A
Project Report
on

E-Commerce Management System

Developed by

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Guided By

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DHARMSINH DESAI UNIVERSITY
NADIAD-387001, GUJARAT

CERTIFICATE

This is to certify that the project entitled
"**E-Commerce Management System**" is a bonafied report of the work carried out by

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2. **HIRENKUMAR JADAV (IT041)**
3. **YAGNIK KAKADIYA (IT049)**

of Department of Information Technology, semester V, under the guidance and supervision for the subject Database Management System. They were involved in Project training during academic year 2020-2021.

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Department of Information Technology,
Faculty of Technology,
Dharmsinh Desai University, Nadiad
Date:

Prof. Vipul Dabhi
Head, Department of Information Technology,
Faculty of Technology,
Dharmsinh Desai University, Nadiad
Date:

ACKNOWLEDGEMENT

We would like to give our sincere acknowledgement to everybody responsible for the successful completion of our project “E-COMMERCE MANAGEMENT SYSTEM”.

The success and final outcome of this project required a lot of guidance and assistance from many people and we are extremely privileged to have got this all along the completion of this project.

We owe our deep gratitude to our project guide Prof. Archana N. Vyas, who took been interest on our project work and guided us all along till the completion of our project work by providing all the necessary help for developing a good Database System.

We would also like to thank all our lecturers.

Finally, we convoy our acknowledgement to all our friends and family members who directly or indirectly associated with us in the successful completion of the project. We thank one and all.

TABLE OF CONTENTS

SYSTEM OVERVIEW

1. Current System

Currently, there are many shops which have their business up to limited area only. Customers have to visit their shop and shopkeeper have to show many products and their details again and again. It is quite time taking so they hire worker to show products. Many customers have to wait outside because the size of shop is small and due to limited workers. For personal work, shopkeeper have to close shop for a day.

Few problems for shopkeeper:

- Single shop covers business in a specific area
- Expenditures on shop like electricity bills, rent and salary of workers
- Storing of data are on papers
- Bills are manually created on papers
- Presence of shopkeeper at shop is required
- There is certain time limit to have shop open
- For increasing business, he has to open shop in another area which woul have
- above mentioned all problems.

Few problems for Customers:

- Customer has to manage their timings with shop and has to personally visit shop for the details of product.
- Have to wait for shopkeeper to be free from other customers.
- Customer can trust pre-users of same product rather than shopkeeper, here reviews unavailable.
- On the spot selection and comparison of product is quite difficult.

2. Objectives of the Proposed System

Proposed system is more beneficial than the current one. As every customer can see the product details and compare two products on their mobile itself. Customer are assured about product by reading reviews from others who used that product. Shopkeeper have not to explain again and again. Shopkeeper can manage his personal work along with his business. Shopkeeper can expand his business in large scale without invest in making of different shops.

Benefits of New System for both:

- Expands business on large scale
- Efficient way to select and compare products on customer's free time
- No unauthorised user can access the data
- Maintain detail of products and all record of money transaction and orders
- Less Capital needed on workers, electricity or rent etc
- Handling of many customers is very easy here
- No limits on opening of shop

- Shopkeeper can do other personal work along with business
- Prices of product are somewhat less than shops as there no extra expenditures on shops

3. Definition

This project is basically a huge global platform of E-commerce business, where a seller can sell his product globally. No matters if he has shop in one city only. He can put various products details like image, price, features, descriptions etc. on webpage. And the product price, quantity available will be handled by seller
i.e., admin. Buyer will able to see the product detail which the seller set on webpage and buyer will select appropriate product and its quantity and then he can buy it by giving address and money to seller. Payment can be done by many ways, net banking, UPI, credit/debit card or cash on delivery.

4. Purpose

There are many sellers who wants to expand his business globally but due to unavailability capital they can't do it. Many of them have one or two shops and a range of customers within those and neighbour cities only. By this project, those people will get a global platform to sell their product to a vast customer range. Moreover, it's a motivation for small scale seller to expand business.

5. Scope & Objective

Nowadays, every person is having personal smartphone. This project is giving a chance to think and decide patiently, which product will be best for them. E-commerce draws on such technologies as electronic funds transfer, supply chain management, Internet marketing, online transaction processing. In retailer shopping system, customer will not get the actual truth about product as the details will be given by shopkeeper itself. But here, Customer can compare products, check reviews of the customer who really bought and used that product.

6. User Roles & Role Wise Requirement Listing

There are mainly two roles: Supplier and Customers.

Supplier (manufacturer) is itself Admin who will have access to add product details, edit all details and see every order details.
Customer have to do signup by entering his details and then he can search product, see the product details and buy it.

A. Supplier

- Have to sign up for the first time by entering personal info.
- After creating account, mobile no and password will be required of login.
- Now, he can add products and their details like image, price, quantities, discount etc.
- After getting order, he will edit the quantities accordingly.

B. Customers

- Have to sign up for the first time by entering personal info.
- After creating account, mobile no and password will be required of login.
- Now, he can search product directly or by categories.
- He can see the details of products like price, image, discount, quantities etc.
- He can check reviews and also compare two products from same category.
- He can add product to cart in order to save it for buying it in future.
- After selection, he can make payment and place the order of that product.
- Once order successfully completed, then he also can write review on that product.

7. Entities

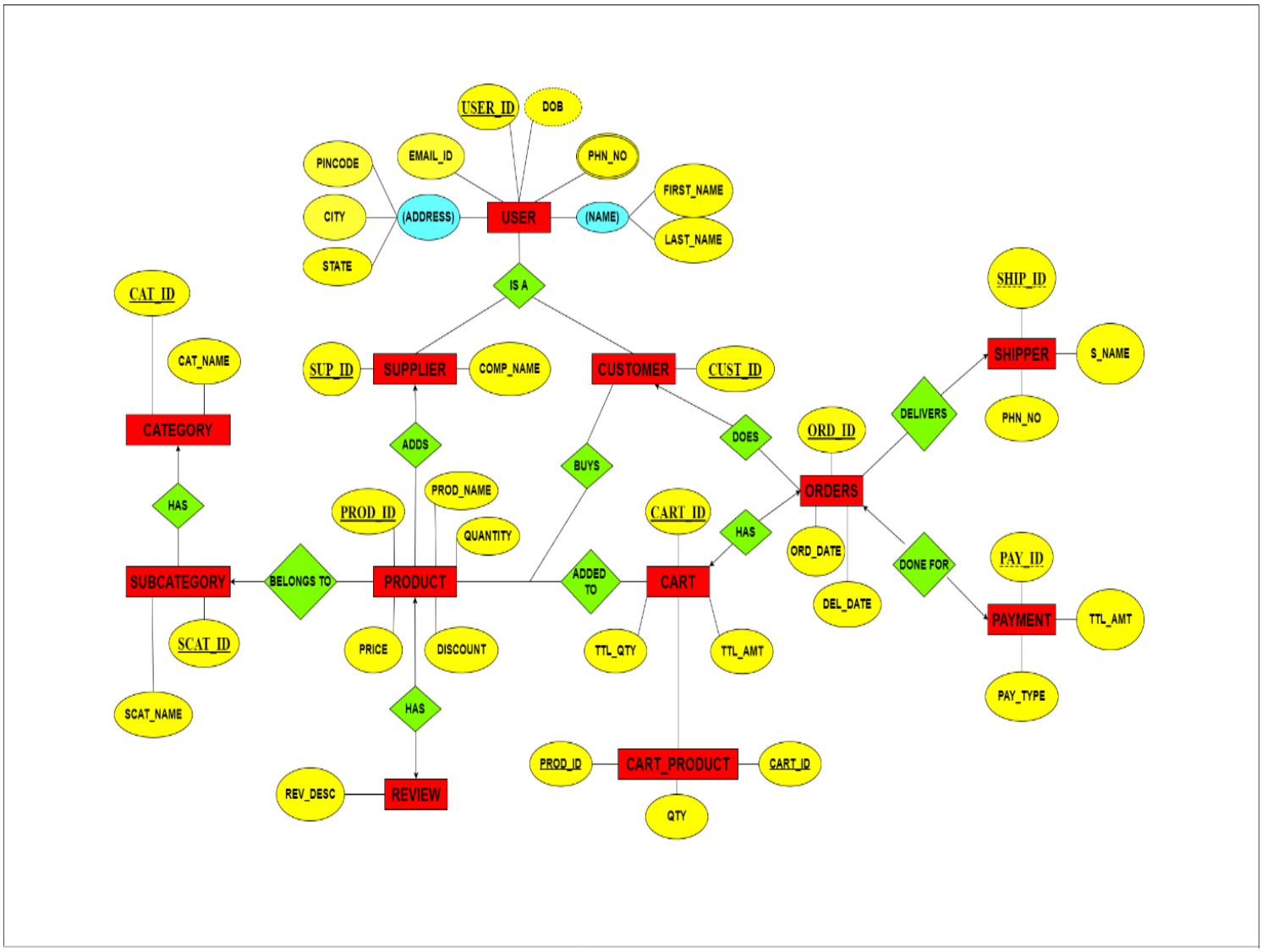
- User Information
- Supplier
- Customer
- Product
- Category
- Sub Category
- Cart
- Cart Product
- Order
- Payment
- Shipper
- Review

8. Entity Recognition

- **Supplier**
  Supplier manages the product
  Supplier manages the quantity of product
  Supplier manages the category and sub-category
  Supplier manages the order details
  Supplier can see the total product sold
  Supplier can see the order details of his product

- **Customer**
  Customer signup with his details
  Customer can buy product
  Customer add the product to his cart
  Customer make payment of his order
  Customer can review the product which he/she had bought
  Customer can see which supplier have sold the product
  Customer can see who will be shipping his order
  Customer can see estimate date of his/her order

ER DIAGRAM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DOB
PINCODE
EMAIL_ID
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CITY
(ADDRESS)
USER
(NAME)
FIRST_NAME
STATE
LAST_NAME
IS A
CAT_ID
SHIP_ID
CAT_NAME
SUP_ID
SUPPLIER
COMP_NAME
CUSTOMER
CUST_ID
SHIPPER
S_NAME
DELIVERS
CATEGORY
ADDS
DOES
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BUYS
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ORDERS
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CART_ID
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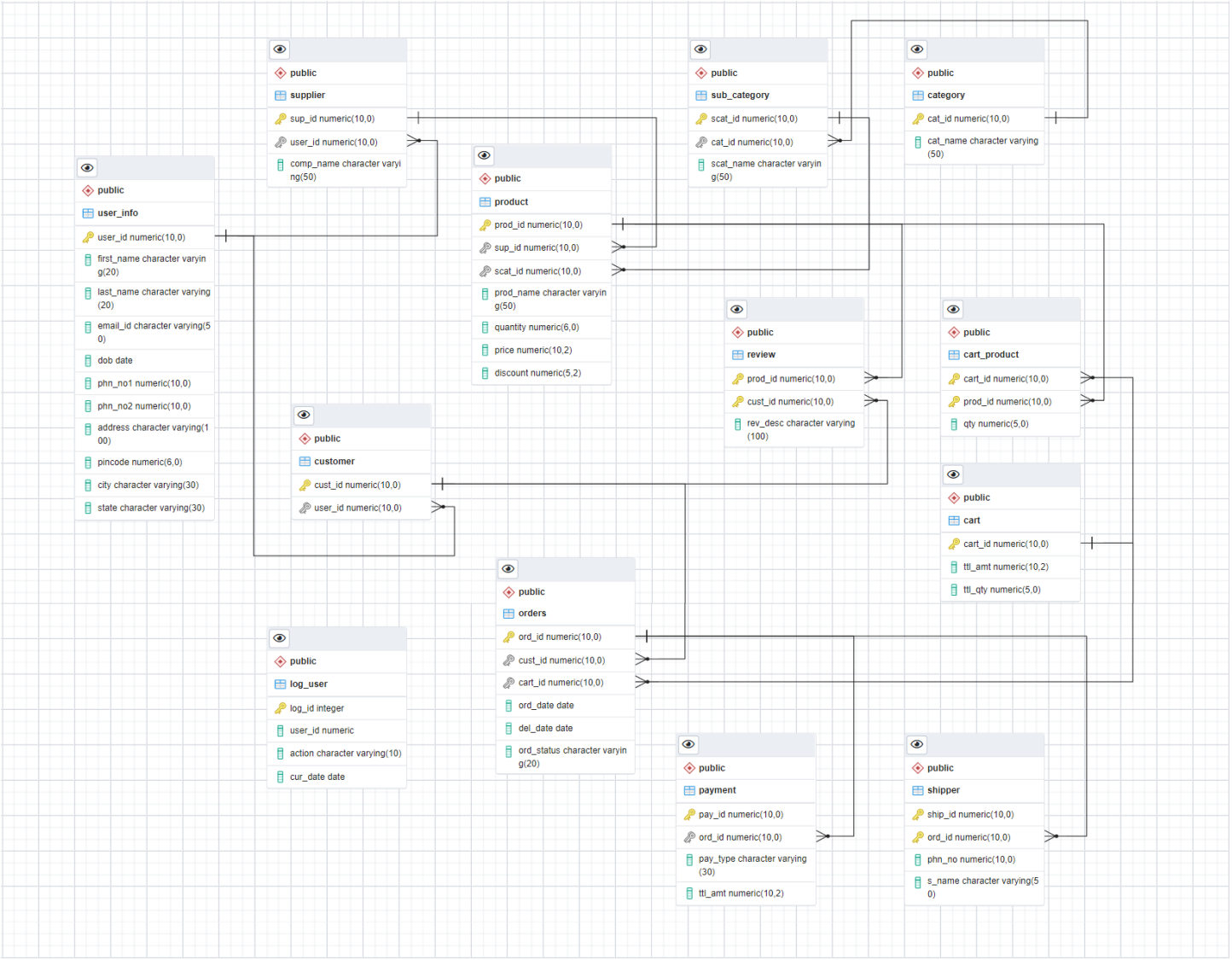
HAS
ORD_DATE
PAY_ID
SUBCATEGORY
BELONGS TO
PRODUCT
ADDED TO
CART
DONE FOR
DEL_DATE
PAYMENT
TTL_AMT
SCAT_ID
PRICE
DISCOUNT
TTL_QTY
TTL_AMT
PAY_TYPE
SCAT_NAME
HAS
PROD_ID
CART_PRODUCT
CART_ID
REV_DESC
REVIEW
QTY

SCHEMA DIAGRAM



DATA DICTIONARY

- **Cart**

```
e_commerce=# \d cart;
                Table "public.cart"
 Column  |     Type      | Collation | Nullable | Default
---------+---------------+-----------+----------+---------
 cart_id | numeric(10,0) |           | not null |
 ttl_amt | numeric(10,2) |           | not null |
 ttl_qty | numeric(5,0)  |           | not null |
Indexes:
    "cart_pkey" PRIMARY KEY, btree (cart_id)
Referenced by:
    TABLE "cart_product" CONSTRAINT "fk_cart_product_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
    TABLE "orders" CONSTRAINT "fk_orders_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
```

- **Cart Product**

```
e_commerce=# \d cart_product;
                Table "public.cart_product"
 Column  |     Type      | Collation | Nullable | Default
---------+---------------+-----------+----------+---------
 cart_id | numeric(10,0) |           | not null |
 prod_id | numeric(10,0) |           | not null |
 qty     | numeric(5,0)  |           | not null |
Indexes:
    "cart_product_pkey" PRIMARY KEY, btree (cart_id, prod_id)
    "fki_fk_cart_product_cart" btree (cart_id)
Foreign-key constraints:
    "fk_cart_product_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
```

- **Category**

```
e_commerce=# \d category;
                   Table "public.category"
  Column  |         Type          | Collation | Nullable | Default
----------+-----------------------+-----------+----------+---------
 cat_id   | numeric(10,0)         |           | not null |
 cat_name | character varying(50) |           | not null |
Indexes:
    "category_pkey" PRIMARY KEY, btree (cat_id)
Referenced by:
    TABLE "sub_category" CONSTRAINT "fk_sub_category_category" FOREIGN KEY (cat_id) REFERENCES category(cat_id) ON UPDATE CASCADE NOT VALID
```

- **Customer**

```
e_commerce=# \d customer;
                Table "public.customer"
 Column  |     Type      | Collation | Nullable | Default
---------+---------------+-----------+----------+---------
 cust_id | numeric(10,0) |           | not null |
 user_id | numeric(10,0) |           | not null |
Indexes:
    "customer_pkey" PRIMARY KEY, btree (cust_id)
    "fki_fk_customer_user_info" btree (user_id)
Foreign-key constraints:
    "fk_customer_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "orders" CONSTRAINT "fk_orders_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
    TABLE "review" CONSTRAINT "fk_review_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
```

