

# ONLINE SHOPPING

GO ONLINE AND SHOPPING WITH US.



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## NHÓM 15

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# ONLINE SHOPPING

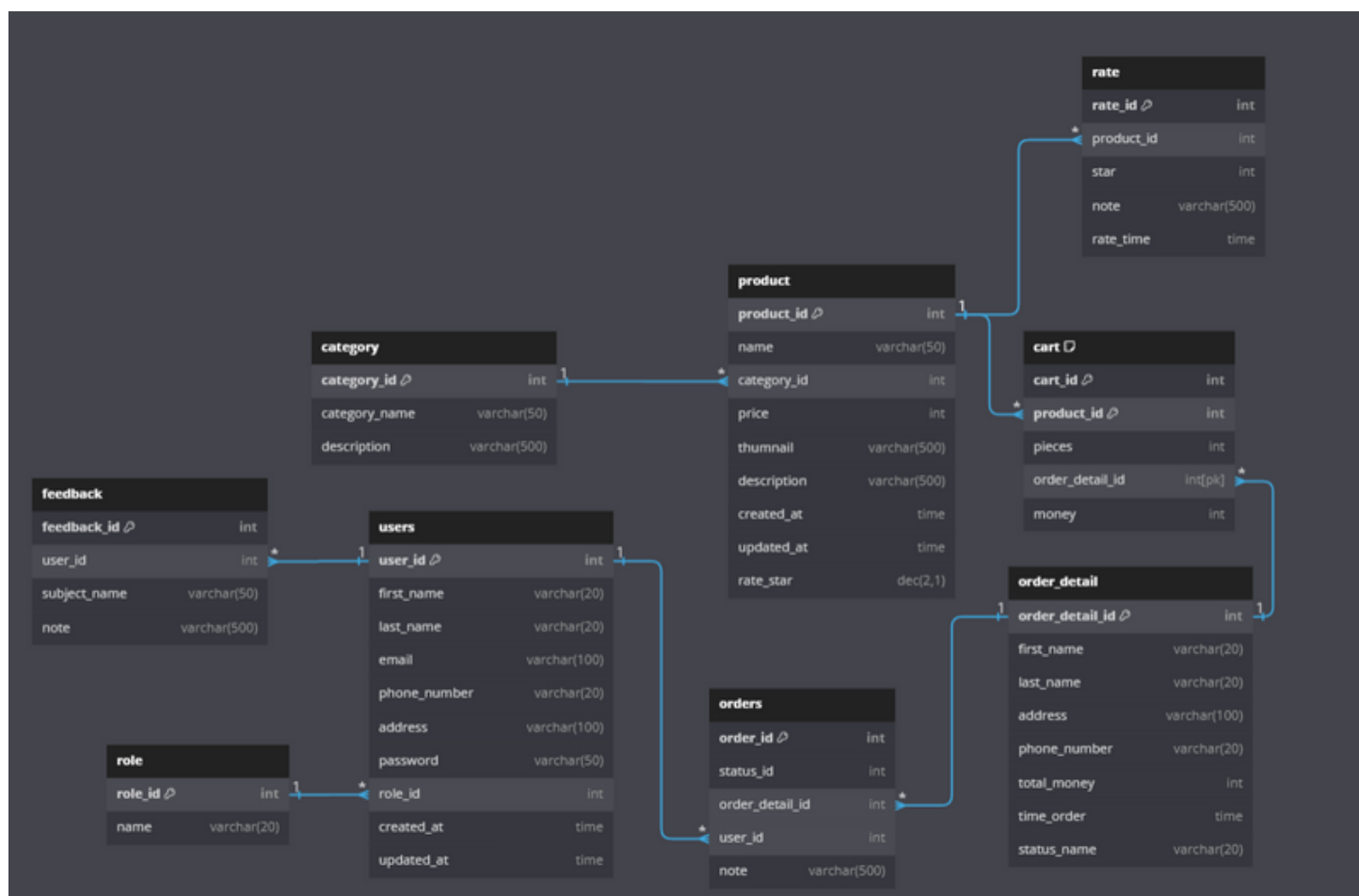
GO ONLINE AND SHOPPING WITH US.

**1. SƠ ĐỒ ERD CỦA WEB BÁN HÀNG**

**2. CÁC CÂU TRUY VẤN: SELECT**

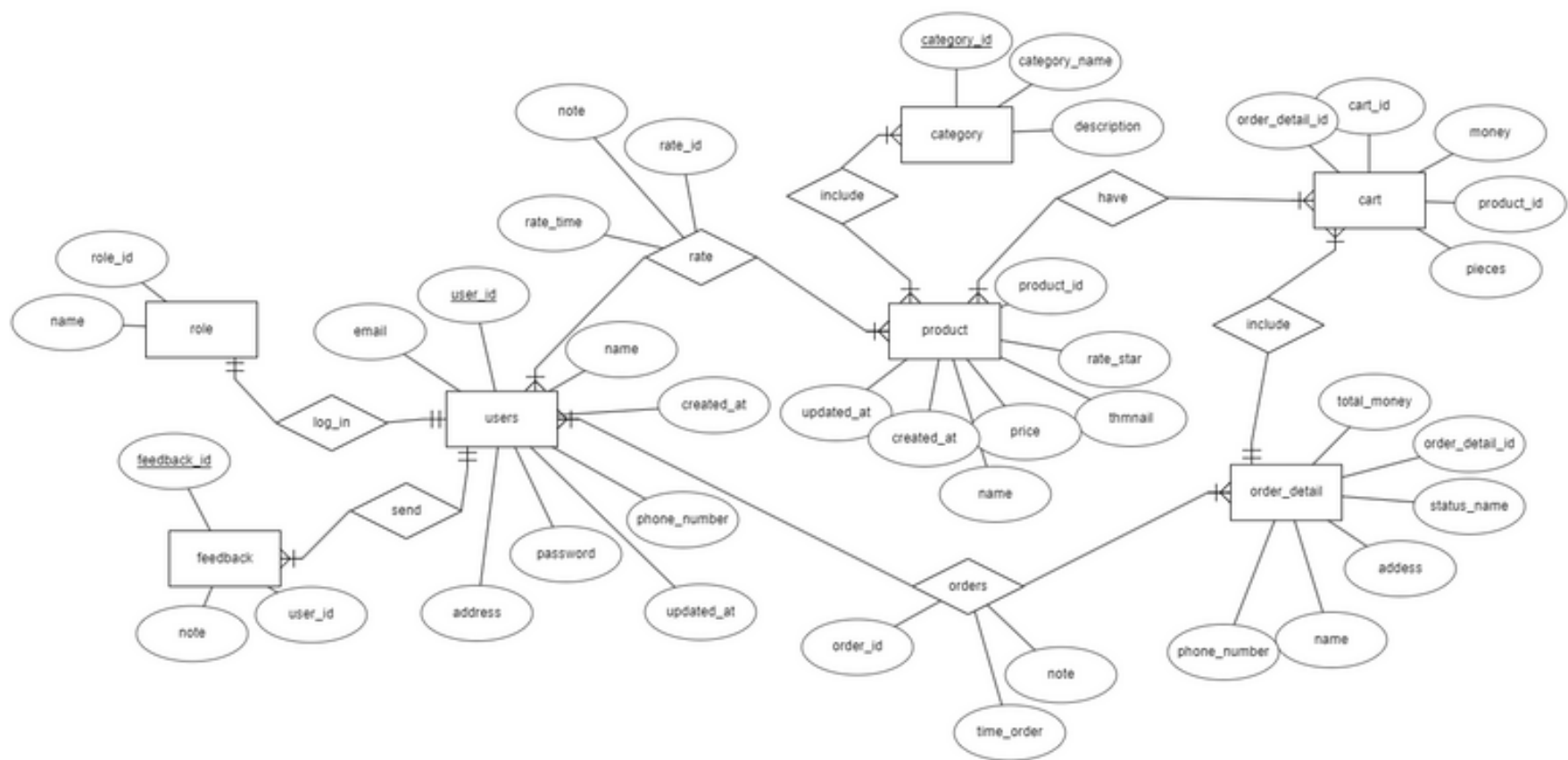
**3. CÁC HÀM ĐANG CÓ: FUNCTION, PROCEDURE,  
TRIGGER, VIEW, INDEX**

# 1. SƠ ĐỒ ERD



# 1. SƠ ĐỒ QUAN

## Hệ



## 2. CÁC CÂU TRUY VẤN

```
1 1. lấy ra sản phẩm có đánh giá trung bình cao nhất trong danh mục sản phẩm có id = 1
2 select product.product_id, product.name, product.rate_star
3 from product join category using (category_id)
4 where category_id = 1
```

Data Output Messages Notifications



	product_id [PK] integer	name character varying (50)	rate_star double precision
1	2	Laptop	5

```
7 2. liệt kê sản phẩm đang có
8 select product_id, name, price, rate_star
9 from product;
```

Data Output Messages Notifications



	product_id [PK] integer	name character varying (50)	price integer	rate_star double precision
1	1	Smartphone	1000	3
2	2	Laptop	1500	5
3	3	T-Shirt	20	[null]
4	4	Jeans	50	[null]
5	5	Coffee Maker	50	[null]
6	6	Toaster	30	[null]
7	7	Shampoo	10	[null]
8	8	Face Cream	15	[null]
9	9	Board Game	25	[null]
10	10	Puzzle	15	[null]

## 2. CÁC CÂU TRUY VẤN

1 3. liệt kê đơn hàng đang trong trạng thái chờ xác nhận  
2 `select * from order_detail where status_name = 'pending' ;`

Data Output Messages Notifications

	order_detail_id [PK] integer	first_name character varying (20)	last_name character varying (20)	adress character varying (100)	phone_number character varying (20)	total_money integer	time_order time without time zone	status_n characte
	2	Jane	Smith	456 Elm St	987654321	60	12:54:39.863127	pending
	1	John	Doe	123 Main St	123456789	3550	12:54:39.863127	pending

4. đếm sản phẩm trong các danh mục

```
select category.category_id, category.category_name, count(product.product_id)
from category join product using(category_id)
group by (category.category_id);
```

Output Messages Notifications

category_id [PK] integer	category_name character varying (50)	count bigint
4	Health & Beauty	2
2	Clothing & Accessories	2
3	Home & Kitchen	2
1	Electronics	2
5	Toys & Games	2

## 2. CÁC CÂU TRUY VẤN

```
20 5. sắp xếp sản phẩm trong danh mục theo thứ tự đánh giá từ cao xuống thấp (dựa trên rate_star) trong 1 danh mục
21 select product_id, price, rate_star
22 from product
23 where category_id = 1
24 group by product_id
25 order by rate_star desc;
```

Data Output Messages Notifications

	product_id [PK] integer	price integer	rate_star double precision
1	2	1500	5
2	1	1000	3

```
6. sắp xếp đơn hàng theo giá trị từ cao -> thấp của 1 người
select orders.order_id, total_money, orders.status_id
from orders join order_detail using (order_detail_id)
where orders.user_id = 1
order by order_detail.total_money desc;
```

Data Output Messages Notifications

order_id integer	total_money integer	status_id integer
1	3500	1
3	500	1



## 2. CÁC CÂU TRUY VẤN

```
33 7. tính tổng giá trị tiền đã mua của 1 người dùng
34 select orders.user_id, sum(order_detail.total_money) as total_money
35 from orders join order_detail using (order_detail_id)
36 where orders.user_id = 1
37 group by (orders.user_id);
```

Data Output Messages Notifications

	user_id integer	total_money bigint
1	1	4000

```
38 8. top 3 sản phẩm được mua nhiều nhất
39
40 select product.product_id, product.name, sum(cart.pieces) as num_buy
41 from product join cart using(product_id)
42 group by (product.product_id)
43 order by num_buy
44 limit 3;
45
```

Data Output Messages Notifications

	product_id [PK] integer	name character varying (50)	num_buy bigint
1	2	Laptop	1
2	1	Smartphone	2
3	3	T-Shirt	3

## 2. CÁC CÂU TRUY VẤN

```
46 9. đếm số người dùng theo quyền truy cập
47 select role_id, count(*) as number_user
48 from users
49 group by (role_id);
```

Data Output Messages Notifications



	role_id integer	number_user bigint
1	4	3
2	2	5
3	3	1
4	1	1

```
10. đưa ra các danh mục đang có
select * from category;
|
```

