1)Display the name and city of customers who live in any city that makes the most different kinds of products. (There are two cities that make the most different products. Return the name and city of customers from either one of those.)

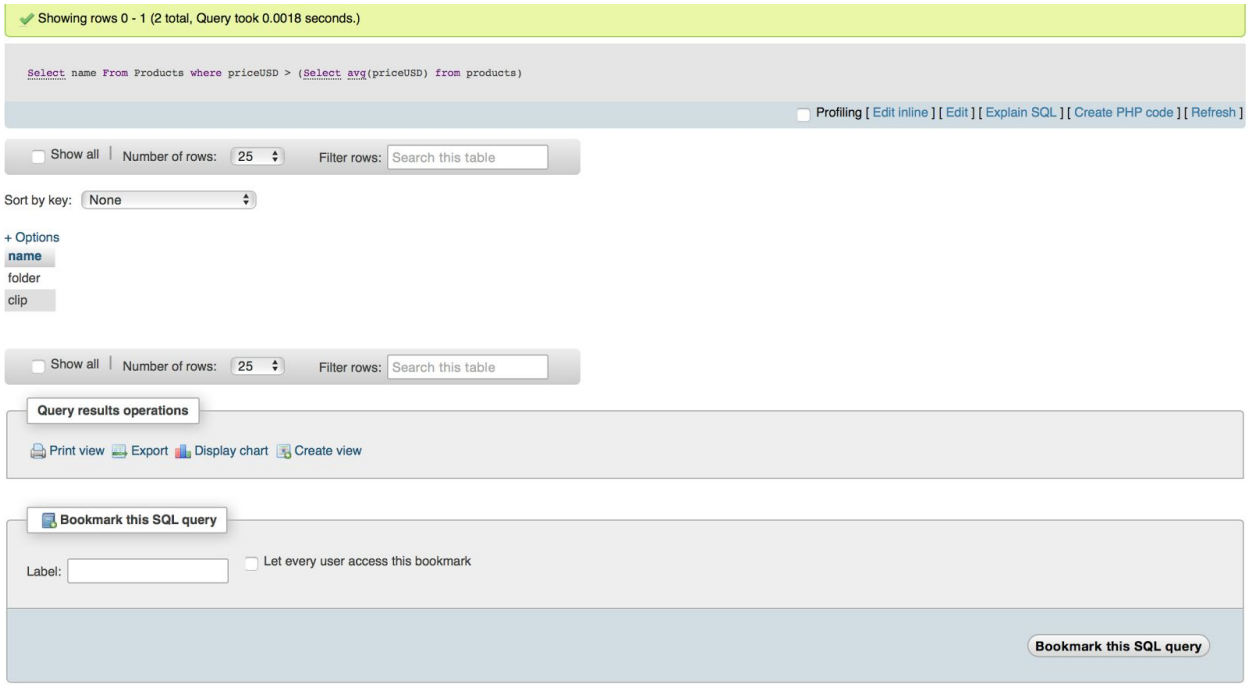
```
Select name, city
from Customers
where city in (Select city
               from products
               group by city
               having count(city)= (Select count (city)
                                    from products
                                    group by city
                                    order by count (city) DESC
                                    limit 1))
```

utput pane

Data Output | Explain | Messages | History

| | name text | city text |
|---|---|---|
| 1 | Basics | Dallas |
| 2 | Allied | Dallas |

2. Display the names of products where priceUSD is strictly above the average price USD in reverse



3) Display the customer name, pid ordered, and the total for all orders, sorted by total from high to low.

```
select c.name, o.pid, sum(o.dollars)
     from customers c inner join orders o on c.cid = o.cid
     group by c.name, o.pid
     order by sum(o.dollars) desc;
```

Output pane

Data Output | Explain | Messages | History

| | name text | pid character(3) | sum numeric |
|---|---|---|---|
| 1 | Basics | p03 | 1620.00 |
| 2 | ACME | p01 | 1360.00 |
| 3 | Allied | p05 | 1104.00 |
| 4 | Tiptop | p07 | 720.00 |
| 5 | Tiptop | p06 | 720.00 |
| 6 | ACME | p07 | 600.00 |
| 7 | Tiptop | p03 | 540.00 |
| 8 | Tiptop | p04 | 540.00 |

OK. Unix Ln 5, Col 7, Ch 170 11 rows. 17 ms

4) Display all customer names (in alphabetical order) and their total ordered, and nothing more. Use coalesce to avoid showing NULLs.