- **Orders**

```
e_commerce=# \d orders;
                  Table "public.orders"
  Column  |     Type      | Collation | Nullable | Default
----------+---------------+-----------+----------+---------
 ord_id   | numeric(10,0) |           | not null |
 cust_id  | numeric(10,0) |           | not null |
 cart_id  | numeric(10,0) |           | not null |
 ord_date | date          |           | not null |
 del_date | date          |           | not null |
Indexes:
    "orders_pkey" PRIMARY KEY, btree (ord_id)
    "fki_fk_orders" btree (cart_id)
    "fki_fk_orders_customer" btree (cust_id)
Foreign-key constraints:
    "fk_orders_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
    "fk_orders_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "payment" CONSTRAINT "fk_payment_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
    TABLE "shipper" CONSTRAINT "fk_shipper_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
```

- **Payment**

```
e_commerce=# \d payment;
                      Table "public.payment"
  Column  |         Type          | Collation | Nullable | Default
----------+-----------------------+-----------+----------+---------
 pay_id   | numeric(10,0)         |           | not null |
 ord_id   | numeric(10,0)         |           | not null |
 pay_type | character varying(30) |           | not null |
 ttl_amt  | numeric(10,2)         |           | not null |
Indexes:
    "payment_pkey" PRIMARY KEY, btree (pay_id)
    "fki_fk_payment_orders" btree (ord_id)
Foreign-key constraints:
    "fk_payment_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
```

- **Product**

```
e_commerce=# \d product;
                     Table "public.product"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 prod_id   | numeric(10,0)         |           | not null |
 sup_id    | numeric(10,0)         |           | not null |
 scat_id   | numeric(10,0)         |           | not null |
 prod_name | character varying(50) |           | not null |
 quantity  | numeric(6,0)          |           | not null |
 price     | numeric(10,2)         |           | not null |
 discount  | numeric(5,2)          |           | not null |
Indexes:
    "product_pkey" PRIMARY KEY, btree (prod_id)
    "fki_fk_product_sub_category" btree (scat_id)
    "fki_fk_product_supplier" btree (sup_id)
Foreign-key constraints:
    "fk_product_sub_category" FOREIGN KEY (scat_id) REFERENCES sub_category(scat_id) ON UPDATE CASCADE NOT VALID
    "fk_product_supplier" FOREIGN KEY (sup_id) REFERENCES supplier(sup_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "review" CONSTRAINT "fk_review_product" FOREIGN KEY (prod_id) REFERENCES product(prod_id) ON UPDATE CASCADE NOT VALID
```

- **Review**

```
e_commerce=# \d review;
                        Table "public.review"
  Column   |          Type          | Collation | Nullable | Default
-----------+------------------------+-----------+----------+---------
 prod_id   | numeric(10,0)          |           | not null |
 cust_id   | numeric(10,0)          |           | not null |
 rev_desc | character varying(100) |           | not null |
Indexes:
    "review_pkey" PRIMARY KEY, btree (prod_id, cust_id)
    "fki_fk_review_customer" btree (cust_id)
    "fki_fk_review_product" btree (prod_id)
Foreign-key constraints:
    "fk_review_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
    "fk_review_product" FOREIGN KEY (prod_id) REFERENCES product(prod_id) ON UPDATE CASCADE NOT VALID
```

- **Shipper**

```
e_commerce=# \d shipper;
                        Table "public.shipper"
 Column   |          Type          | Collation | Nullable | Default
----------+------------------------+-----------+----------+---------
 ship_id | numeric(10,0)          |           | not null |
 ord_id   | numeric(10,0)          |           | not null |
 phn_no   | numeric(10,0)          |           | not null |
 s_name   | character varying(50) |           | not null |
Indexes:
    "shipper_pkey" PRIMARY KEY, btree (ship_id, ord_id)
    "fki_fk_shipper_orders" btree (ord_id)
Foreign-key constraints:
    "fk_shipper_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
```

- **Sub Category**

```
e_commerce=# \d sub_category;
                  Table "public.sub_category"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 scat_id   | numeric(10,0)         |           | not null |
 cat_id    | numeric(10,0)         |           | not null |
 scat_name | character varying(50) |           | not null |
Indexes:
    "sub category_pkey" PRIMARY KEY, btree (scat_id)
    "fki_fk_sub_category_category" btree (cat_id)
Foreign-key constraints:
    "fk_sub_category_category" FOREIGN KEY (cat_id) REFERENCES category(cat_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "product" CONSTRAINT "fk_product_sub_category" FOREIGN KEY (scat_id) REFERENCES sub_category(scat_id) ON UPDATE CASCADE NOT VALID
```

- **Supplier**

```
e_commerce=# \d supplier;
                    Table "public.supplier"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 sup_id    | numeric(10,0)         |           | not null |
 user_id   | numeric(10,0)         |           | not null |
 comp_name | character varying(50) |           | not null |
Indexes:
    "supplier_pkey" PRIMARY KEY, btree (sup_id)
    "fki_fk_supplier_user_info" btree (user_id)
Foreign-key constraints:
    "fk_supplier_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "product" CONSTRAINT "fk_product_supplier" FOREIGN KEY (sup_id) REFERENCES supplier(sup_id) ON UPDATE CASCADE NOT VALID
```

- **User Information**

```
e_commerce=# \d user_info;
                    Table "public.user_info"
   Column   |          Type          | Collation | Nullable | Default
------------+------------------------+-----------+----------+---------
 user_id    | numeric(10,0)          |           | not null |
 first_name | character varying(10)  |           | not null |
 last_name  | character varying(10)  |           | not null |
 email_id   | character varying(50)  |           | not null |
 dob        | date                   |           |          |
 phn_no1    | numeric(10,0)          |           | not null |
 phn_no2    | numeric(10,0)          |           |          |
 address    | character varying(100) |           | not null |
 pincode    | numeric(6,0)           |           | not null |
 city       | character varying(30)  |           | not null |
 state      | character varying(30)  |           | not null |
Indexes:
    "user_info_pkey" PRIMARY KEY, btree (user_id)
Referenced by:
    TABLE "customer" CONSTRAINT "fk_customer_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
    TABLE "supplier" CONSTRAINT "fk_supplier_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
```

- **Log**

```
e_commerce=# \d log_user;
                                  Table "public.log_user"
  Column  |         Type          | Collation | Nullable |                Default
----------+-----------------------+-----------+----------+---------------------------------------
 log_id   | integer               |           | not null | nextval('log_log_id_seq'::regclass)
 user_id  | numeric               |           | not null |
 action   | character varying(10) |           | not null |
 cur_date | date                  |           | not null |
Indexes:
    "log_pkey" PRIMARY KEY, btree (log_id)
```

DATABASE IMPLEMENTATION

1. Create Schema and Insert Data

- **Cart**

```
CREATE TABLE IF NOT EXISTS public.cart
(
    cart_id numeric(10,0) NOT NULL,
    ttl_amt numeric(10,2) NOT NULL,
    ttl_qty numeric(5,0) NOT NULL,
    CONSTRAINT cart_pkey PRIMARY KEY (cart_id)
)
```

```
e_commerce=# \d cart;
                Table "public.cart"
 Column  |     Type      | Collation | Nullable | Default
---------+---------------+-----------+----------+---------
 cart_id | numeric(10,0) |           | not null |
 ttl_amt | numeric(10,2) |           | not null |
 ttl_qty | numeric(5,0)  |           | not null |
Indexes:
    "cart_pkey" PRIMARY KEY, btree (cart_id)
Referenced by:
    TABLE "cart_product" CONSTRAINT "fk_cart_product_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
    TABLE "orders" CONSTRAINT "fk_orders_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
```

```
INSERT INTO public.cart(cart_id, ttl_amt, ttl_qty)
        VALUES (1, 78000.00, 1),
        VALUES (2, 81000.00, 2),
        VALUES (3, 2500.00, 3),
        VALUES (4, 150000.00, 1);
```

```
e_commerce=# select * from cart;
 cart_id |  ttl_amt  | ttl_qty
---------+-----------+---------
       1 |  78000.00 |       1
       2 |  81000.00 |       2
       4 | 150000.00 |       1
       3 |   2500.00 |       3
       5 | 165000.00 |       3
       6 |  68000.00 |       2
       7 |      0.00 |       0
(7 rows)
```

- # Cart Product

```
CREATE TABLE IF NOT EXISTS public.cart_product
(
    cart_id numeric(10,0) NOT NULL,
    prod_id numeric(10,0) NOT NULL,
    qty numeric(5,0) NOT NULL,
    CONSTRAINT cart_product_pkey PRIMARY KEY (cart_id, prod_id),
    CONSTRAINT fk_cart_product_cart FOREIGN KEY (cart_id)
        REFERENCES public.cart (cart_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID,
    CONSTRAINT fk_cart_product_product FOREIGN KEY (prod_id)
        REFERENCES public.product (prod_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)
```

```
e_commerce=# \d cart_product;
              Table "public.cart_product"
 Column  |     Type      | Collation | Nullable | Default
---------+---------------+-----------+----------+---------
 cart_id | numeric(10,0) |           | not null |
 prod_id | numeric(10,0) |           | not null |
 qty     | numeric(5,0)  |           | not null |
Indexes:
    "cart_product_pkey" PRIMARY KEY, btree (cart_id, prod_id)
    "fki_fk_cart_product_cart" btree (cart_id)
Foreign-key constraints:
    "fk_cart_product_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
```

```
INSERT INTO public.cart_product(cart_id, prod_id, qty)
        VALUES (1, 1, 1),
        VALUES (2, 12, 1),
        VALUES (2, 19, 1),
        VALUES (3, 22, 1),
        VALUES (4, 5, 1),
        VALUES (3, 14, 2),
        VALUES (5, 4, 3),
        VALUES (6, 13, 2);
```

```
e_commerce=# select * from cart_product;
 cart_id | prod_id | qty
---------+---------+-----
       1 |       1 |   1
       2 |      12 |   1
       2 |      19 |   1
       3 |      22 |   1
       4 |       5 |   1
       3 |      14 |   2
       5 |       4 |   3
       6 |      13 |   2
(8 rows)
```

- # Category

CREATE TABLE IF NOT EXISTS public.category
(
    cat_id numeric(10,0) NOT NULL,
    cat_name character varying(50) COLLATE pg_catalog."default" NOT NULL,
    CONSTRAINT category_pkey PRIMARY KEY (cat_id)
)

```
e_commerce=# \d category;
                    Table "public.category"
  Column  |         Type          | Collation | Nullable | Default
----------+-----------------------+-----------+----------+---------
 cat_id   | numeric(10,0)         |           | not null |
 cat_name | character varying(50) |           | not null |
Indexes:
    "category_pkey" PRIMARY KEY, btree (cat_id)
Referenced by:
    TABLE "sub_category" CONSTRAINT "fk_sub_category_category" FOREIGN KEY (cat_id) REFERENCES category(cat_id) ON UPDATE CASCADE NOT VALID
```

INSERT INTO public.category(cat_id, cat_name)

VALUES (1, 'Computer'),

VALUES (2, 'Mobile'),

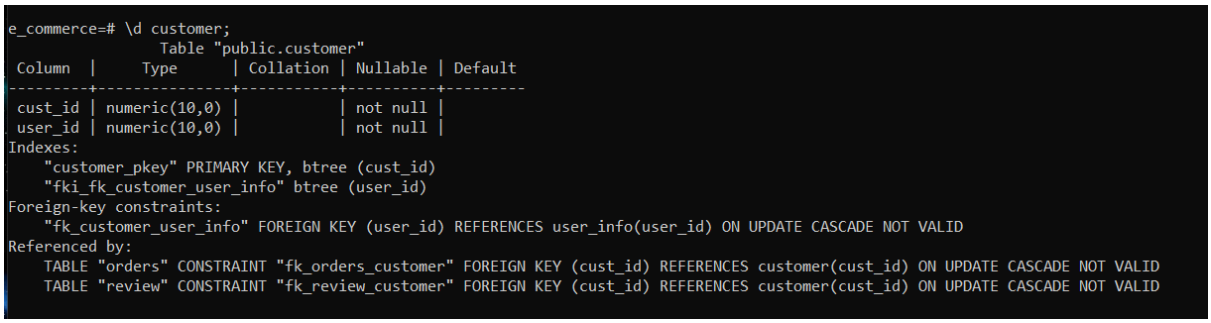
VALUES (3, 'Ear Phone'),

VALUES (4, 'Accessories');

```
e_commerce=# select * from category;
 cat_id |  cat_name
--------+-------------
      1 | Computer
      3 | Earphone
      4 | Accessories
      2 | Mobile
(4 rows)
```

- # Customer

```
CREATE TABLE IF NOT EXISTS public.customer
(
    cust_id numeric(10,0) NOT NULL,
    user_id numeric(10,0) NOT NULL,
    CONSTRAINT customer_pkey PRIMARY KEY (cust_id),
    CONSTRAINT fk_customer_user_info FOREIGN KEY (user_id)
        REFERENCES public.user_info (user_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)
```



```
e_commerce=# \d customer;
                Table "public.customer"
 Column  |     Type      | Collation | Nullable | Default
---------+---------------+-----------+----------+---------
 cust_id | numeric(10,0) |           | not null |
 user_id | numeric(10,0) |           | not null |
Indexes:
    "customer_pkey" PRIMARY KEY, btree (cust_id)
    "fki_fk_customer_user_info" btree (user_id)
Foreign-key constraints:
    "fk_customer_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "orders" CONSTRAINT "fk_orders_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
    TABLE "review" CONSTRAINT "fk_review_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
```

```
INSERT INTO public.customer(cust_id, user_id)
        VALUES (1, 6),
        VALUES (2, 7),
        VALUES (3, 8),
        VALUES (4, 9),
        VALUES (5, 10),
        VALUES (6, 11),
        VALUES (7, 12),
        VALUES (8, 13),
        VALUES (9, 14),
        VALUES (10,15);
```

```
e_commerce=# select * from customer;
 cust_id | user_id
---------+---------
       1 |       6
       2 |       7
       3 |       8
       4 |       9
       5 |      10
       6 |      11
       7 |      12
       8 |      13
       9 |      14
      10 |      15
(10 rows)
```

- **Orders**

```
CREATE TABLE IF NOT EXISTS public.orders
(
    ord_id numeric(10,0) NOT NULL,
    cust_id numeric(10,0) NOT NULL,
    cart_id numeric(10,0) NOT NULL,
    ord_date date NOT NULL,
    del_date date NOT NULL,
    ord_status character varying(20) COLLATE pg_catalog."default",
    CONSTRAINT orders_pkey PRIMARY KEY (ord_id),
    CONSTRAINT fk_orders_cart FOREIGN KEY (cart_id)
        REFERENCES public.cart (cart_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID,
    CONSTRAINT fk_orders_customer FOREIGN KEY (cust_id)
        REFERENCES public.customer (cust_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)
```

```
e_commerce=# \d orders;
                    Table "public.orders"
  Column  |     Type      | Collation | Nullable | Default
----------+---------------+-----------+----------+---------
 ord_id   | numeric(10,0) |           | not null |
 cust_id  | numeric(10,0) |           | not null |
 cart_id  | numeric(10,0) |           | not null |
 ord_date | date          |           | not null |
 del_date | date          |           | not null |
Indexes:
    "orders_pkey" PRIMARY KEY, btree (ord_id)
    "fki_fk_orders" btree (cart_id)
    "fki_fk_orders_customer" btree (cust_id)
Foreign-key constraints:
    "fk_orders_cart" FOREIGN KEY (cart_id) REFERENCES cart(cart_id) ON UPDATE CASCADE NOT VALID
    "fk_orders_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "payment" CONSTRAINT "fk_payment_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
    TABLE "shipper" CONSTRAINT "fk_shipper_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
```

INSERT INTO public.orders(ord_id, cust_id, cart_id, ord_date, del_date, ord_status)

VALUES (1, 5, 1, 2021-04-01, 2021-04-08,'Delivered'),

VALUES (2, 10, 2,2021-06-17 , 2021-06-24,'Delivered'),

VALUES (3, 7, 3, 2021-08-12, 2021-08-20, 'Delivered'),

VALUES (4, 2, 4, 2021-09-15, 2021-09-22, 'Delivered');

```
e_commerce=# select * from orders;
 ord_id | cust_id | cart_id |  ord_date  |  del_date  | ord_status
--------+---------+---------+------------+------------+------------
      1 |       5 |       1 | 2021-04-01 | 2021-04-08 | Delivered
      2 |      10 |       2 | 2021-06-17 | 2021-06-24 | Delivered
      3 |       7 |       3 | 2021-08-12 | 2021-08-20 | Delivered
      4 |       2 |       4 | 2021-09-22 | 2021-09-30 | Delivered
      5 |       9 |       5 | 2021-10-17 | 2021-10-24 | Pending
(5 rows)
```

- # Payment

CREATE TABLE IF NOT EXISTS public.payment
(
    pay_id numeric(10,0) NOT NULL,
    ord_id numeric(10,0) NOT NULL,
    pay_type character varying(30) COLLATE pg_catalog."default" NOT NULL,
    ttl_amt numeric(10,2) NOT NULL,
    CONSTRAINT payment_pkey PRIMARY KEY (pay_id),
    CONSTRAINT fk_payment_orders FOREIGN KEY (ord_id)
        REFERENCES public.orders (ord_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)

```
e_commerce=# \d payment;
                    Table "public.payment"
  Column  |         Type          | Collation | Nullable | Default
----------+-----------------------+-----------+----------+---------
 pay_id   | numeric(10,0)         |           | not null |
 ord_id   | numeric(10,0)         |           | not null |
 pay_type | character varying(30) |           | not null |
 ttl_amt  | numeric(10,2)         |           | not null |
Indexes:
    "payment_pkey" PRIMARY KEY, btree (pay_id)
    "fki_fk_payment_orders" btree (ord_id)
Foreign-key constraints:
    "fk_payment_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
```

INSERT INTO public.payment(pay_id, ord_id, pay_type, ttl_amt)

VALUES (1, 1, 'Cash', 78000.00),

VALUES (2, 2, 'Net Banking', 81000.00),

VALUES (3, 3, 'Credit Card', 2500.00),

VALUES (4, 4, 'EMI', 150000.00);

```
e_commerce=# select * from payment;
 pay_id | ord_id |  pay_type   |  ttl_amt
--------+--------+-------------+-----------
      1 |      1 | Cash        |  78000.00
      2 |      2 | Net Banking |  81000.00
      3 |      3 | Credit Card |   2500.00
      4 |      4 | EMI         | 150000.00
(4 rows)
```

- **Product**

```
CREATE TABLE IF NOT EXISTS public.product
(
    prod_id numeric(10,0) NOT NULL,
    sup_id numeric(10,0) NOT NULL,
    scat_id numeric(10,0) NOT NULL,
    prod_name character varying(50) COLLATE pg_catalog."default" NOT NULL,
    quantity numeric(6,0) NOT NULL,
    price numeric(10,2) NOT NULL,
    discount numeric(5,2) NOT NULL,
    CONSTRAINT product_pkey PRIMARY KEY (prod_id),
    CONSTRAINT fk_product_sub_category FOREIGN KEY (scat_id)
        REFERENCES public.sub_category (scat_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
```

```
        NOT VALID,
    CONSTRAINT fk_product_supplier FOREIGN KEY (sup_id)
        REFERENCES public.supplier (sup_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)
```

```
e_commerce=# \d product;
                    Table "public.product"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 prod_id   | numeric(10,0)         |           | not null |
 sup_id    | numeric(10,0)         |           | not null |
 scat_id   | numeric(10,0)         |           | not null |
 prod_name | character varying(50) |           | not null |
 quantity  | numeric(6,0)          |           | not null |
 price     | numeric(10,2)         |           | not null |
 discount  | numeric(5,2)          |           | not null |
Indexes:
    "product_pkey" PRIMARY KEY, btree (prod_id)
    "fki_fk_product_sub_category" btree (scat_id)
    "fki_fk_product_supplier" btree (sup_id)
Foreign-key constraints:
    "fk_product_sub_category" FOREIGN KEY (scat_id) REFERENCES sub_category(scat_id) ON UPDATE CASCADE NOT VALID
    "fk_product_supplier" FOREIGN KEY (sup_id) REFERENCES supplier(sup_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "review" CONSTRAINT "fk_review_product" FOREIGN KEY (prod_id) REFERENCES product(prod_id) ON UPDATE CASCADE NOT VALID
```

INSERT INTO public.product(prod_id, sup_id, scat_id, prod_name, quantity, price, discount)

VALUES (1, 1, 1, 'Dell G3', 7, 78000.00, 10.00),

VALUES (2, 1, 1, 'Dell G5', 10, 84000.00, 1.54),

VALUES (3, 1, 1, 'Dell G7', 15, 110000.00, 15.00),

VALUES (4, 2, 1, 'Mac book', 21, 55000.00, 6.00),

VALUES (5, 2, 1, 'Mac book pro', 32, 150000.00, 30.00),

VALUES (6, 3, 2, 'HP ryzen 3', 41, 65000.00, 12.00),

VALUES (7, 4, 2, 'Lenovo Idea Center', 12, 62000.00, 10.00),

VALUES (8, 5, 3, 'HP Chrom Book', 10, 34000.00, 20.00),

VALUES (9, 1, 4, 'Samsung Guru', 17, 1000.00, 5.00),

VALUES (10, 1, 4, 'Nokia 5233', 5, 1600.00, 10.00),

VALUES (11, 2, 5, 'IPhone 13', 10, 90000.00, 10.00),

VALUES (12, 2, 5, 'Samsng Fold 3 ', 15, 78000.00, 5.00),

VALUES (13, 2, 5, 'OnePlus Nord', 17, 34000.00, 7.00),

VALUES (14, 3, 6, 'MI Ear Phone', 12, 400.00, 0.00),

VALUES (15, 3, 6, 'Reame Ear Phone', 10, 450.00, 0.00),

VALUES (16, 4, 7, 'Reame bud 3', 8, 1500.00, 0.00),

VALUES (17, 4, 7, 'OnePlus Bullet', 9, 2000.00, 0.00),

VALUES (18, 5, 8, 'Airpod pro', 16, 25000.00, 0.00),

VALUES (19, 5, 8, 'OnePlus bud z', 15, 3000.00, 0.00),

VALUES (20, 1, 9, 'Apple MD861ZM', 10, 3500.00, 0.00),

VALUES (21, 2, 10, 'Realme 10000mah', 5, 800.00, 0.00),

VALUES (22, 2, 10, 'Realme 20000mah', 7, 1700.00, 0.00),

VALUES (23, 3, 10, 'MI 3I 10000mah', 10, 800.00, 0.00),

VALUES (24, 3, 10, 'MI 3I 2000mah', 10,1500.00, 0.00),

VALUES (25, 4, 10, 'Samsung WINgFI', 10, 600.00, 0.00);

```
e_commerce=# select * from product order by prod_id;
 prod_id | sup_id | scat_id |     prod_name     | quantity |   price   | discount
---------+--------+---------+-------------------+----------+-----------+----------
       1 |      1 |       1 | Dell G3           |        7 |  78000.00 |    10.00
       2 |      1 |       1 | Dell G5           |       10 |  84000.00 |     1.54
       3 |      1 |       1 | Dell G7           |       15 | 110000.00 |    15.00
       4 |      2 |       1 | MacBook           |       18 |  55000.00 |     6.00
       5 |      2 |       1 | MacBook Pro       |       32 | 150000.00 |    30.00
       6 |      3 |       2 | HP Ryzen 3        |       41 |  65000.00 |    12.00
       7 |      4 |       2 | Lenovo Ideacentre |       12 |  62000.00 |    10.00
       8 |      5 |       3 | HP ChromeBook     |       10 |  34000.00 |    20.00
       9 |      1 |       4 | Samsung Guru      |       17 |   1000.00 |     5.00
      10 |      1 |       4 | Nokia 5233        |        5 |   1600.00 |    10.00
      11 |      2 |       5 | IPhone 13         |       10 |  90000.00 |    10.00
      12 |      2 |       5 | Samsng Fold 3     |       15 |  78000.00 |     5.00
      13 |      2 |       5 | Oneplus Nord      |       15 |  34000.00 |     7.00
      14 |      3 |       6 | Mi Earphone       |       12 |    400.00 |     0.00
      15 |      3 |       6 | Realme Earphone   |       10 |    450.00 |     0.00
      16 |      4 |       7 | Realme Bud 3      |        8 |   1500.00 |     0.00
      17 |      4 |       7 | Oneplus Bullet    |        9 |   2000.00 |     0.00
      18 |      5 |       8 | AirPods Pro       |       16 |  25000.00 |     0.00
      19 |      5 |       8 | Oneplus Buds Z    |       15 |   3000.00 |     0.00
      20 |      1 |       9 | Apple MD861ZM     |       10 |   3500.00 |     0.00
      21 |      2 |      10 | Realme 10000mAh   |        5 |    800.00 |     0.00
      22 |      2 |      10 | Realme 20000mAh   |        7 |   1700.00 |     0.00
      23 |      3 |      10 | Mi 3i 10000mAh    |       10 |    800.00 |     0.00
      24 |      3 |      10 | Mi 3i 2000mAh     |       10 |   1500.00 |     0.00
      25 |      4 |      10 | Samsung WINgFI    |       10 |    600.00 |     0.00
(25 rows)
```

- # Review

```
CREATE TABLE IF NOT EXISTS public.product
(
    prod_id numeric(10,0) NOT NULL,
    sup_id numeric(10,0) NOT NULL,
    scat_id numeric(10,0) NOT NULL,
    prod_name character varying(50) COLLATE pg_catalog."default" NOT NULL,
    quantity numeric(6,0) NOT NULL,
    price numeric(10,2) NOT NULL,
    discount numeric(5,2) NOT NULL,
    CONSTRAINT product_pkey PRIMARY KEY (prod_id),
    CONSTRAINT fk_product_sub_category FOREIGN KEY (scat_id)
        REFERENCES public.sub_category (scat_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID,
    CONSTRAINT fk_product_supplier FOREIGN KEY (sup_id)
        REFERENCES public.supplier (sup_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)
```

```
e_commerce=# \d review;
                    Table "public.review"
  Column  |          Type          | Collation | Nullable | Default
----------+------------------------+-----------+----------+---------
 prod_id  | numeric(10,0)          |           | not null |
 cust_id  | numeric(10,0)          |           | not null |
 rev_desc | character varying(100) |           | not null |
Indexes:
    "review_pkey" PRIMARY KEY, btree (prod_id, cust_id)
    "fki_fk_review_customer" btree (cust_id)
    "fki_fk_review_product" btree (prod_id)
Foreign-key constraints:
    "fk_review_customer" FOREIGN KEY (cust_id) REFERENCES customer(cust_id) ON UPDATE CASCADE NOT VALID
    "fk_review_product" FOREIGN KEY (prod_id) REFERENCES product(prod_id) ON UPDATE CASCADE NOT VALID
```

```
INSERT INTO public.review(prod_id, cust_id, rev_desc)

        VALUES (1, 1, 'Good Product'),

        VALUES (3, 2, 'Nice Product'),

        VALUES (5, 6, 'Excellent'),

        VALUES (17, 7, 'Best Product'),

        VALUES (25, 3, 'Duplicate'),

        VALUES (16, 10, 'Worst'),

        VALUES (8, 1, 'Very Useful'),
```

VALUES (22, 4, 'Bad Product'),

VALUES (9, 8, 'I love it');

```
e_commerce=# select * from review;
 prod_id | cust_id |   rev_desc
---------+---------+---------------
       1 |       1 | Good Product
       3 |       2 | Nice Product
       5 |       6 | Excellent
      17 |       7 | Best Product
      16 |      10 | Worst Product
       8 |       1 | Very Useful
      22 |       4 | Bad Product
       9 |       8 | I love it
      25 |       3 | Duplicate
(9 rows)
```

- **Shipper**

```
CREATE TABLE IF NOT EXISTS public.shipper
(
    ship_id numeric(10,0) NOT NULL,
    ord_id numeric(10,0) NOT NULL,
    phn_no numeric(10,0) NOT NULL,
    s_name character varying(50) COLLATE pg_catalog."default" NOT NULL,
    CONSTRAINT shipper_pkey PRIMARY KEY (ship_id, ord_id),
    CONSTRAINT fk_shipper_orders FOREIGN KEY (ord_id)
        REFERENCES public.orders (ord_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)
```

```
e_commerce=# \d shipper;
                    Table "public.shipper"
 Column  |         Type          | Collation | Nullable | Default
---------+-----------------------+-----------+----------+---------
 ship_id | numeric(10,0)         |           | not null |
 ord_id  | numeric(10,0)         |           | not null |
 phn_no  | numeric(10,0)         |           | not null |
 s_name  | character varying(50) |           | not null |
Indexes:
    "shipper_pkey" PRIMARY KEY, btree (ship_id, ord_id)
    "fki_fk_shipper_orders" btree (ord_id)
Foreign-key constraints:
    "fk_shipper_orders" FOREIGN KEY (ord_id) REFERENCES orders(ord_id) ON UPDATE CASCADE NOT VALID
```

INSERT INTO public.shipper(ship_id, ord_id, phn_no, s_name)

VALUES (1, 1, 7954697241, 'Sanjay Singhaniya'),

VALUES (2, 2, 8259815647, 'Srikant Tiwari'),

VALUES (3, 3, 9517539652, 'Nikhil Pathak'),

VALUES (4, 4, 7538529634, 'Akash Chopra');

```
e_commerce=# select * from shipper;
 ship_id | ord_id |   phn_no   |      s_name
---------+--------+------------+-------------------
       1 |      1 | 7954697241 | Sanjay Singhaniya
       2 |      2 | 8259815647 | Shrikant Tiwari
       3 |      3 | 9517539652 | Nikhil Pathak
       4 |      4 | 7538529634 | Aakash Chopda
       5 |      5 | 9658254174 | Sandeep Parekh
(5 rows)
```

- ## Sub Category

CREATE TABLE IF NOT EXISTS public.sub_category
(
    scat_id numeric(10,0) NOT NULL,
    cat_id numeric(10,0) NOT NULL,
    scat_name character varying(50) COLLATE pg_catalog."default" NOT NULL,
    CONSTRAINT "sub category_pkey" PRIMARY KEY (scat_id),
    CONSTRAINT fk_sub_category_category FOREIGN KEY (cat_id)
        REFERENCES public.category (cat_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)

```
e_commerce=# \d sub_category;
                  Table "public.sub_category"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 scat_id   | numeric(10,0)         |           | not null |
 cat_id    | numeric(10,0)         |           | not null |
 scat_name | character varying(50) |           | not null |
Indexes:
    "sub category_pkey" PRIMARY KEY, btree (scat_id)
    "fki_fk_sub_category_category" btree (cat_id)
Foreign-key constraints:
    "fk_sub_category_category" FOREIGN KEY (cat_id) REFERENCES category(cat_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "product" CONSTRAINT "fk_product_sub_category" FOREIGN KEY (scat_id) REFERENCES sub_category(scat_id) ON UPDATE CASCADE NOT VALID
```

```
INSERT INTO public.sub_category(scat_id, cat_id, scat_name)
        VALUES (1, 1, 'Laptop'),
        VALUES (2, 1, 'Desktop'),
        VALUES (3, 1, 'Mini laptop'),
        VALUES (4, 2, 'Feature Phone'),
        VALUES (5, 2, 'Smart Phone'),
        VALUES (6, 3, 'Wired'),
        VALUES (7, 3, 'Wire Less'),
        VALUES (8, 3, 'Earbud'),
        VALUES (9, 4, 'Cables'),
        VALUES (10, 4, 'Power Bank');
```

```
e_commerce=# select * from sub_category;
 scat_id | cat_id |   scat_name
---------+--------+---------------
       1 |      1 | Laptop
       2 |      1 | Desktop
       3 |      1 | Mini Laptop
       4 |      2 | Feature Phone
       5 |      2 | Smartphone
       6 |      3 | Wired
       7 |      3 | Wireless
       8 |      3 | Earbud
       9 |      4 | Cables
      10 |      4 | Power Bank
(10 rows)
```

- ## Supplier

```
CREATE TABLE IF NOT EXISTS public.supplier
(
    sup_id numeric(10,0) NOT NULL,
    user_id numeric(10,0) NOT NULL,
    comp_name character varying(50) COLLATE pg_catalog."default" NOT NULL,
    CONSTRAINT supplier_pkey PRIMARY KEY (sup_id),
    CONSTRAINT fk_supplier_user_info FOREIGN KEY (user_id)
        REFERENCES public.user_info (user_id) MATCH SIMPLE
        ON UPDATE CASCADE
        ON DELETE NO ACTION
        NOT VALID
)
```

```
e_commerce=# \d supplier;
                    Table "public.supplier"
  Column   |         Type          | Collation | Nullable | Default
-----------+-----------------------+-----------+----------+---------
 sup_id    | numeric(10,0)         |           | not null |
 user_id   | numeric(10,0)         |           | not null |
 comp_name | character varying(50) |           | not null |
Indexes:
    "supplier_pkey" PRIMARY KEY, btree (sup_id)
    "fki_fk_supplier_user_info" btree (user_id)
Foreign-key constraints:
    "fk_supplier_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
Referenced by:
    TABLE "product" CONSTRAINT "fk_product_supplier" FOREIGN KEY (sup_id) REFERENCES supplier(sup_id) ON UPDATE CASCADE NOT VALID
```

INSERT INTO public.supplier(sup_id, user_id, comp_name)

VALUES (1, 1, 'Ocean Enterprise'),

VALUES (2, 2, 'Kakadiya & Group'),

VALUES (3, 3, 'Laxmi Chit Company'),

VALUES (4, 4, 'Mega Brand'),

VALUES (5, 5, 'Dhokia Brothers');

```
e_commerce=# select * from supplier;
 sup_id | user_id |      comp_name
--------+---------+---------------------
      1 |       1 | Ocean Enterprise
      2 |       2 | Kakadiya and Group
      3 |       3 | Laxmi Chit Company
      4 |       4 | Mega Brand
      5 |       5 | Dhokia Brothers
(5 rows)
```

- # User Information

CREATE TABLE IF NOT EXISTS public.user_info
(
    user_id numeric(10,0) NOT NULL,
    first_name character varying(20) COLLATE pg_catalog."default" NOT NULL,
    last_name character varying(20) COLLATE pg_catalog."default" NOT NULL,
    email_id character varying(50) COLLATE pg_catalog."default" NOT NULL,
    dob date,
    phn_no1 numeric(10,0) NOT NULL,
    phn_no2 numeric(10,0),
    address character varying(100) COLLATE pg_catalog."default" NOT NULL,
    pincode numeric(6,0) NOT NULL,
    city character varying(30) COLLATE pg_catalog."default" NOT NULL,
    state character varying(30) COLLATE pg_catalog."default" NOT NULL,
    CONSTRAINT user_info_pkey PRIMARY KEY (user_id),
    CONSTRAINT unique_email_id UNIQUE (email_id),

CONSTRAINT check_email_id CHECK (email_id::text ~~ '%___@___%'::text) NOT VALID
)

```
e_commerce=# \d user_info;
                    Table "public.user_info"
   Column   |          Type          | Collation | Nullable | Default
------------+------------------------+-----------+----------+---------
 user_id    | numeric(10,0)          |           | not null |
 first_name | character varying(10)  |           | not null |
 last_name  | character varying(10)  |           | not null |
 email_id   | character varying(50)  |           | not null |
 dob        | date                   |           |          |
 phn_no1    | numeric(10,0)          |           | not null |
 phn_no2    | numeric(10,0)          |           |          |
 address    | character varying(100) |           | not null |
 pincode    | numeric(6,0)           |           | not null |
 city       | character varying(30)  |           | not null |
 state      | character varying(30)  |           | not null |
Indexes:
    "user_info_pkey" PRIMARY KEY, btree (user_id)
Referenced by:
    TABLE "customer" CONSTRAINT "fk_customer_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
    TABLE "supplier" CONSTRAINT "fk_supplier_user_info" FOREIGN KEY (user_id) REFERENCES user_info(user_id) ON UPDATE CASCADE NOT VALID
```

INSERT INTO public.user_info(user_id, first_name, last_name, email_id, dob, phn_no1, phn_no2, address, pincode, city, state)

VALUES (1, Hirem, Jadav, hiren@gmail.com, 2002-02-25,9635842285, NULL, 'Talala', 362150, 'Girsomnath', 'Gujrat'),

VALUES (2, Zeel, Gondliya, zeel@gmail.com, 2001-10-02, 9685743652, 9865328754, 'Kilol', 395001, 'Srinagar', 'Kashmir'),

VALUES (3, yagnik, Kakadiya, yagnik@gmail.com, 2001-10-20, 833015125, NULL, 'Durej', 395004, 'Patiala', 'Hariyana'),

VALUES (4, yash, Dhokia, yash@gmail.com, 2001-11-18, 8401250800, NULL, 'Near gandhi', 369697, 'Porbandar', 'Gujrat'),

VALUES (5, Manav, Dholkiya, manav@gmail.com, 2001-12-07, 9865321474, 9874561326, , 'Home', 365485,'Bhavnagar' ,'Gujrat'),

VALUES (6, Keyur,Dhanani, keyur@gmail.com, 2001-05-06, 6585743252, NULL, 'Bhilog', 365004, 'Bhopal', 'Madhayprdesh'),

VALUES (7, Nikhil, Gadhesariya, nikhil@gmail.com, 2001-09-03, 6254857445, NULL, 'Madhupur', 362150, 'Girsomnath', 'Gujrat'),

VALUES (8, Sanjay, Davda, sanjay@gmail.com, 2001-10-01, 7485965241, NULL, 'Januma', 385210, 'Trichi', 'Kerala'),

VALUES (9, Harshil, Goyani, harshil@gmail.com, 2002-01-31, 8574962524, NULL, 'Katargam', 365005, 'Surat', 'Gujrat'),

VALUES (10, Atul, Makawana, atul@gmail.com, 2001-10-30, 7897586947, 6574852515, 'Mahuva', 684597, 'Bhavnagar','Gujrat'),

VALUES (11, Gunjan, Mordiya, gunjan@gmail.com, 2001-09-16, 8596792341, NULL, 'Roja', 785241, 'Udaypur', 'Rajsthan'),

VALUES (12, Smit, Surani, smit@gmail.com, 2002-03-06, 6875235688, NULL, 'Jhonpur', 365008, 'Mirzapur', 'Utterprdesh'),

VALUES (13, Vinay, Savaliya, vinay@gmail.com, 2001-11-17, 6585275355, NULL, 'Varacha', 365007, 'Surat', 'Gujrat'),

VALUES (14, Aniket, Jikadara, aniket@gmail.com, 2001-09-03,4938777823, NULL, 'Devpur', 458565, 'Rachi','Bihar'),

VALUES (15, Amil, Rajwadi, amil@gmail.com, 2002-03-07, 8596828381,7832129645, 'Surat', 965485, 'Surat', 'Gujrat'),

VALUES (16, Niraj, Chopda, niraj@gmail.com, 1990-10-02, 9638527411, NULL, 'Surat', 521463, 'Surat', 'Gujrat'),

VALUES (17, 'Shiva', 'Gupta', 'shiva@gmail.com', '1990-10-15', '9638527411', null, 'Daman', 524163, 'Daman', 'Gujrat');

```
e_commerce=# select * from user_info order by user_id;
 user_id | first_name |  last_name  |     email_id      |    dob     |  phn_no1   |  phn_no2   |     address      | pincode |    city     |     state
---------+------------+-------------+-------------------+------------+------------+------------+------------------+---------+-------------+---------------
       1 | Hiren      | Jadav       | hiren@gmail.com   | 2002-02-25 | 9635842285 |            | Talala           |  362150 | Gir Somnath | Gujarat
       2 | Zeel       | Gondaliya   | zeel@gmail.com    | 2001-10-02 | 9685746352 | 9865328754 | Bhilor           |  395004 | Shrinagar   | Kashmir
       3 | Yagnik     | Kakadiya    | yagnik@gmail.com  | 2001-10-20 | 8330015125 |            | Durej            |  395004 | Patiyala    | Hariyana
       4 | Yash       | Dhokia      | yash@gmail.com    | 2001-11-18 | 8401250800 |            | Near Gandhi Home |  369697 | Porbandar   | Gujarat
       5 | Manav      | Dholakiya   | Manav@gmail.com   | 2001-12-07 | 9865321474 | 9874561326 | Home             |  365485 | Bhavnagar   | Gujarat
       6 | Keyur      | Dhanani     | keyur@gmail.com   | 2001-05-06 | 6585743252 |            | Bhiloj           |  365004 | Bhopal      | Madhya Pradesh
       7 | Nikhil     | Gadhesariya | nikhil@gmail.com  | 2001-09-22 | 6354857445 |            | Madhupur         |  362150 | Gir Somnath | Gujarat
       8 | Sanjay     | Chavda      | sanjay@gmail.com  | 2001-10-01 | 7485965241 |            | Januma           |  385012 | Trichi      | Kerala
       9 | Harshil    | Goyani      | harshil@gmail.com | 2002-01-31 | 8574962524 |            | Katargam         |  365005 | Surat       | Gujarat
      10 | Atul       | Makwana     | atul@gmail.com    | 2001-10-30 | 7898586947 | 6574852515 | Mahua            |  684597 | Bhavnagar   | Gujarat
      11 | Gunjan     | Moradiya    | gunjan@gmail.com  | 2001-09-16 | 8596792341 |            | Roja             |  785241 | Udaipur     | Rajasthan
      12 | Smit       | Surani      | smit@gmail.com    | 2002-03-06 | 6875423568 |            | Jonpur           |  365008 | Mirzapur    | Uttar Pradesh
      13 | Vinay      | Savaliya    | vinay@gmail.com   | 2001-11-17 | 6585275355 |            | Varachha         |  365007 | Surat       | Gujarat
      14 | Aniket     | Jikadra     | aniket@gmail.com  | 2001-09-03 | 9999888777 |            | Devpur           |  458565 | Ranchi      | Bihar
      15 | Amil       | Rajvadi     | amil@gmail.com    | 2002-03-07 | 8596828381 | 7832129645 | Surat            |  965485 | Surat       | Gujarat
      16 | Neeraj     | Chopda      | neeraj@gmail.com  | 1990-10-02 | 9638527411 |            | surat            |  524163 | surat       | Gujrat
      17 | Shiva      | Gupta       | shiva@gmail.com   | 1990-10-15 | 9638527411 |            | Daman            |  524163 | Daman       | Gujrat
(17 rows)
```

- **Log**

CREATE TABLE IF NOT EXISTS public.log_user
(
    log_id integer NOT NULL DEFAULT nextval('log_log_id_seq'::regclass),
    user_id numeric NOT NULL,
    action character varying(10) COLLATE pg_catalog."default" NOT NULL,
    cur_date date NOT NULL,
    CONSTRAINT log_pkey PRIMARY KEY (log_id)
)

```
e_commerce=# \d log_user;
                                Table "public.log_user"
  Column  |         Type          | Collation | Nullable |                Default
----------+-----------------------+-----------+----------+---------------------------------------
 log_id   | integer               |           | not null | nextval('log_log_id_seq'::regclass)
 user_id  | numeric               |           | not null |
 action   | character varying(10) |           | not null |
 cur_date | date                  |           | not null |
Indexes:
    "log_pkey" PRIMARY KEY, btree (log_id)
```

2. Queries

- **Basic**

1) Information of User in order of their First Name.

select * from user_info order by user_id;
select * from user_info order by first_name;

```
e_commerce=# select * from user_info order by user_id;
 user_id | first_name | last_name |      email_id      |    dob     |  phn_no1   |  phn_no2   |      address      | pincode |    city     |     state
---------+------------+-----------+--------------------+------------+------------+------------+-------------------+---------+-------------+---------------
       1 | Hiren      | Jadav     | hiren@gmail.com    | 2002-02-25 | 9635842285 |            | Talala            |  362150 | Gir Somnath | Gujarat
       2 | Zeel       | Gondaliya | zeel@gmail.com     | 2001-10-02 | 9685746352 | 9865328754 | Bhilor            |  395004 | Shrinagar   | Kashmir
       3 | Yagnik     | Kakadiya  | yagnik@gmail.com   | 2001-10-20 | 8330015125 |            | Durej             |  395004 | Patiyala    | Hariyana
       4 | Yash       | Dhokia    | yash@gmail.com     | 2001-11-18 | 8401250800 |            | Near Gandhi Home  |  369697 | Porbandar   | Gujarat
       5 | Manav      | Dholakiya | Manav@gmail.com    | 2001-12-07 | 9865321474 | 9874561326 | Home              |  365485 | Bhavnagar   | Gujarat
       6 | Keyur      | Dhanani   | keyur@gmail.com    | 2001-05-06 | 6585743252 |            | Bhiloj            |  365004 | Bhopal      | Madhya Pradesh
       7 | Nikhil     | Gadhesariya | nikhil@gmail.com | 2001-09-22 | 6354857445 |            | Madhupur          |  362150 | Gir Somnath | Gujarat
       8 | Sanjay     | Chavda    | sanjay@gmail.com   | 2001-10-01 | 7485965241 |            | Januma            |  385012 | Trichi      | Kerala
       9 | Harshil    | Goyani    | harshil@gmail.com  | 2002-01-31 | 8574962524 |            | Katargam          |  365005 | Surat       | Gujarat
      10 | Atul       | Makwana   | atul@gmail.com     | 2001-10-30 | 7898586947 | 6574852515 | Mahua             |  684597 | Bhavnagar   | Gujarat
      11 | Gunjan     | Moradiya  | gunjan@gmail.com   | 2001-09-16 | 8596792341 |            | Roja              |  785241 | Udaipur     | Rajasthan
      12 | Smit       | Surani    | smit@gmail.com     | 2002-03-06 | 6875423568 |            | Jonpur            |  365008 | Mirzapur    | Uttar Pradesh
      13 | Vinay      | Savaliya  | vinay@gmail.com    | 2001-11-17 | 6585275355 |            | Varachha          |  365007 | Surat       | Gujarat
      14 | Aniket     | Jikadra   | aniket@gmail.com   | 2001-09-03 | 9999888777 |            | Devpur            |  458565 | Ranchi      | Bihar
      15 | Amil       | Rajvadi   | amil@gmail.com     | 2002-03-07 | 8596828381 | 7832129645 | Surat             |  965485 | Surat       | Gujarat
      16 | Neeraj     | Chopda    | neeraj@gmail.com   | 1990-10-02 | 9638527411 |            | surat             |  524163 | surat       | Gujrat
(16 rows)

e_commerce=# select * from user_info order by first_name;
 user_id | first_name | last_name |      email_id      |    dob     |  phn_no1   |  phn_no2   |      address      | pincode |    city     |     state
---------+------------+-----------+--------------------+------------+------------+------------+-------------------+---------+-------------+---------------
      15 | Amil       | Rajvadi   | amil@gmail.com     | 2002-03-07 | 8596828381 | 7832129645 | Surat             |  965485 | Surat       | Gujarat
      14 | Aniket     | Jikadra   | aniket@gmail.com   | 2001-09-03 | 9999888777 |            | Devpur            |  458565 | Ranchi      | Bihar
      10 | Atul       | Makwana   | atul@gmail.com     | 2001-10-30 | 7898586947 | 6574852515 | Mahua             |  684597 | Bhavnagar   | Gujarat
      11 | Gunjan     | Moradiya  | gunjan@gmail.com   | 2001-09-16 | 8596792341 |            | Roja              |  785241 | Udaipur     | Rajasthan
       9 | Harshil    | Goyani    | harshil@gmail.com  | 2002-01-31 | 8574962524 |            | Katargam          |  365005 | Surat       | Gujarat
       1 | Hiren      | Jadav     | hiren@gmail.com    | 2002-02-25 | 9635842285 |            | Talala            |  362150 | Gir Somnath | Gujarat
       6 | Keyur      | Dhanani   | keyur@gmail.com    | 2001-05-06 | 6585743252 |            | Bhiloj            |  365004 | Bhopal      | Madhya Pradesh
       5 | Manav      | Dholakiya | Manav@gmail.com    | 2001-12-07 | 9865321474 | 9874561326 | Home              |  365485 | Bhavnagar   | Gujarat
      16 | Neeraj     | Chopda    | neeraj@gmail.com   | 1990-10-02 | 9638527411 |            | surat             |  524163 | surat       | Gujrat
       7 | Nikhil     | Gadhesariya | nikhil@gmail.com | 2001-09-22 | 6354857445 |            | Madhupur          |  362150 | Gir Somnath | Gujarat
       8 | Sanjay     | Chavda    | sanjay@gmail.com   | 2001-10-01 | 7485965241 |            | