College Of Engineering Trivandrum

# Application Software Development Lab

Abhishek Manoharan
S5 CSE Roll No:2

TVE17CS002

Department of Computer Science

August 16, 2019

**Cycle 1**

**Exp No 7**

JOIN STATEMENTS, SET OPERATIONS, NESTED QUERIES AND GROUPING

## 1 Aim

To get introduced to

- -UNION
- -INTERSECTION
- -MINUS
- - JOIN
- - NESTED QUERIES
- - GROUP BY & HAVING

## 2 Questions

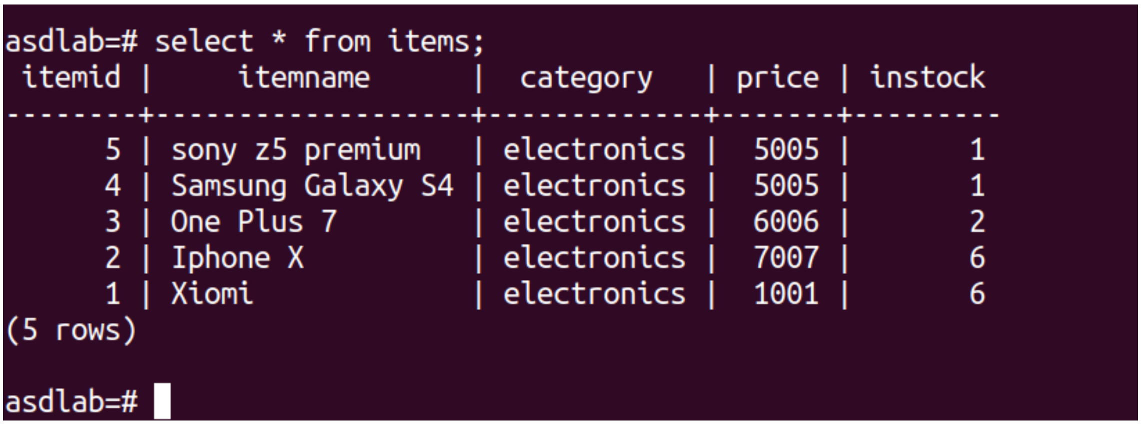
**Create Items,Orders,Customers,Delivery tables and populate them with appropriate data.**

```
create table items(
itemid int not null,
itemname varchar(50) not null,
category varchar(20) not null,
price int not null,
instock int ,
constraint checkstock check(instock >0),
constraint pkey primary key(itemid));
```

```
insert into items values(5,’sony z5 premium’,’electronics’,5005,1);
insert into items values(4,’Samsung Galaxy S4’,’electronics’,5005,1);
insert into items values(3,’One Plus 7’,’electronics’,6006,2);
insert into items values(2,’Iphone X’,’electronics’,7007,6);
insert into items values(1,’Xiomi’,’electronics’,1001,6);
```

### 0. Display the details items table

```
select * from items;
```



```
asdlab=# select * from items;
 itemid |     itemname      |  category   | price | instock
--------+-------------------+-------------+-------+---------
      5 | sony z5 premium   | electronics |  5005 |       1
      4 | Samsung Galaxy S4 | electronics |  5005 |       1
      3 | One Plus 7        | electronics |  6006 |       2
      2 | Iphone X          | electronics |  7007 |       6
      1 | Xiomi             | electronics |  1001 |       6
(5 rows)

asdlab=#
```

