Intermediate SQL Exercises.

Part 1

Given the following SQL.

```
DROP DATABASE IF EXISTS joins_exercise;

CREATE DATABASE joins_exercise;

\c joins_exercise

CREATE TABLE owners (id SERIAL PRIMARY KEY, first_name TEXT, last_name TEXT);

CREATE TABLE vehicles (id SERIAL PRIMARY KEY, make TEXT, model TEXT, year INTEGER, price REAL, owner_id INTEGER REFERENCES owners (id));

INSERT INTO owners (first_name, last_name) VALUES ('Bob', 'Hope');
INSERT INTO owners (first_name, last_name) VALUES ('Jane', 'Smith');
INSERT INTO owners (first_name, last_name) VALUES ('Melody', 'Jones');
INSERT INTO owners (first_name, last_name) VALUES ('Sarah', 'Palmer');
INSERT INTO owners (first_name, last_name) VALUES ('Alex', 'Miller');
INSERT INTO owners (first_name, last_name) VALUES ('Shana', 'Smith');
INSERT INTO owners (first_name, last_name) VALUES ('Maya', 'Malarkin');

INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Toyota', 'Corolla', 2002, 2999.99, 1);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Honda', 'Civic', 2012, 12999.99, 1);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Nissan', 'Altima', 2016, 23999.99, 2);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Subaru', 'Legacy', 2006, 5999.99, 2);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Ford', 'F150', 2012, 2599.99, 3);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('GMC', 'Yukon', 2016, 12999.99, 3);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('GMC', 'Yukon', 2014, 22999.99, 4);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Toyota', 'Avalon', 2009, 12999.99, 4);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Toyota', 'Camry', 2013, 12999.99, 4);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Honda', 'Civic', 2001, 7999.99, 5);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Nissan', 'Altima', 1999, 1899.99, 6);
```

```
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('Lexus', 'ES350', 1998, 1599.99, 6);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('BMW', '300', 2012, 22999.99, 6);
INSERT INTO vehicles (make, model, year, price, owner_id) VALUES ('BMW', '700', 2015, 52999.99, 6);
```

Write the following SQL commands to produce the necessary output

- Join the two tables so that every column and record appears, regardless of if there is not an owner_id. Your output should look like this:

```
 id | first_name | last_name | id |  make  |  model  | year |  price  |
owner_id
----+------------+-----------+----+--------+---------+------+---------+-------
---
  1 | Bob        | Hope      |  1 | Toyota | Corolla | 2002 | 2999.99 |
1
  1 | Bob        | Hope      |  2 | Honda  | Civic   | 2012 |   13000 |
1
  2 | Jane       | Smith     |  3 | Nissan | Altima  | 2016 |   24000 |
2
  2 | Jane       | Smith     |  4 | Subaru | Legacy  | 2006 | 5999.99 |
2
  3 | Melody     | Jones     |  5 | Ford   | F150    | 2012 | 2599.99 |
3
  3 | Melody     | Jones     |  6 | GMC    | Yukon   | 2016 |   13000 |
3
  4 | Sarah      | Palmer    |  7 | GMC    | Yukon   | 2014 |   23000 |
4
  4 | Sarah      | Palmer    |  8 | Toyota | Avalon  | 2009 |   13000 |
4
  4 | Sarah      | Palmer    |  9 | Toyota | Camry   | 2013 |   13000 |
4
  5 | Alex       | Miller    | 10 | Honda  | Civic   | 2001 | 7999.99 |
5
  6 | Shana      | Smith     | 11 | Nissan | Altima  | 1999 | 1899.99 |
6
  6 | Shana      | Smith     | 12 | Lexus  | ES350   | 1998 | 1599.99 |
6
  6 | Shana      | Smith     | 13 | BMW    | 300     | 2012 |   23000 |
6
  6 | Shana      | Smith     | 14 | BMW    | 700     | 2015 |   53000 |
6
  7 | Maya       | Malarkin  |    |        |         |      |         |
(15 rows)
```

Count the number of cars for each owner. Display the owners `first_name`, `last_name` and `count` of vehicles. The `first_name` should be ordered in ascending order. Your output should look like this:

```
 first_name | last_name | count
------------+-----------+-------
 Alex       | Miller    |     1
 Bob        | Hope      |     2
 Jane       | Smith     |     2
 Melody     | Jones     |     2
 Sarah      | Palmer    |     3
 Shana      | Smith     |     4
(6 rows)
```

Count the number of cars for each owner and display the average price for each of the cars as integers. Display the owners `first_name`, `last_name`, average price and count of vehicles. The `first_name` should be ordered in descending order. Only display results with more than one vehicle and an average price greater than 10000. Your output should look like this:

```
 first_name | last_name | average_price | count
------------+-----------+---------------+-------
 Shana      | Smith     |         19875 |     4
 Sarah      | Palmer    |         16333 |     3
 Jane       | Smith     |         15000 |     2
```