Previous queries Delete Delete All

```
select c.name, o.pid, sum(coalesce(o.dollars))
     from customers c
     inner join orders o
     on c.cid = o.cid
     group by o.pid, c.name
     order by sum(o.dollars) desc;
```

Output pane

Data Output | Explain | Messages | History

| | name text | pid character(3) | sum numeric |
|---|---|---|---|
| 1 | Basics | p03 | 1620.00 |
| 2 | ACME | p01 | 1360.00 |
| 3 | Allied | p05 | 1104.00 |
| 4 | Tiptop | p07 | 720.00 |
| 5 | Tiptop | p06 | 720.00 |
| 6 | ACME | p07 | 600.00 |
| 7 | Tiptop | p04 | 540.00 |
| 8 | Tiptop | p03 | 540.00 |

OK. Unix Ln 6, Col 36, Ch 184 11 rows. 19 msec

5) Display the names of all customers who bought products from agents based in Tokyo along with the names of the products they ordered, and the names of the agents who sold it to them.

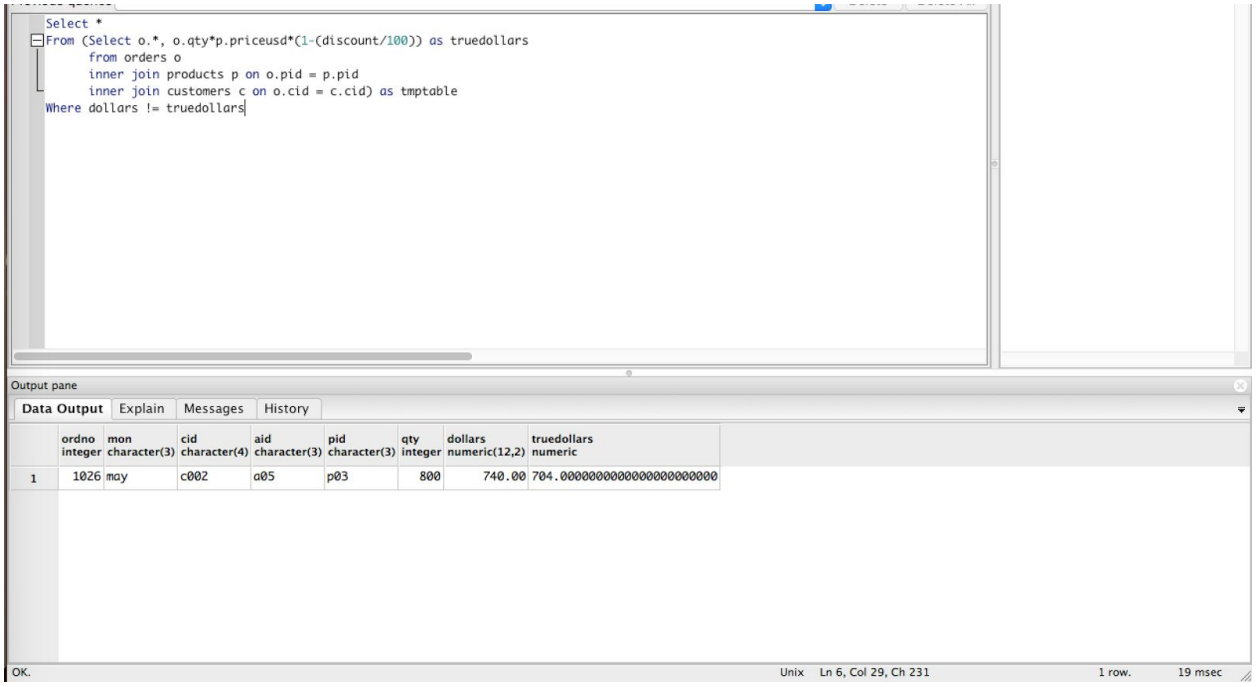
```
Select customers.name , products.name, agents.nam
from customers
Inner Join orders
on Customers.cid=orders.cid
Inner Join products
on orders.pid=products.pid
Inner join agents
on agents.aid= orders.aid
Where agents.city ='Tokyo';
```

Output pane

Data Output | Explain | Messages | History

| | name text | name text | name text |
|---|---|---|---|
| 1 | Basics | razor | Brown |
| 2 | Allied | pencil | Brown |
| 3 | Tiptop | pen | Brown |
| 4 | ACME | case | Brown |

6) Write a query to check the accuracy of the dollars column in the Orders table. This means calcu- lating Orders.totalUSD from data in other tables and comparing those values to the values in Or- ders.totalUSD. Display all rows in Orders where Orders.totalUSD is incorrect, if any.



```
Select *
From (Select o.*, o.qty*p.priceusd*(1-(discount/100)) as truedollars
      from orders o
      inner join products p on o.pid = p.pid
      inner join customers c on o.cid = c.cid) as tmptable
Where dollars != truedollars
```

Output pane

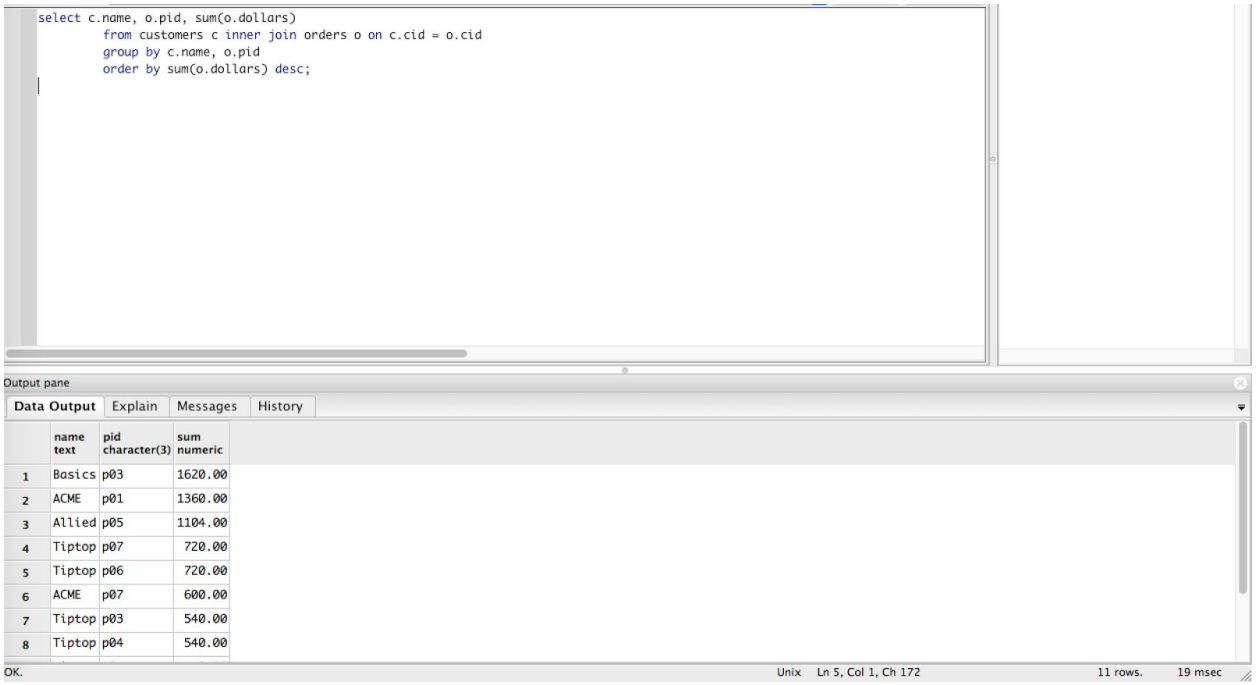
Data Output | Explain | Messages | History

| | ordno integer | mon character(3) | cid character(4) | aid character(3) | pid character(3) | qty integer | dollars numeric(12,2) | truedollars numeric |
|---|---|---|---|---|---|---|---|---|
| 1 | 1026 | may | c002 | a05 | p03 | 800 | 740.00 | 704.00000000000000000000000 |

OK. Unix Ln 6, Col 29, Ch 231 1 row. 19 msec

7) What is the difference between a LEFT OUTER JOIN and a RIGHT OUTER JOIN? Give example queries in SQL to demonstrate. (Feel free to use the CAP2 database to make your points here.)

This is an example of an inner join.



```
select c.name, o.pid, sum(o.dollars)
        from customers c inner join orders o on c.cid = o.cid
        group by c.name, o.pid
        order by sum(o.dollars) desc;
```

Output pane

Data Output | Explain | Messages | History

| | name text | pid character(3) | sum numeric |
|---|---|---|---|
| 1 | Basics | p03 | 1620.00 |
| 2 | ACME | p01 | 1360.00 |
| 3 | Allied | p05 | 1104.00 |
| 4 | Tiptop | p07 | 720.00 |
| 5 | Tiptop | p06 | 720.00 |
| 6 | ACME | p07 | 600.00 |
| 7 | Tiptop | p03 | 540.00 |
| 8 | Tiptop | p04 | 540.00 |

OK. Unix Ln 5, Col 1, Ch 172 11 rows. 19 msec

This is an attempt to create an example of an outer  join.