Data Output Messages Notifications



category_id [PK] integer	category_name character varying (50)	description character varying (500)
1	Electronics	Electronic products
2	Clothing & Accessories	Clothing and fashion accessories
3	Home & Kitchen	Home and kitchen appliances
4	Health & Beauty	Health and beauty products

# 3. CÁC HÀM FUNCTION, PROCEDURE, TRIGGER

# 3.1 CÁC HÀM FUNCTION

```
1  -- tinh tien cho don hang trong giỏ hàng bằng cart_id
2  create or replace function p_money(id int)
3  returns int
4  language plpgsql
5  as
6  $$
7  declare
8      product_money int;
9  begin
10     select sum(product.price*cart.pieces) into product_money
11     from cart join product using(product_id)
12     where cart.cart_id = id;
13     return product_money;
14 end;
15 $$;
16 select p_money(id => 1);
```

Data Output Messages Notifications



p_money
integer

# 3.1 CÁC HÀM FUNCTION

```
17 -- tính star trung bình cho 1 sản phẩm
18 create or replace function star_one(id int)
19     returns float
20     language plpgsql
21     as
22     $$
23         declare
24             avg_star float;
25         begin
26             select avg(star) into avg_star
27             from rate
28             where product_id = id;
29             return avg_star;
30         end;
31     $$;
32 select star_one(1);
```

Data Output Messages Notifications



	star_one	
	double precision	🔒
1		3

## 3.2 CÁC HÀM PROCEDURE

```
-- cập nhật cột tính đánh giá trung bình của sản phẩm
CREATE OR REPLACE PROCEDURE total_star()
LANGUAGE plpgsql
AS $$
BEGIN
    ALTER TABLE product
    DROP COLUMN IF EXISTS rate_star;

    ALTER TABLE product
    ADD COLUMN rate_star FLOAT;

    UPDATE product AS p
    SET rate_star = (
        SELECT AVG(r.star)
        FROM rate AS r
        WHERE r.product_id = p.product_id
    );
END;
$$;
call total_star();
```

product_id [PK] integer	category_id integer	name character varying (50)	price integer	thumbnail character varying (500)	description character varying (500)	created_at time without time zone	update_at time without time zone	rate_star double precision
1	1	Smartphone	1000	smartphone.jpg	High-quality smartphone	[null]	[null]	3
2	1	Laptop	1500	laptop.jpg	Powerful laptop	[null]	[null]	5
3	2	T-Shirt	20	tshirt.jpg	Comfortable t-shirt	[null]	[null]	[null]
4	2	Jeans	50	jeans.jpg	Stylish jeans	[null]	[null]	[null]
5	3	Coffee Maker	50	coffeemaker.jpg	Automatic coffee maker	[null]	[null]	[null]
6	3	Toaster	30	toaster.jpg	Wide-slot toaster	[null]	[null]	[null]
7	4	Shampoo	10	shampoo.jpg	Moisturizing shampoo	[null]	[null]	[null]
8	4	Face Cream	15	facecream.jpg	Anti-aging face cream	[null]	[null]	[null]
9	5	Board Game	25	boardgame.jpg	Strategy board game	[null]	[null]	[null]
10	5	Puzzle	15	puzzle.jpg	1000-piece puzzle	[null]	[null]	[null]

## 3.3 CÁC HÀM TRIGGER

```
78 --trigger thực hiện không cho phép đăng kí khi trạng thái đơn hàng đã
79 create or replace function check_buy()
80 returns trigger
81 language plpgsql
82 as $$
83 declare
84 order_status int;
85 cart_row cart;
86 begin
87 SELECT * INTO cart_row FROM cart WHERE cart_id = NEW.cart_id;
88
89     SELECT orders.status_id INTO order_status FROM orders
90     JOIN order_detail USING (order_detail_id)
91     WHERE order_detail_id = cart_row.order_detail_id;
92
93     if order_status >= 2 then
94         raise exception 'không thể sửa sản phẩm đã mua nữa';
95     end if;
96     return new;
97 end;
98 $$;
99 create trigger check_buy_trigger
100 before insert
101 on cart
102 for each row
103 execute procedure check_buy();
```

```
109 insert into cart(cart_id, product_id, pieces, order_detail_id)
110 values (2, 3, 4, 1);
```

Data Output   Messages   Notifications

ERROR: không thể sửa sản phẩm đã mua nữa  
CONTEXT: PL/pgSQL function check\_buy() line 13 at RAISE

-----

## 3.3 CÁC HÀM TRIGGER

```
54 -- trigger tính tiền cho sản phẩm khi thực hiện thêm sản phẩm vào cart
55 create or replace function calculate_p_money()
56 returns trigger
57 language plpgsql
58 as $$
59 declare
60 p_money int;
61 begin
62     select (price) into p_money
63     from product
64     where product_id = new.product_id;
65     p_money := p_money * new.pieces;
66     update cart
67     set money = p_money
68     where new.cart_id = cart_id and new.product_id = product_id;
69     return new;
70 end;
71 $$;
72 create trigger calculate_p_money_trigger
73 after insert
74 on cart
75 for each row
76 execute procedure calculate_p_money();
77 insert into cart(cart_id, product_id, pieces, order_detail_id)
78 values (1, 4, 1, 1);
```

Data Output Messages Notifications



	cart_id [PK] integer	product_id [PK] integer	pieces integer	money integer	order_detail_id integer
1	2	3	3	60	2
2	1	1	2	2000	1
3	1	2	1	1500	1
4	1	4	1	50	1



# 3.3 CÁC HÀM TRIGGER

```
110 -- tự động cập nhật tính lại giá tiền của đơn hàng khi có sự thay đổi trong giỏ hàng
111 create or replace function calculate_total_money()
112 returns trigger
113 language plpgsql
114 as $$
115 declare
116 o_money int;
117 begin
118     select sum(money) into o_money
119     from cart
120     where cart_id = new.cart_id;
121     update order_detail
122     set total_money = o_money
123     where order_detail_id = new.order_detail_id;
124 return new;
125 end;
126 $$;
127 create trigger update_total_money
128 after update or insert
129 on cart
130 for each row
131 execute procedure calculate_total_money();
132 insert into cart(cart_id, product_id, pieces, order_detail_id)
133 values (1, 4, 1, 1);
134 select * from order_detail;
```

	order_detail_id [PK] integer	first_name character varying (20)	last_name character varying (20)	adress character varying (100)	phone_number character varying (20)	total_money integer	time_order time without time zone
1	2	Jane	Smith	456 Elm St	987654321	60	11:00:57.263624
2	3	John	Doe	789 Oak St	555123456	0	11:05:01.4012
3	4	Jane	Smith	987 Maple St	555987654	0	11:05:01.4012
4	1	John	Doe	123 Main St	123456789	3550	11:00:57.263624

# 3.4 VIEW

```
110 -- tự động cập nhật tính lại giá tiền của đơn hàng khi có sự thay đổi trong giỏ hàng
111 create or replace function calculate_total_money()
112 returns trigger
113 language plpgsql
114 as $$
115 declare
116 o_money int;
117 begin
118     select sum(money) into o_money
119     from cart
120     where cart_id = new.cart_id;
121     update order_detail
122     set total_money = o_money
123     where order_detail_id = new.order_detail_id;
124 return new;
125 end;
126 $$;
127 create trigger update_total_money
128 after update or insert
129 on cart
130 for each row
131 execute procedure calculate_total_money();
132 insert into cart(cart_id, product_id, pieces, order_detail_id)
133 values (1, 4, 1, 1);
134 select * from order_detail;
```

	order_detail_id [PK] integer	first_name character varying (20)	last_name character varying (20)	address character varying (100)	phone_number character varying (20)	total_money integer	time_order time without time zone
1	2	Jane	Smith	456 Elm St	987654321	60	11:00:57.263624
2	3	John	Doe	789 Oak St	555123456	0	11:05:01.4012
3	4	Jane	Smith	987 Maple St	555987654	0	11:05:01.4012
4	1	John	Doe	123 Main St	123456789	3550	11:00:57.263624

# 3.5 INDEX

```
1 -- tạo index cho tên sản phẩm phục vụ cho việc tìm kiếm sản phẩm theo tên
2 create index idx_product_name
3 on product(name);
4 explain select *
5 from product
6 where name = 'Laptop';
```

Data Output Messages Notifications



	QUERY PLAN	
	text	
1	Seq Scan on product (cost=0.00..1.13 rows=1 width=118...	
2	Filter: ((name)::text = 'Laptop':text)	