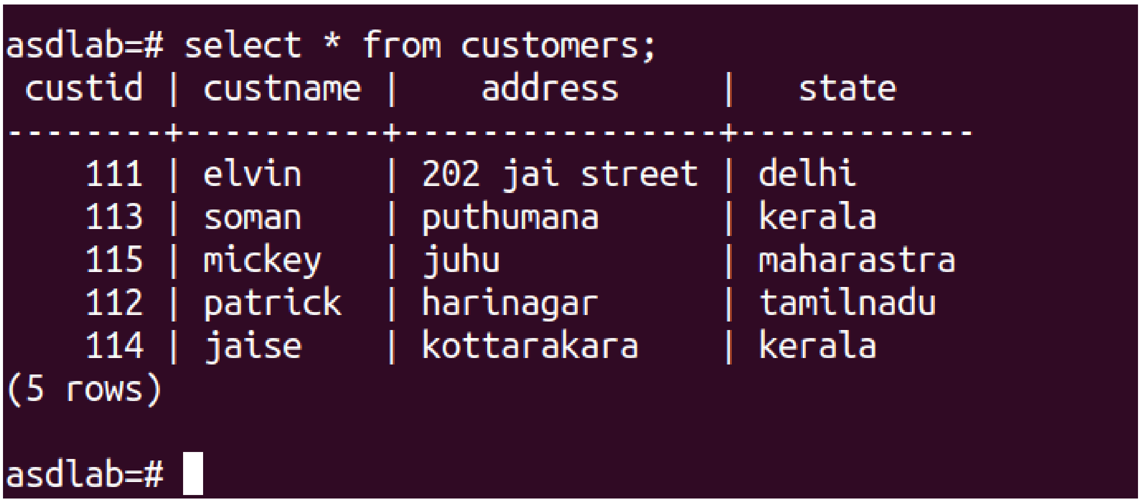
Figure 1: items Table

**create table customers(**
**custid int not null,**
**custname varchar(20),**
**address varchar(50) not null,**
**state varchar(10) not null,**
**primary key(custid));**

```
insert into customers values(111,'elvin','202 jai street','delhi');
insert into customers values(113,'soman','puthumana','kerala');
insert into customers values(115,'mickey','juhu','maharastra');
insert into customers values(112,'patrick','harinagar','tamilnadu');
insert into customers values(114,'jaise','kottarakara','kerala');
```

### 0. Display the details customers table

```
select * from customers;
```



```
asdlab=# select * from customers;
 custid | custname |    address     |   state
--------+----------+----------------+------------
    111 | elvin    | 202 jai street | delhi
    113 | soman    | puthumana      | kerala
    115 | mickey   | juhu           | maharastra
    112 | patrick  | harinagar      | tamilnadu
    114 | jaise    | kottarakara    | kerala
(5 rows)

asdlab=#
```

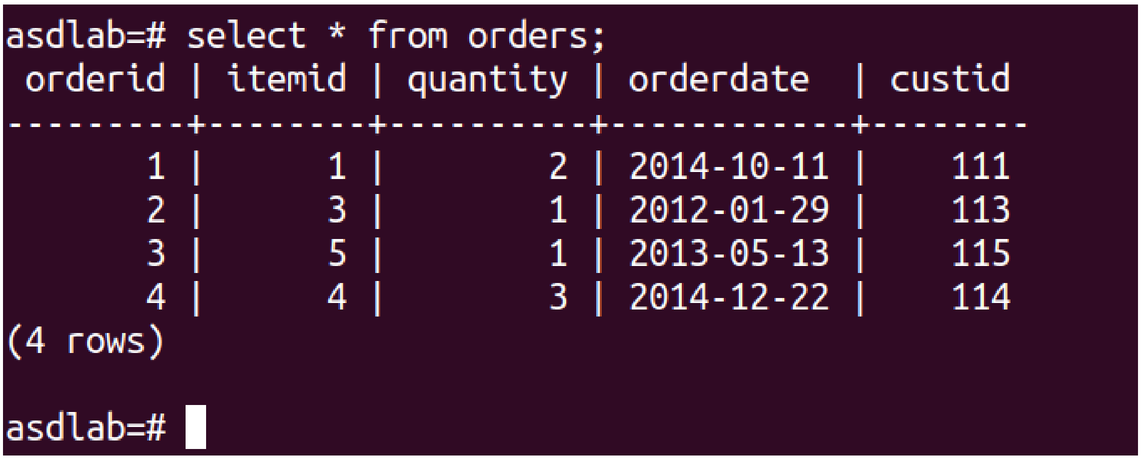
Figure 2: customers Table

**create table orders(
orderid int not null,
itemid int ,
quantity int not null,
orderdate date ,custid int
primary key(orderid),
foreign key(itemid) references items(itemid) on update cascade on delete cascade ,
foreign key(custid) references customers(custid) on update cascade on delete cascade));**

```
insert into orders values(1,1,2,'2014-10-11',111);
insert into orders values(2,3,1,'2012-01-29',113);
insert into orders values(3,5,1,'2013-05-13',115);
insert into orders values(4,4,3,'2014-12-22',114);
```

**0. Display the details orders table**

```
select * from orders;
```



```
asdlab=# select * from orders;
 orderid | itemid | quantity | orderdate  | custid
---------+--------+----------+------------+--------
       1 |      1 |        2 | 2014-10-11 |    111
       2 |      3 |        1 | 2012-01-29 |    113
       3 |      5 |        1 | 2013-05-13 |    115
       4 |      4 |        3 | 2014-12-22 |    114
(4 rows)

asdlab=# 
```

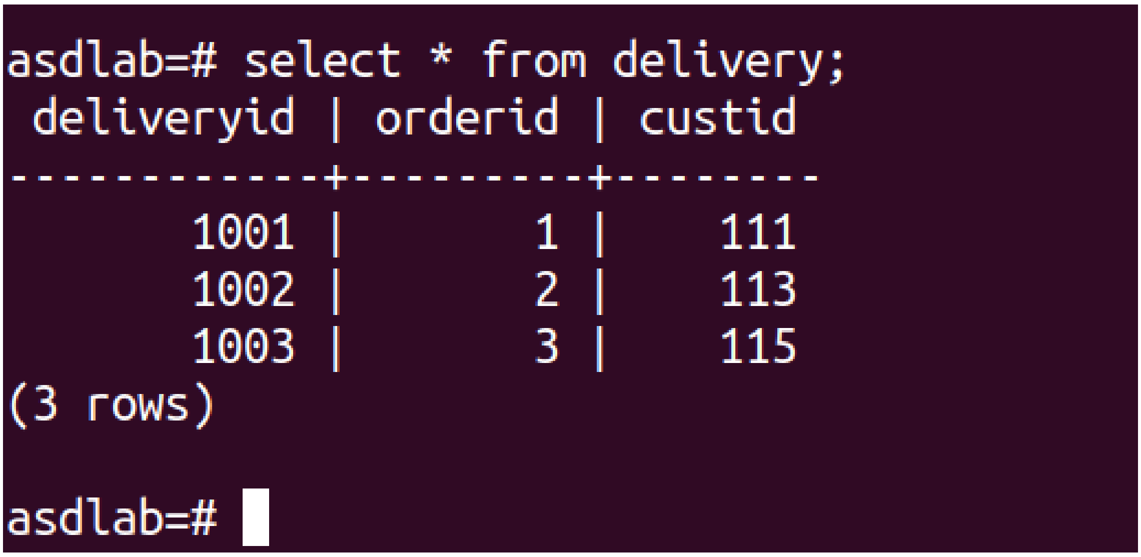
Figure 3: orders Table

**create table delivery(
deliveryid int not null,
orderid int ,custid int ,
primary key(deliveryid),
foreign key(orderid) references orders(orderid) on update cascade on delete cascade,
foreign key(custid) references customers(custid) on update cascade on delete cascade);**

```
insert into delivery values(1001,1,111);
insert into delivery values(1002,2,113);
insert into delivery values(1003,3,115);
```

### 0. Display the details Delivery table

```
select * from delivery;
```

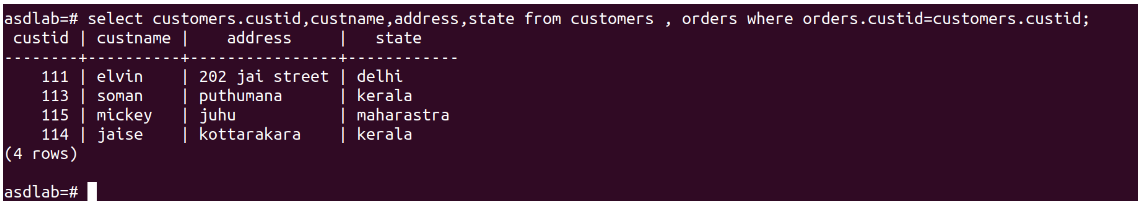


```
asdlab=# select * from delivery;
 deliveryid | orderid | custid
------------+---------+--------
       1001 |       1 |    111
       1002 |       2 |    113
       1003 |       3 |    115
(3 rows)

asdlab=# 
```

Figure 4: delivery Table

### 1. List the details of all customers who have placed an order

```
select customers.custid,custname,address,state from customers , orders
where orders.custid=customers.custid;
```

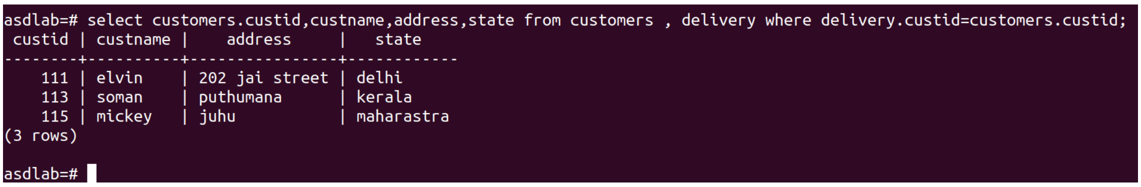


```
asdlab=# select customers.custid,custname,address,state from customers , orders where orders.custid=customers.custid;
 custid | custname |    address     |   state
--------+----------+----------------+-----------
    111 | elvin    | 202 jai street | delhi
    113 | soman    | puthumana      | kerala
    115 | mickey   | juhu           | maharastra
    114 | jaise    | kottarakara    | kerala
(4 rows)

asdlab=# 
```

Figure 5: Customers who placed an order

### 2. List the details of all customers whose orders have been delivered

```
select customers.custid,custname,address,state from customers , delivery
where delivery.custid=customers.custid;
```

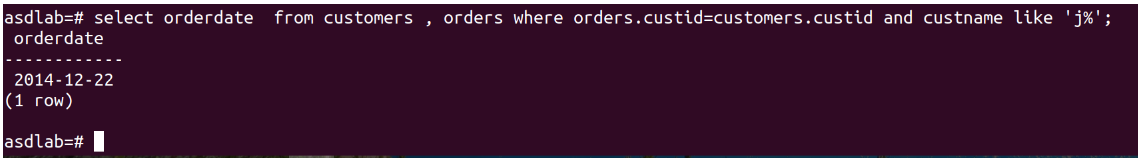


```
asdlab=# select customers.custid,custname,address,state from customers , delivery where delivery.custid=customers.custid;
 custid | custname |    address     |   state
--------+----------+----------------+-----------
    111 | elvin    | 202 jai street | delhi
    113 | soman    | puthumana      | kerala
    115 | mickey   | juhu           | maharastra
(3 rows)

asdlab=# 
```

Figure 6: Customers whose orders are delivered

### 3. Find the orderdate for all customers whose name starts in the letter ‘J’

```
select orderdate from customers , orders
where orders.custid=customers.custid and custname like ’j%’;
```

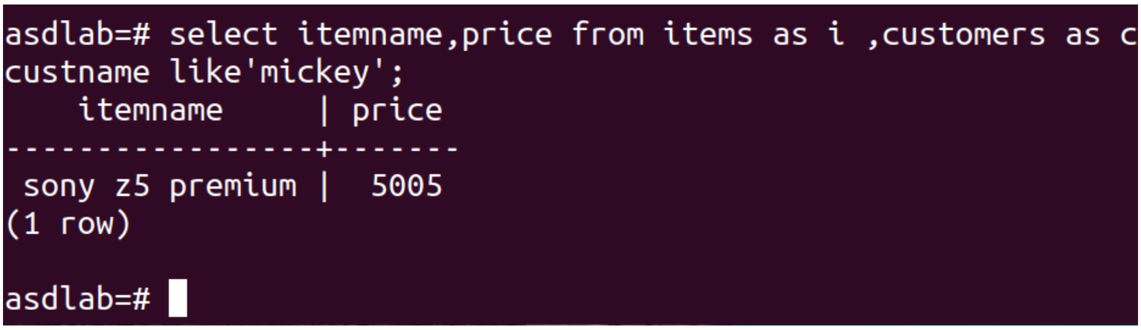


```
asdlab=# select orderdate  from customers , orders where orders.custid=customers.custid and custname like 'j%';
 orderdate
------------
 2014-12-22
(1 row)

asdlab=# 
```

Figure 7: orderdate with customers name starts in J

### 4.Display the name and price of all items bought by the customer ‘Mickey’

```
select itemname,price from items as i ,customers as c,orders as o
where i.itemid=o.itemid and c.custid=o.custid and c.custname like’mickey’;
```

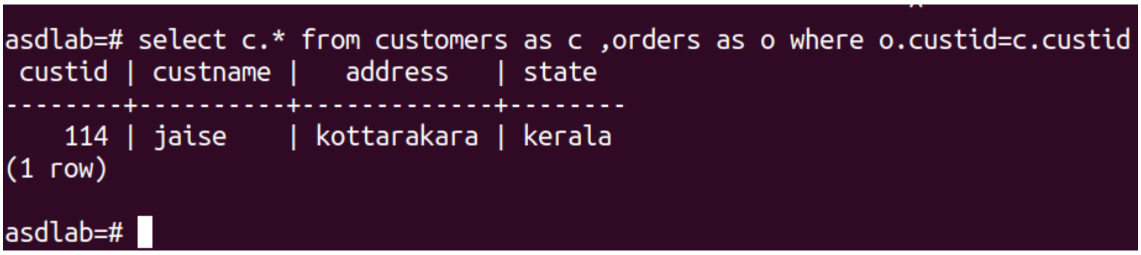


```
asdlab=# select itemname,price from items as i ,customers as c
custname like'mickey';
    itemname      | price
-----------------+-------
 sony z5 premium |  5005
(1 row)

asdlab=# 
```

Figure 8: Mickey’s Order

### 5. List the details of all customers who have placed an order after January 2013 and not received delivery of items.

```
select c.* from customers as c ,orders as o
where o.custid=c.custid and orderdate>=’2013-01-01’ and c.custid not in
(select custid from delivery );
```

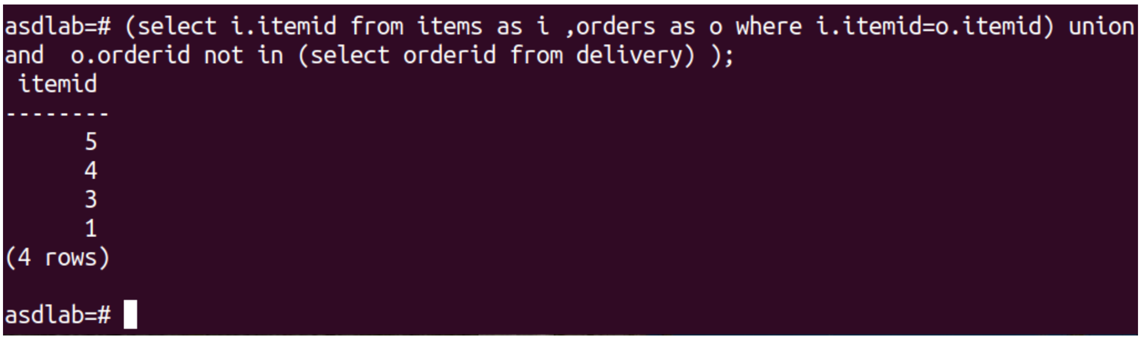


```
asdlab=# select c.* from customers as c ,orders as o where o.custid=c.custid
 custid | custname |   address   | state
--------+----------+-------------+--------
    114 | jaise    | kottarakara | kerala
(1 row)

asdlab=# 
```

Figure 9: Undelivered Order aftter 2013 january

**6.Find the itemid of items which has either been ordered or not delivered. (Use SET UNION)**

```
(select i.itemid from items as i ,orders as o where i.itemid=o.itemid)
union
(select i.itemid from items as i , orders as o where i.itemid=o.itemid
and o.orderid not in (select orderid from delivery) );
```

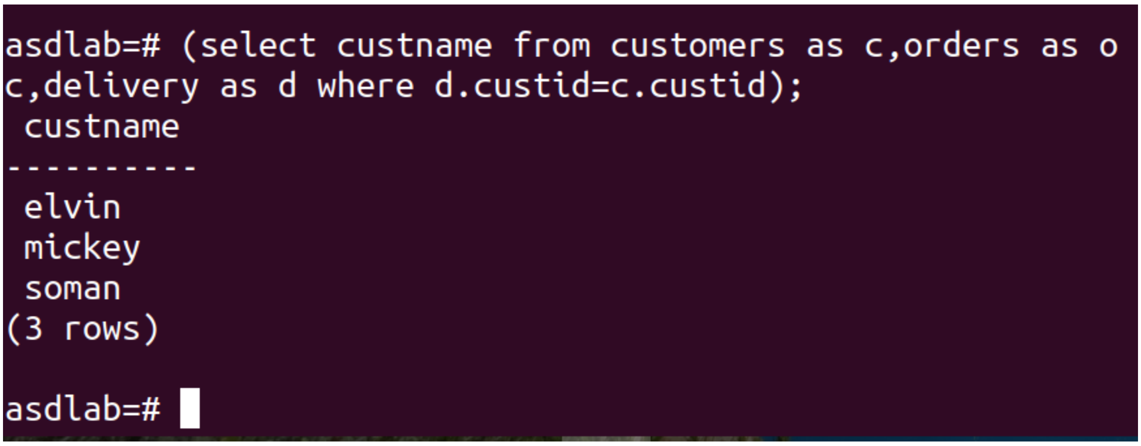


```
asdlab=# (select i.itemid from items as i ,orders as o where i.itemid=o.itemid) union
and  o.orderid not in (select orderid from delivery) );
 itemid
--------
      5
      4
      3
      1
(4 rows)

asdlab=# 
```

Figure 10: Either ordered or not delivered

**7.Find the name of all customers who have placed an order and have their orders delivered.(Use SET INTERSECTION)**

```
(select custname from customers as c,orders as o where o.custid=c.custid)
intersect
(select custname from customers as c,delivery as d where d.custid=c.custid);
```

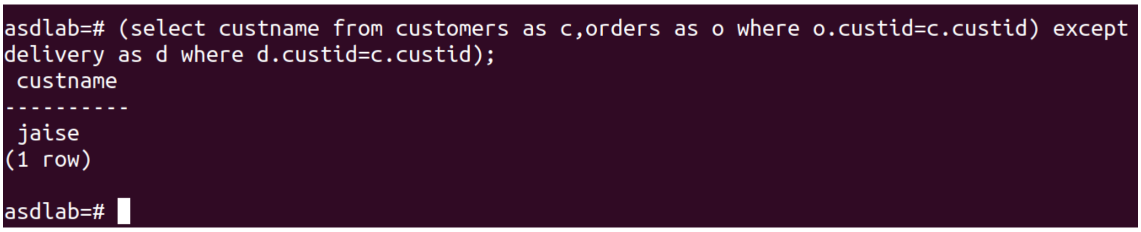


```
asdlab=# (select custname from customers as c,orders as o
c,delivery as d where d.custid=c.custid);
 custname
----------
 elvin
 mickey
 soman
(3 rows)

asdlab=# 
```

Figure 11: Ordered and delivered

**8.Find the custname of all customers who have placed an order but not having their ordersdelivered. (Use SET MINUS).**

```
(select custname from customers as c,orders as o where o.custid=c.custid)
except
(select custname from customers as c,delivery as d where d.custid=c.custid);
```

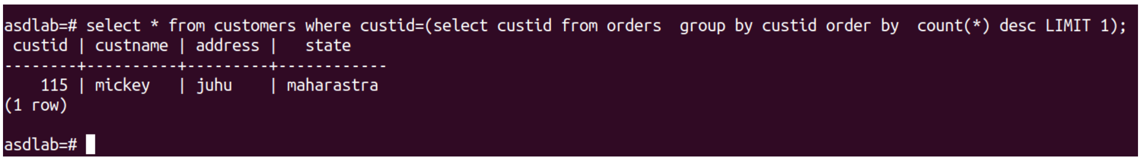


```
asdlab=# (select custname from customers as c,orders as o where o.custid=c.custid) except
delivery as d where d.custid=c.custid);
 custname
----------
 jaise
(1 row)

asdlab=# 
```

Figure 12: Ordered but not delivered

**9. Find the name of the customer who has placed the most number of orders.**

```
insert into orders values(5,2,1,’2012-05-25’,115);

select * from customers where custid=(select custid from orders
group by custid order by count(*) desc LIMIT 1);
```

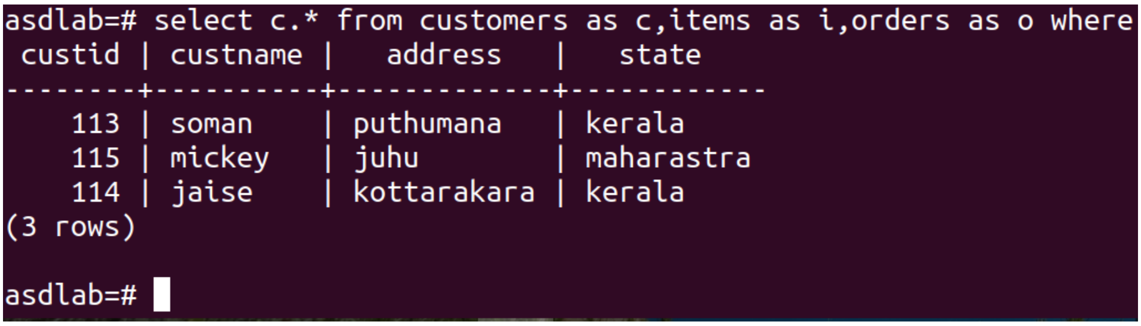


```
asdlab=# select * from customers where custid=(select custid from orders  group by custid order by  count(*) desc LIMIT 1);
 custid | custname | address |   state
--------+----------+---------+-----------
    115 | mickey   | juhu    | maharastra
(1 row)

asdlab=# 
```

Figure 13: Customer who placed most number of orders

**10. Find the details of all customers who have purchased items exceeding a price of 5000 $.**

```
select c.* from customers as c,items as i,orders as o where o.itemid=i.itemid
and c.custid=o.custid and price>5000;
```

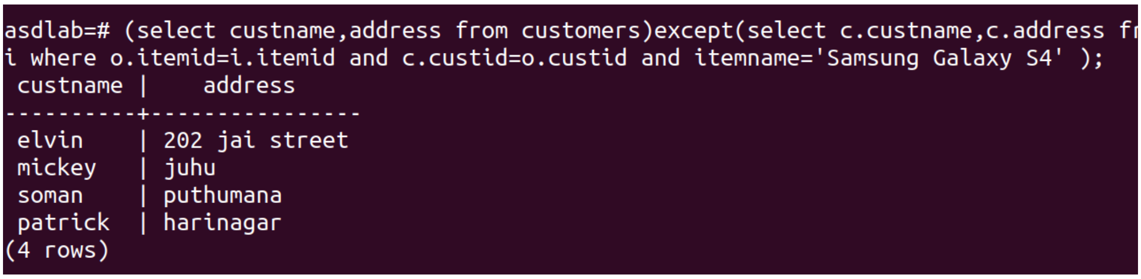


```
asdlab=# select c.* from customers as c,items as i,orders as o where
 custid | custname |   address   |   state
--------+----------+-------------+-----------
    113 | soman    | puthumana   | kerala
    115 | mickey   | juhu        | maharastra
    114 | jaise    | kottarakara | kerala
(3 rows)

asdlab=# 
```

Figure 14: More than 5000

### 11.Find the name and address of customers who has not ordered a ‘Samsung Galaxy S4’

```
(select custname,address from customers)
except
(select c.custname,c.address from customers as c ,orders as o, items as i
where o.itemid=i.itemid and c.custid=o.custid
and itemname='Samsung Galaxy S4' );
```

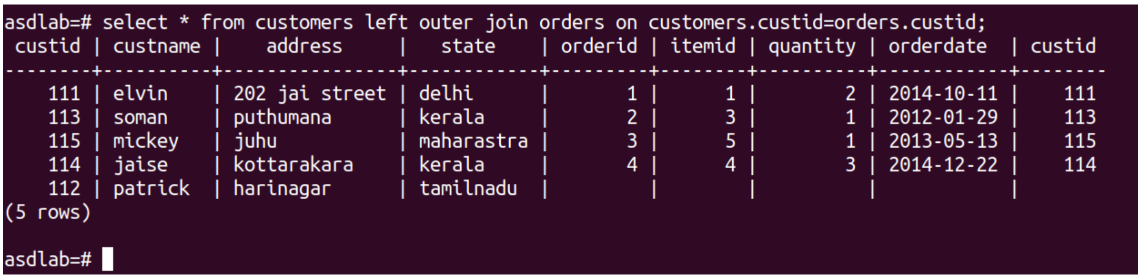


```
asdlab=# (select custname,address from customers)except(select c.custname,c.address fr
i where o.itemid=i.itemid and c.custid=o.custid and itemname='Samsung Galaxy S4' );
 custname |    address
----------+----------------
 elvin    | 202 jai street
 mickey   | juhu
 soman    | puthumana
 patrick  | harinagar
(4 rows)
```

Figure 15: Customers not ordered galaxy s4

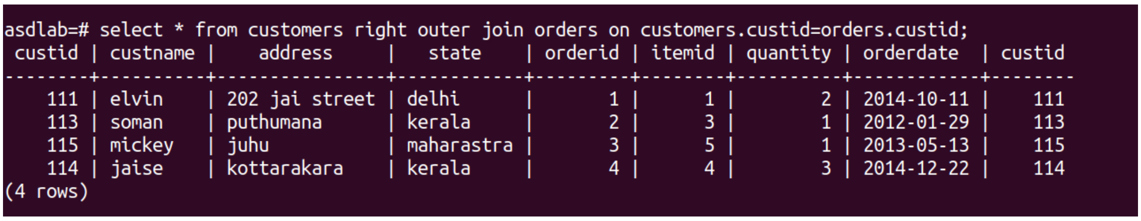
### 12. Perform Left Outer Join and Right Outer Join on Customers & Orders Table.

```
select * from customers left outer join orders on customers.custid=orders.custid;
select * from customers right outer join orders on customers.custid=orders.custid;
```



```
asdlab=# select * from customers left outer join orders on customers.custid=orders.custid;
 custid | custname |    address     |   state    | orderid | itemid | quantity | orderdate  | custid
--------+----------+----------------+------------+---------+--------+----------+------------+--------
    111 | elvin    | 202 jai street | delhi      |       1 |      1 |        2 | 2014-10-11 |    111
    113 | soman    | puthumana      | kerala     |       2 |      3 |        1 | 2012-01-29 |    113
    115 | mickey   | juhu           | maharastra |       3 |      5 |        1 | 2013-05-13 |    115
    114 | jaise    | kottarakara    | kerala     |       4 |      4 |        3 | 2014-12-22 |    114
    112 | patrick  | harinagar      | tamilnadu  |         |        |          |            |
(5 rows)

asdlab=# 
```

Figure 16: Left outer join

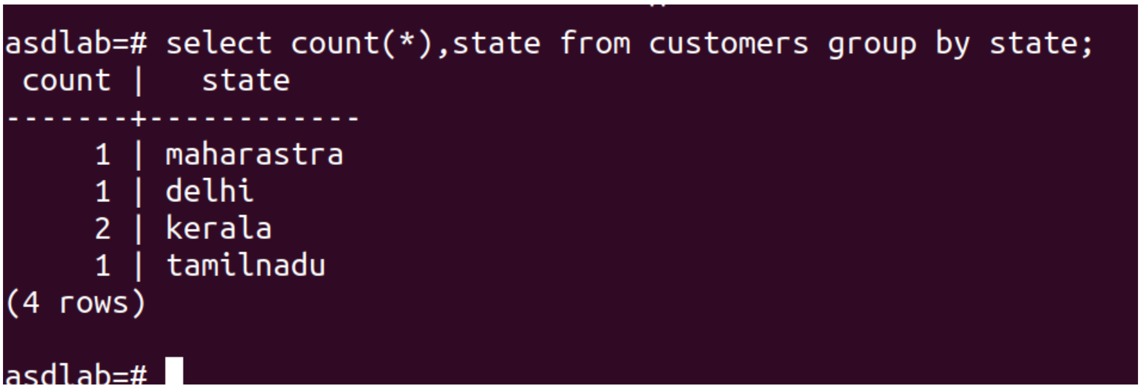


```
asdlab=# select * from customers right outer join orders on customers.custid=orders.custid;
 custid | custname |    address     |   state    | orderid | itemid | quantity | orderdate  | custid
--------+----------+----------------+------------+---------+--------+----------+------------+--------
    111 | elvin    | 202 jai street | delhi      |       1 |      1 |        2 | 2014-10-11 |    111
    113 | soman    | puthumana      | kerala     |       2 |      3 |        1 | 2012-01-29 |    113
    115 | mickey   | juhu           | maharastra |       3 |      5 |        1 | 2013-05-13 |    115
    114 | jaise    | kottarakara    | kerala     |       4 |      4 |        3 | 2014-12-22 |    114
(4 rows)
```

Figure 17: Right outer join

**13. Find the details of all customers grouped by state.**

```
select count(*),state from customers group by state;
```

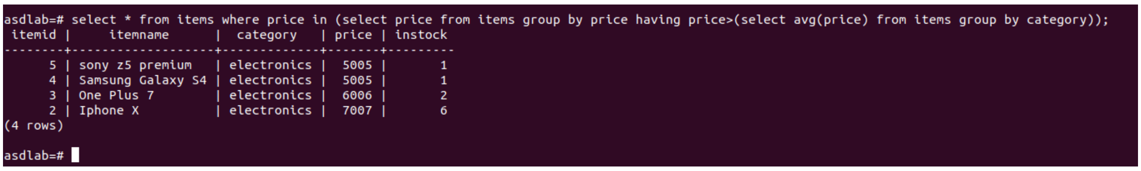


```
asdlab=# select count(*),state from customers group by state;
 count |   state
-------+------------
     1 | maharastra
     1 | delhi
     2 | kerala
     1 | tamilnadu
(4 rows)

asdlab=#
```

Figure 18: Grouped by state

**14.Display the details of all items grouped by category and having a price greater than the average price of all items.**

```
select * from items where price in (select price from items group by price having
price>(select avg(price) from items group by category));
```



```
asdlab=# select * from items where price in (select price from items group by price having price>(select avg(price) from items group by category));
 itemid |     itemname      |  category   | price | instock
--------+-------------------+-------------+-------+---------
      5 | sony z5 premium   | electronics |  5005 |       1
      4 | Samsung Galaxy S4 | electronics |  5005 |       1
      3 | One Plus 7        | electronics |  6006 |       2
      2 | Iphone X          | electronics |  7007 |       6
(4 rows)

asdlab=#
```

Figure 19: price ¿ Average price

## 3 Result

The query was executed successfully and output was verified.