

```
-- 1.
-- a.combine each row of dealer table with each row of client table
select *
  from dealer cross join client;
```

	dealer.id	dealer.name	location	charge	client.id	client.name	city	priority	dealer_id
1	101	Ерлан	Алматы	0.15	802	Айша	Алматы	100	101
2	101	Ерлан	Алматы	0.15	807	Даулет	Алматы	200	101
3	101	Ерлан	Алматы	0.15	805	Али	Кокшетау	200	102
4	101	Ерлан	Алматы	0.15	808	Ильяс	Нур-Султан	300	102
5	101	Ерлан	Алматы	0.15	804	Алия	Караганда	300	106
6	101	Ерлан	Алматы	0.15	809	Саша	Шымкент	100	103
7	101	Ерлан	Алматы	0.15	803	Маша	Семей	200	107
8	101	Ерлан	Алматы	0.15	801	Максат	Нур-Султан	<null>	105
9	102	Жасмин	Караганда	0.13	802	Айша	Алматы	100	101
10	102	Жасмин	Караганда	0.13	807	Даулет	Алматы	200	101
11	102	Жасмин	Караганда	0.13	805	Али	Кокшетау	200	102
12	102	Жасмин	Караганда	0.13	808	Ильяс	Нур-Султан	300	102
...									
45	103	Жұлдыз	Актобе	0.12	804	Алия	Караганда	300	106
46	103	Жұлдыз	Актобе	0.12	809	Саша	Шымкент	100	103
47	103	Жұлдыз	Актобе	0.12	803	Маша	Семей	200	107
48	103	Жұлдыз	Актобе	0.12	801	Максат	Нур-Султан	<null>	105

```
-- b.find all dealers along with client name, city, grade, sell number,
date, and amount
select dealer.name, client.name, client.city, client.priority, sell.id,
sell.date, sell.amount
  from dealer inner join client
    on dealer.id = client.dealer_id
 inner join sell
    on client.id = sell.client_id;
```

	dealer.name	client.name	city	priority	id	date	amount
1	Жасмин	Али	Кокшетау	200	201	2012-10-05 00:00:00.00...	150.5
2	Азамат	Максат	Нур-Султан	<null>	209	2012-09-10 00:00:00.00...	270.65
3	Ерлан	Айша	Алматы	100	202	2012-10-05 00:00:00.00...	65.26
4	Жұлдыз	Саша	Шымкент	100	204	2012-08-17 00:00:00.00...	110.5
5	Жасмин	Али	Кокшетау	200	207	2012-09-10 00:00:00.00...	948.5
6	Ерлан	Даулет	Алматы	200	205	2012-07-27 00:00:00.00...	2400.6
7	Ерлан	Айша	Алматы	100	208	2012-09-10 00:00:00.00...	5760
8	Канат	Алия	Караганда	300	210	2012-10-10 00:00:00.00...	1983.43
9	Жұлдыз	Саша	Шымкент	100	203	2012-10-10 00:00:00.00...	2480.4
10	Жасмин	Ильяс	Нур-Султан	300	212	2012-06-27 00:00:00.00...	250.45
11	Евгений	Маша	Семей	200	211	2012-08-17 00:00:00.00...	75.29
12	Ерлан	Айша	Алматы	100	213	2012-04-25 00:00:00.00...	3045.6

```
-- c.find the dealer and client who belongs to same city
select dealer.name, client.name, client.city
  from dealer cross join client
    where dealer.location = client.city;
```

	dealer.name	client.name	city
1	Ерлан	Даулет	Алматы
2	Ерлан	Айша	Алматы
3	Жасмин	Алия	Караганда
4	Азамат	Максат	Нур-Султан
5	Азамат	Ильяс	Нур-Султан
6	Канат	Алия	Караганда

```
-- d.find sell id, amount, client name, city those sells where sell
amount exists between 100 and 500
select sell.id, sell.amount, client.name, client.city
  from sell inner join client
    on sell.client_id = client.id
 where sell.amount > 100 and sell.amount < 500;
```

	id	amount	name	city
1	201	150.5	Али	Кокшетау
2	212	250.45	Ильяс	Нур-Султан
3	204	110.5	Саша	Шымкент
4	209	270.65	Максат	Нур-Султан

```
-- e.find dealers who works either for one or more client or not yet
join under any of the clients
select dealer.name, client.name
  from dealer left join client
    on dealer.id = client.dealer_id;
```

	dealer.name	client.name
1	Ерлан	Айша
2	Ерлан	Даулет
3	Жасмин	Али
4	Жасмин	Ильяс
5	Канат	Алия
6	Жулдыз	Саша
7	Евгений	Маша
8	Азамат	Максат

```
-- f.find the dealers and the clients he service, return client name,
city, dealer name,commission
select dealer.name, client.name, client.city, dealer.charge
  from client inner join dealer
    on client.dealer_id = dealer.id
```

	dealer.name	client.name	city	charge
1	Ерлан	Айша	Алматы	0.15
2	Ерлан	Даулет	Алматы	0.15
3	Жасмин	Али	Кокшетау	0.13
4	Жасмин	Ильяс	Нур-Султан	0.13
5	Канат	Алия	Караганда	0.14
6	Жулдыз	Саша	Шымкент	0.12
7	Евгений	Маша	Семей	0.13
8	Азамат	Максат	Нур-Султан	0.11

```
-- g.find client name, client city, dealer, commission those dealers who
received a
-- commission from the sell more than 12%

select client.name, client.city, dealer.name, dealer.charge
  from dealer inner join client
    on dealer.id = client.dealer_id
 where dealer.charge > 0.12;
```

	client.name	city	dealer.name	charge
1	Айша	Алматы	Ерлан	0.15
2	Даулет	Алматы	Ерлан	0.15
3	Али	Кокшетау	Жасмин	0.13
4	Ильяс	Нур-Султан	Жасмин	0.13
5	Алия	Караганда	Канат	0.14
6	Маша	Семей	Евгений	0.13

```
-- h.make a report with client name, city, sell id, sell date, sell
amount, dealer name
-- and commission to find that either any of the existing clients
haven't made a
-- purchase(sell) or made one or more purchase(sell) by their dealer or
by own.
```

```
select client.name, client.city, sell.id, sell.date, sell.amount,
dealer.name, dealer.charge
  from client
    left outer join sell on client.id = sell.client_id
    left outer join dealer on client.dealer_id = dealer.id
```

	client.name	city	id	date	amount	dealer.name	charge
1	Али	Кокшетау	201	2012-10-05 00:00:00.000000	150.5	Жасмин	0.13
2	Максат	Нур-Султан	209	2012-09-10 00:00:00.000000	270.65	Азамат	0.11
3	Айша	Алматы	202	2012-10-05 00:00:00.000000	65.26	Ерлан	0.15
4	Саша	Шымкент	204	2012-08-17 00:00:00.000000	110.5	Жулдыз	0.12
5	Али	Кокшетау	207	2012-09-10 00:00:00.000000	948.5	Жасмин	0.13
6	Даулет	Алматы	205	2012-07-27 00:00:00.000000	2400.6	Ерлан	0.15
7	Айша	Алматы	208	2012-09-10 00:00:00.000000	5760	Ерлан	0.15
8	Алия	Караганда	210	2012-10-10 00:00:00.000000	1983.43	Канат	0.14
9	Саша	Шымкент	203	2012-10-10 00:00:00.000000	2480.4	Жулдыз	0.12
10	Ильяс	Нур-Султан	212	2012-06-27 00:00:00.000000	250.45	Жасмин	0.13
11	Маша	Семей	211	2012-08-17 00:00:00.000000	75.29	Евгений	0.13
12	Айша	Алматы	213	2012-04-25 00:00:00.000000	3045.6	Ерлан	0.15

```
-- i. find dealers who either work for one or more clients. The client
may have made, either one or more purchases, or purchase amount above
2000 and must have a grade, or he may not have made any purchase to the
associated dealer. Print client name, client grade, dealer name, sell
id, sell amount
```

```
select dealer.name, client.name, sell.amount, client.priority
  from client
    right outer join dealer on dealer.id = client.dealer_id
    left outer join sell on client.id = sell.client_id
 where sell.amount > 2000 and priority is not NULL;
```

	dealer.name	client.name	amount	priority
1	Ерлан	Даулет	2400.6	200
2	Ерлан	Айша	5760	100
3	Жұлдыз	Саша	2480.4	100
4	Ерлан	Айша	3045.6	100

--2

```
-- a.count the number of unique clients, compute average and total
purchase amount of client orders by each date.
```

```
create view avg_purchase
  as select date, count (distinct client_id) as client_id, avg(amount)
as average_amount, sum(amount) as total_amount
  from sell
  group by date
```

	date	client_id	average_amount	total_amount
1	2012-04-25 00:00:00.000000	1	3045.6	3045.6
2	2012-06-27 00:00:00.000000	1	250.45	250.45
3	2012-07-27 00:00:00.000000	1	2400.6	2400.6
4	2012-08-17 00:00:00.000000	2	92.89500000000001	185.79000000000002
5	2012-09-10 00:00:00.000000	3	2326.383333333333	6979.15
6	2012-10-05 00:00:00.000000	2	107.88	215.76
7	2012-10-10 00:00:00.000000	2	2231.915	4463.83

```
-- b.find top 5 dates with the greatest total sell amount
```

```
select date, total_amount from avg_purchase
  order by total_amount desc
  limit 5
```

	date	total_amount
1	2012-09-10 00:00:00.000000	6979.15
2	2012-10-10 00:00:00.000000	4463.83
3	2012-04-25 00:00:00.000000	3045.6
4	2012-07-27 00:00:00.000000	2400.6
5	2012-06-27 00:00:00.000000	250.45

```
-- c.count the number of sales, compute average and total amount of all
sales of each dealer
```

```
create view dealer_sales as
  select dealer_id, count(dealer_id) as numb_of_sales, avg(amount) as
average_amount, sum(amount) as total_amount
  from sell
  group by dealer_id
```

	dealer_id ▲ 1	numb_of_sales ▾	average_amount ▾	total_amount ▾
1	101	4	2817.8650000000002	11271.460000000001
2	102	3	449.81666666666666	1349.45
3	103	2	1295.45	2590.9
4	105	1	270.65	270.65
5	106	1	1983.43	1983.43
6	107	1	75.29	75.29

```
-- d.compute how much all dealers earned from charge(total sell amount
*charge) in each location
create view earnings as
  select dealer.id, dealer.name, round(sum(sell.amount *
dealer.charge)) as earned, location
  from dealer inner join sell on dealer.id = sell.dealer_id
  group by dealer.id, dealer.name, location
```

	id ▾	name ▾	earned ▾	location ▾
1	105	Азамат	30	Нур-Султан
2	107	Евгений	10	Атырау
3	101	Ерлан	1691	Алматы
4	102	Жасмин	175	Караганда
5	103	Жулдыз	311	Актобе
6	106	Канат	278	Караганда

```
-- e.compute number of sales, average and total amount of all sales
dealers made in each location
create view sale as
  select dealer.location, count(dealer.location), avg(amount) as
average_amount, sum(amount) as total_amount
  from sell inner join dealer on sell.dealer_id = dealer.id
  group by dealer.location
```

	location ▲ 1	count ▾	average_amount ▾	total_amount ▾
1	Актобе	2	1295.45	2590.9
2	Алматы	4	2817.8650000000002	11271.460000000001
3	Атырау	1	75.29	75.29
4	Караганда	4	833.22	3332.88
5	Нур-Султан	1	270.65	270.65

```
-- f.compute number of sales, average and total amount of expenses in
each city clients made.
create view expenses as
  select count(client.city), client.city, avg(amount) as
average_amount, sum(amount) as total_amount
  from sell inner join client on sell.client_id = client.id
  group by client.city
```

	city	count	average_amount	total_amount
1	Караганда	1	1983.43	1983.43
2	Алматы	4	2817.8650000000002	11271.460000000001
3	Шымкент	2	1295.45	2590.9
4	Нур-Султан	2	260.54999999999995	521.09999999999999
5	Семей	1	75.29	75.29
6	Кокшетау	2	549.5	1099

```
-- g.find cities where total expenses more than total amount of sales in
locations
select expenses.total_amount, sale.total_amount, location, city from
sale full outer join expenses on sale.location = expenses.city
  where expenses.total_amount > sale.total_amount
```

	expenses.total_amount	sale.total_amount	location	city
1	521.09999999999999	270.65	Нур-Султан	Нур-Султан