	Hilary	1988-01-31	Research
21	d009	1988-10-17	111692	Butterworth	Tonny	1985-01-01	Customer Service
22	d009	1992-09-08	111784	Giarratana	Marjo	1988-02-12	Customer Service
23	d009	1996-01-03	111877	Spinelli	Xiaobin	1991-08-17	Customer Service
24	d009	9999-01-01	111939	Weedman	Yuchang	1989-07-10	Customer Service

4. **List** the department of each employee with the following information: employee number, last name, first name, and department name.

```
I discovered that I had not created a necessary foreign key to answer this question.
Thus I added a foreign key relationship between table "dept_emp" and table "employees"
```

```
after I had imported the CSV data. I later went back and updated the ERD shown at the
top of this document.

Alter Table dept_emp
Add constraint add_FK_for_emp_no
Foreign Key (emp_no)
References employees (emp_no)


Select  employees.emp_no as "Employee_Number",
        employees.last_name as "Employee_Last_Name",
        employees.first_name as "Employee_First_Name",
        departments.dept_name as "Dept_Name"
from employees
inner join dept_emp on dept_emp.emp_no = employees.emp_no
inner join departments on departments.dept_no = dept_emp.dept_no
Order by departments.dept_name, employees.last_name
```

Data Output   Explain   Messages   Notifications

	Employee_Number integer	Employee_Last_Name character varying	Employee_First_Name character varying	Dept_Name character varying	
1	417814	Aamodt	Yechiam	Customer Service	
2	51897	Aamodt	Rajmohan	Customer Service	
3	449331	Aamodt	Sajjad	Customer Service	
4	17400	Aamodt	Basim	Customer Service	
5	100010	Aamodt	Youpyo	Customer Service	
6	271789	Aamodt	Valeri	Customer Service	
7	29182	Aamodt	Arumugam	Customer Service	
8	248903	Aamodt	Owen	Customer Service	
9	258030	Aamodt	Luigi	Customer Service	
10	285421	Aamodt	Kamran	Customer Service	
11	244716	Aamodt	Subhash	Customer Service	
12	290839	Aamodt	Guoxiang	Customer Service	
13	46884	Aamodt	Marla	Customer Service	
14	293021	Aamodt	Teunis		

✔ Successfully run. Total query runtime: 1 secs 418 msec 331603 rows affected

5. **List** all employees whose first name is "Hercules" and last names begin with "B."

```
Select  employees.emp_no as "Employee_Number",
        employees.last_name as "Employee_Last_Name",
        employees.first_name as "Employee_First_Name"
from employees
where employees.last_name like 'B%' and employees.first_name = 'Hercules'
```

	Employee_Number integer		Employee_Last_Name character varying		Employee_First_Name character varying	
1	10282		Benzmuller		Hercules	
2	11337		Brendel		Hercules	
3	20780		Baranowski		Hercules	
4	21870		Barreiro		Hercules	
5	38161		Baer		Hercules	
6	89382		Bernardinello		Hercules	
7	89844		Basagni		Hercules	
8	90712		Biran		Hercules	
9	210097		Bernatsky		Hercules	
10	213553		Bail		Hercules	
11	236650		Birge		Hercules	
12	241391		Bisiani		Hercules	
13	250175		Bodoff		Hercules	
14	276181		Biron		Hercules	
15	279195		Buchter		Hercules	
16	294352		Bain		Hercules	
17	435221		Bahr		Hercules	
18	438081		Baak		Hercules	
19	461517		Benantar		Hercules	
20	482148		Berstel		Hercules	

6. **List** all employees in the Sales department, including their employee number, last name, first name, and department name.

```
Select  employees.emp_no as "Employee_Number",
        employees.last_name as "Employee_Last_Name",
        employees.first_name as "Employee_First_Name",
        departments.dept_name as "Dept_Name"
from employees
inner join dept_emp on dept_emp.emp_no = employees.emp_no
inner join departments on departments.dept_no = dept_emp.dept_no
where departments.dept_name = 'Sales'
Order by departments.dept_name
```

7. **List** all employees in the Sales and Development departments, including their employee number, last name, first name, and department name.

```sql
Select  employees.emp_no as "Employee_Number",
        employees.last_name as "Employee_Last_Name",
        employees.first_name as "Employee_First_Name",
        departments.dept_name as "Dept_Name"
from employees
inner join dept_emp on dept_emp.emp_no = employees.emp_no
inner join departments on departments.dept_no = dept_emp.dept_no
where departments.dept_name = 'Sales' or departments.dept_name = 'Development'
Order by employees.emp_no
```

8. **In descending order, list** the frequency count of employee last names, i.e., how many employees share each last name.

```
Select  employees.last_name, (count(employees.last_name)) as name_count
from employees
Group by employees.last_name
order by name_count desc --- sort in descending order by name_count

Select  employees.last_name, (count(employees.last_name)) as name_count
from employees
Group by employees.last_name
order by employees.last_name desc --- sort in descending order by last_name
```

Data Output | Explain | Messages | Notifications

	last_name character varying	name_count bigint
1	Baba	226
2	Gelosh	223
3	Coorg	223
4	Sudbeck	222
5	Farris	222
6	Adachi	221
7	Osgood	220
8	Mandell	218
9	Masada	218
10	Neiman	218
11	Boudaillier	217
12	Wendorf	217
13	Pettis	216

Data Output | Explain | Messages | Notifications

	last_name character varying	name_count bigint
1	Zykh	148
2	Zyda	181
3	Zwicker	176
4	Zweizig	180
5	Zumaque	195
6	Zultner	177
7	Zucker	185
8	Zuberek	209
9	Zschoche	165
10	Zongker	192
11	Zolotykh	183