Learning SQL problems

In [5]:
```
# Set up and connect

# libaries
import sqlalchemy
import pandas as pd

# Connect to the database
engine=sqlalchemy.create_engine('postgresql://Alt-Evelyn:superuser@localhost

# test connection
pd.read_sql_query("SELECT table_name FROM information_schema.tables LIMIT 15
```

Out[5]:

	table_name
0	account
1	pg_type
2	branch
3	business
4	customer
5	department
6	employee
7	individual
8	officer
9	product
10	transaction
11	pg_foreign_table
12	pg_roles
13	pg_settings
14	schemata

Exercise 6-2

Write a compound query that finds the first and last names of all individual customers along with the first and last names of all employees.

In [14]:
```
pd.read_sql_query("""SELECT fname, lname
                     FROM individual
                     UNION
```

```
                    SELECT fname, lname
                    FROM employee;""", engine)
```

Out[14]:

	fname	lname
0	Paula	Roberts
1	Susan	Tingley
2	Samantha	Jameson
3	Cindy	Mason
4	Chris	Tucker
5	Richard	Farley
6	Frank	Portman
7	Rick	Tulman
8	Beth	Fowler
9	Sarah	Parker
10	John	Gooding
11	John	Hayward
12	Robert	Tyler
13	Margaret	Young
14	Charles	Frasier
15	Thomas	Ziegler
16	Theresa	Markham
17	Susan	Barker
18	Louis	Blake
19	John	Blake
20	James	Hadley
21	Susan	Hawthorne
22	John	Spencer
23	Jane	Grossman
24	Frank	Tucker
25	Helen	Fleming
26	Michael	Smith

Exercise 6-3

Sort the results from Exercise 6-2 by the lname column.

In [15]:
```
pd.read_sql_query("""SELECT fname, lname
                     FROM individual
                     UNION ALL
                     SELECT fname, lname
                     FROM employee
                     ORDER BY lname;""", engine)
```

Out[15]:

	fname	lname
0	Susan	Barker
1	Louis	Blake
2	John	Blake
3	Richard	Farley
4	Helen	Fleming
5	Beth	Fowler
6	Charles	Frasier
7	John	Gooding
8	Jane	Grossman
9	James	Hadley
10	Susan	Hawthorne
11	John	Hayward
12	Samantha	Jameson
13	Theresa	Markham
14	Cindy	Mason
15	Sarah	Parker
16	Frank	Portman
17	Paula	Roberts
18	Michael	Smith
19	John	Spencer
20	Susan	Tingley
21	Chris	Tucker
22	Frank	Tucker
23	Rick	Tulman
24	Robert	Tyler
25	Margaret	Young
26	Thomas	Ziegler

Exerise 8-1

Construct a query that counts the number of rows in the account table.

In [17]:
```
pd.read_sql_query("""SELECT COUNT(*)
                     FROM account;""", engine)
```

Out[17]:

	count
0	24

Exercise 8-2

Modify your query from Exercise 8-1 to count the number of accounts held by each customer. Show the customer ID and the number of accounts for each customer.

In [24]:
```
pd.read_sql_query("""SELECT cust_id, COUNT(account_id)
                     FROM account
                     GROUP BY cust_id
                     ORDER BY cust_id;""", engine)
```

Out[24]:

	cust_id	count
0	1	3
1	2	2
2	3	2
3	4	3
4	5	1
5	6	2
6	7	1
7	8	2
8	9	3
9	10	2
10	11	1
11	12	1
12	13	1

Exercise 10-1

Write a query that returns all product names along with the accounts based on that product (use the product_cd column in the account table to link to the product table). Include all products, even if no accounts have been opened for that product.

In [30]:
```
pd.read_sql_query("""SELECT p.product_cd,
                            account_id,
```

```
                        cust_id,
                        avail_balance
                FROM product p
                LEFT OUTER JOIN
                account a
                ON p.product_cd = a.product_cd;
                """, engine)
```

Out[30]:

	product_cd	account_id	cust_id	avail_balance
0	CHK	1.0	1.0	1057.75
1	SAV	2.0	1.0	500.00
2	CD	3.0	1.0	3000.00
3	CHK	4.0	2.0	2258.02
4	SAV	5.0	2.0	200.00
5	CHK	7.0	3.0	1057.75
6	MM	8.0	3.0	2212.50
7	CHK	10.0	4.0	534.12
8	SAV	11.0	4.0	767.77
9	MM	12.0	4.0	5487.09
10	CHK	13.0	5.0	2237.97
11	CHK	14.0	6.0	122.37
12	CD	15.0	6.0	10000.00
13	CD	17.0	7.0	5000.00
14	CHK	18.0	8.0	3487.19
15	SAV	19.0	8.0	387.99
16	CHK	21.0	9.0	125.67
17	MM	22.0	9.0	9345.55
18	CD	23.0	9.0	1500.00
19	CHK	24.0	10.0	23575.12
20	BUS	25.0	10.0	0.00
21	BUS	27.0	11.0	9345.55
22	CHK	28.0	12.0	38552.05
23	SBL	29.0	13.0	50000.00
24	MRT	NaN	NaN	NaN
25	AUT	NaN	NaN	NaN

In [ ]: