1-> List all detail of customers who have purchased maximum amount(rs) of clothes.

```
select c.*,a.address_id,a.address,a.customer_city,a.customer_state,a.pincode
from warehousemanagement.tbl_address as a join warehousemanagement.tbl_customer as c
on (a.customer_contactno=c.customer_contactno)
where a.address_id=(
        select customer_addressid from (select sum(total_amount) as total_amount_of_orders, customer_addressid from
        warehousemanagement.tbl_sales group by customer_addressid) as sale
        where sale.total_amount_of_orders=(
            select max(tbl_temp.total_amount_of_orders) from (
            select sum(total_amount) as total_amount_of_orders, customer_addressid from warehousemanagement.tbl_sales group by
            customer_addressid
        ) as tbl_temp
    )
);
```

```
1  select c.*,a.address_id,a.address,a.customer_city,a.customer_state,a.pincode
2  from warehousemanagement.tbl_address as a join warehousemanagement.tbl_customer as c
3  on (a.customer_contactno=c.customer_contactno)
4  where a.address_id=(
5  select customer_addressid from (
6  select sum(total_amount) as total_amount_of_orders, customer_addressid from warehousemanagement.t
7  where sale.total_amount_of_orders=(
8  select max(tbl_temp.total_amount_of_orders) from (
9  select sum(total_amount) as total_amount_of_orders, customer_addressid from warehousemanagement.t
10 ) as tbl_temp
11 )
12 );
```

Data Output | Explain | Messages | Notifications

	customer_contactno character (12)	customer_fname character (50)	customer_lname character (50)	customer_dob date	customer_email character (30)	address_id character (10)	address character (200)	customer_city character (20)
1	9725141478	Aayush	Sharma	1992-05-10	aayush_sharma...	ad108	Bhatwadi	Mumbai

->Algebra

(7) List all detail of customers who have purchased maximum amount (rs) of clothes.

ρ (customer_addressid $\mathcal{F}$ SUM (total_amount) → total_amount_of_orders, customer_id (tbl_sales)) → tbl_temp

($\mathcal{F}$ MAX (total_amount_of_orders) (tbl_temp)) → RESULT1

$\left[\pi_{\text{customer\_addressid}}\left[\sigma_{\text{sale.total\_amount\_of\_orders} = \text{RESULT1}}(\text{tbl\_temp})\right]\right]$ → RESULT2

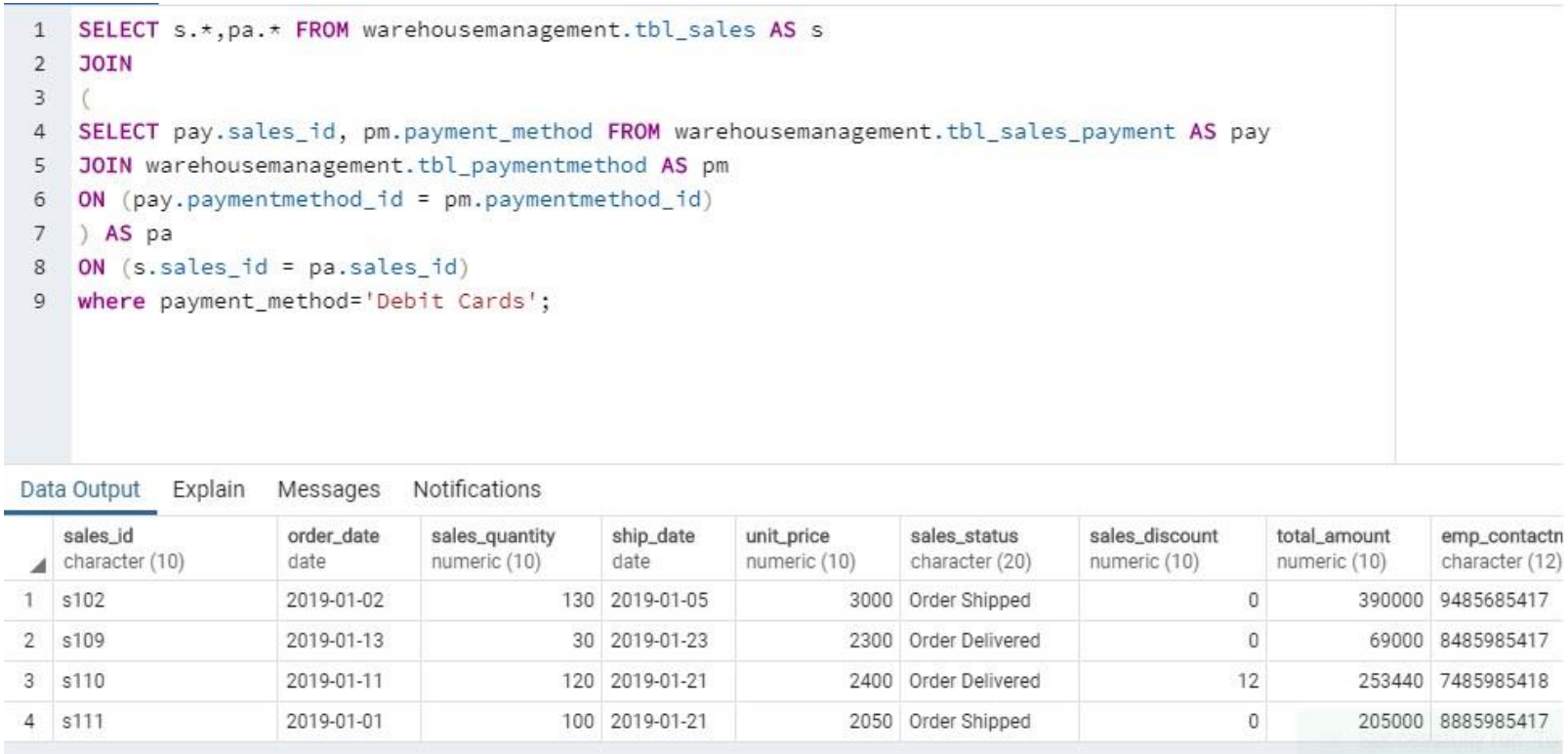
ρ (a, tbl_address)

ρ (c, tbl_customer)

$\pi_{c.*, a.address\_id, a.address, a.customer\_city, a.customer\_state, a.pincode}\left[\sigma_{a.address\_id = \text{RESULT2}}\left[a \bowtie_{(a.customer\_contactno = c.customer\_contactno)} c\right]\right]$

2-> Fetch Sales Order of perticular Payment Methods.

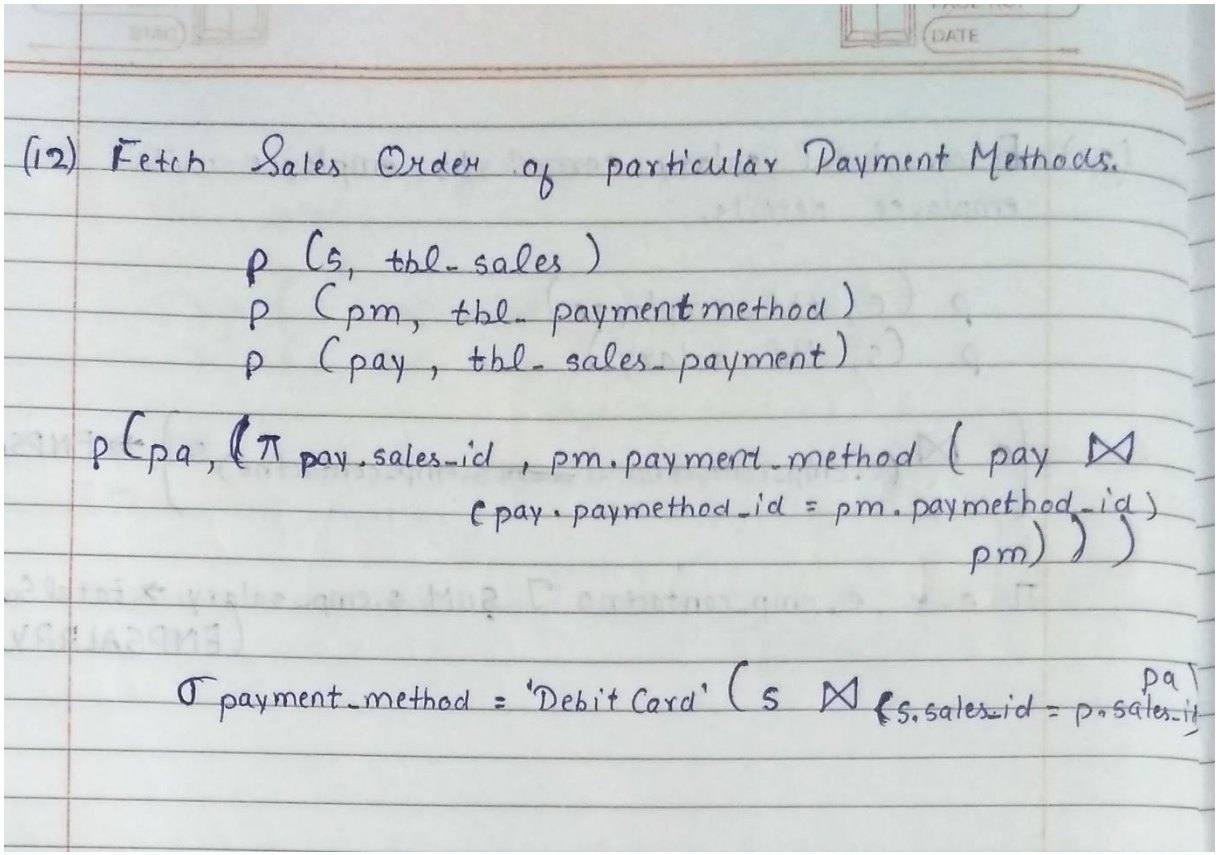
```
SELECT s.*,pa.* FROM warehousemanagement.tbl_sales AS s
JOIN
(
    SELECT pay.sales_id, pm.payment_method FROM warehousemanagement.tbl_sales_payment AS pay
    JOIN warehousemanagement.tbl_paymentmethod AS pm
    ON (pay.paymentmethod_id = pm.paymentmethod_id)
) AS pa
ON (s.sales_id = pa.sales_id)
where payment_method='Debit Cards';
```



Data Output | Explain | Messages | Notifications

	sales_id character (10)	order_date date	sales_quantity numeric (10)	ship_date date	unit_price numeric (10)	sales_status character (20)	sales_discount numeric (10)	total_amount numeric (10)	emp_contactn character (12)
1	s102	2019-01-02	130	2019-01-05	3000	Order Shipped	0	390000	9485685417
2	s109	2019-01-13	30	2019-01-23	2300	Order Delivered	0	69000	8485985417
3	s110	2019-01-11	120	2019-01-21	2400	Order Delivered	12	253440	7485985418
4	s111	2019-01-01	100	2019-01-21	2050	Order Shipped	0	205000	8885985417

-> Algebra



(12) Fetch Sales Order of particular Payment Methods.

ρ (s, tbl_sales)
ρ (pm, tbl_paymentmethod)
ρ (pay, tbl_sales_payment)

$\rho(pa, (\pi_{pay.sales\_id,\ pm.payment\_method}(pay \bowtie_{(pay.paymethod\_id = pm.paymethod\_id)} pm)))$

$\sigma_{payment\_method = 'Debit\ Card'}(s \bowtie_{(s.sales\_id = p.sales\_id)} pa)$

3-> Fetch total number of items sold by employee with it's details

SELECT e.*,sum(s.sales_quantity) as total_quantity_sold

FROM warehousemanagement.tbl_employee as e

JOIN warehousemanagement.tbl_sales as s

ON e.emp_contactno = s.emp_contactno GROUP BY e.emp_contactno;

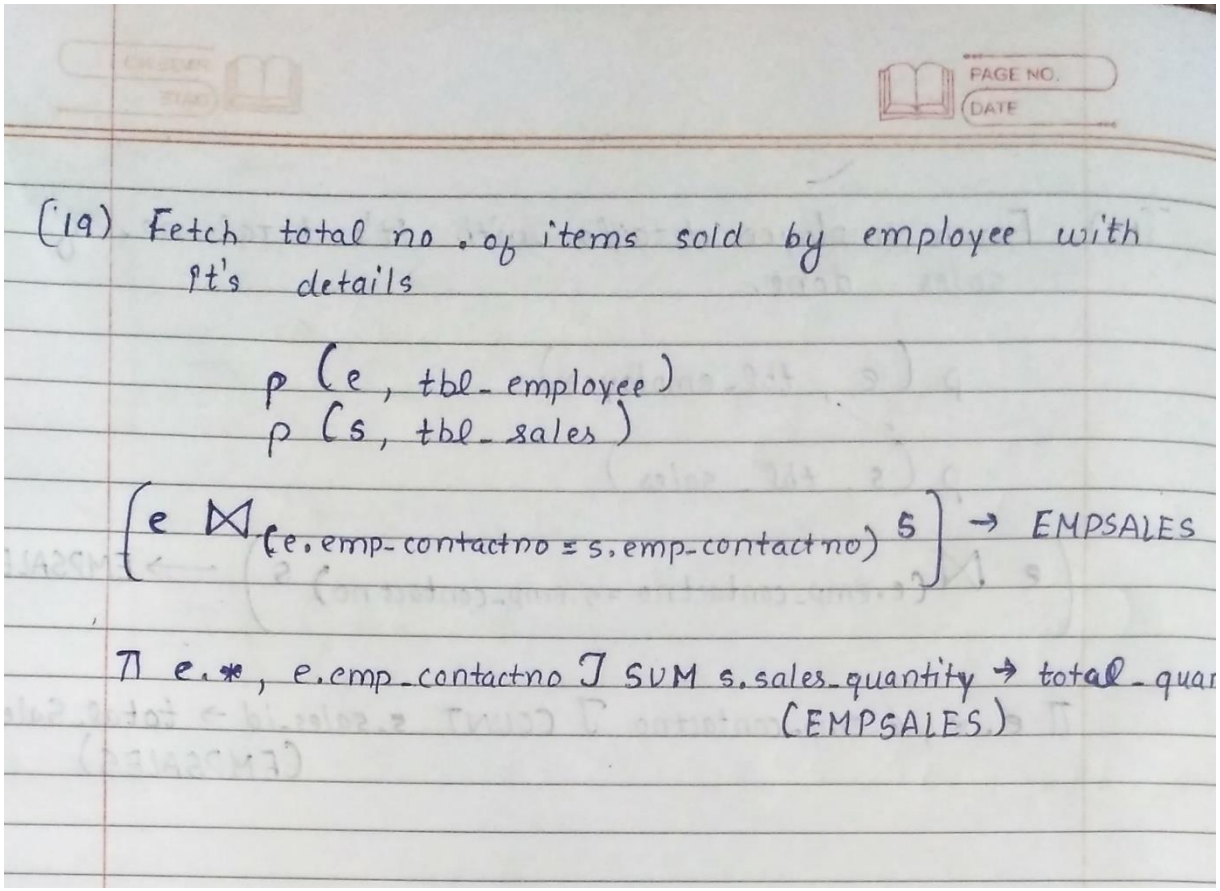
->

```
1  SELECT e.*,sum(s.sales_quantity) as total_quantity_sold
2  FROM warehousemanagement.tbl_employee as e
3  JOIN warehousemanagement.tbl_sales as s
4  ON e.emp_contactno = s.emp_contactno GROUP BY e.emp_contactno;
```

Data Output | Explain | Messages | Notifications

	emp_contactno character (12)	emp_name character (20)	emp_dob date	emp_gender character (2)	emp_hiredate date	emp_aadharno character (12)	department_id character (10)	total_quantity_sold numeric
1	7485985418	Sumant	1952-04-19	f	1985-02-18	123456789122	d007	120
2	7685985417	Patricio	1960-10-04	m	1992-12-18	123456789133	d006	70
3	8385985417	Kazuhide	1954-06-19	f	1987-04-03	123456789103	d002	56
4	7585985417	Eberhardt	1963-06-07	m	1985-10-20	123456789143	d008	215
5	7285985417	Kazuhito	1961-05-02	m	1995-01-27	123456789173	d003	16

->Algebra



(19) Fetch total no. of items sold by employee with it's details

ρ (e, tbl_employee)
ρ (s, tbl_sales)

$\left[e \bowtie_{(e.emp\_contactno = s.emp\_contactno)} s \right] \rightarrow$ EMPSALES

Π e.*, e.emp_contactno $\mathcal{T}$ SUM s.sales_quantity $\rightarrow$ total_quan
(EMPSALES)

3-> Fetch total salary paid to an employee in each department

```
SELECT d.*,dept.total_salary_dept as total_salary_paid FROM warehousemanagement.tbl_department as d
JOIN (
	SELECT sum(sal.total_salary_emp) as total_salary_dept, sal.department_id
	FROM(
		SELECT * FROM(
			SELECT e.department_id,sum(s.emp_salary) as total_salary_emp
			FROM warehousemanagement.tbl_employee as e
			JOIN warehousemanagement.tbl_salary as s
			ON e.emp_contactno = s.emp_contactno GROUP BY e.emp_contactno
		)AS sa
	)AS sal
	GROUP BY sal.department_id
)AS dept
ON d.dept_id=dept.department_id
```

```
1  SELECT d.*,dept.total_salary_dept as total_salary_paid FROM warehousemanagement.tbl_department as
2  JOIN (
3  SELECT sum(sal.total_salary_emp) as total_salary_dept, sal.department_id
4  FROM(
5  SELECT e.department_id,sum(s.emp_salary) as total_salary_emp
6  FROM warehousemanagement.tbl_employee as e
7  JOIN warehousemanagement.tbl_salary as s
8  ON e.emp_contactno = s.emp_contactno GROUP BY e.emp_contactno
9  )AS sal
10 GROUP BY sal.department_id
11 )AS dept
12 ON d.dept_id=dept.department_id
```

Data Output | Explain | Messages | Notifications

	dept_id character (5)	dept_name character (20)	manger_contact character (12)	total_salary_paid numeric
1	d005	Development	7485985417	142000
2	d008	Research	7585985417	73000
3	d004	Production	9485775417	225000

->Algebra

(22) Fetch total salary paid to an employee in each department.

ρ (d, tbl_department)
ρ (e, tbl_employee)
ρ (s, tbl_salary)

Π e.department_id , e.emp_contactno $\Im$ SUM s.emp_salary
→ total_salary_emp [e $\bowtie_{[e.emp\_contactno = s.emp\_contactno]}$ 5]

→ sal

Π sal.department_id $\Im$ SUM sal.total_salary_emp →
total_salary_dept (sal) → dept

Π d.*, dept.total_salary_dept [d $\bowtie_{[d.deptid = dept.department}$ dept

:::Triggers:::

1.

```
CREATE TRIGGER purchase_trigger AFTER INSERT ON warehousemanagement.tbl_purchase
FOR EACH ROW EXECUTE PROCEDURE add_quantity_func();
```

2.

```
CREATE OR REPLACE FUNCTION add_quantity_func() RETURNS TRIGGER AS $purchase_trigger$
   BEGIN

      UPDATE warehousemanagement.tbl_product
      set product_quantity=product_quantity+new.quantity
      where product_id=new.product_id;

      RETURN NEW;

   END;
$purchase_trigger$ LANGUAGE plpgsql;
```

3.

```
CREATE TRIGGER sale_trigger BEFORE INSERT ON warehousemanagement.tbl_sales
FOR EACH ROW EXECUTE PROCEDURE subtract_quantity_func();
```

4.

```
CREATE OR REPLACE FUNCTION subtract_quantity_func() RETURNS TRIGGER AS $sale_trigger$
    BEGIN

        UPDATE warehousemanagement.tbl_product
        SET product_quantity=product_quantity-NEW.sales_quantity
        WHERE product_id=NEW.product_id;

        RETURN NEW;

    END;
$sale_trigger$ LANGUAGE plpgsql;
```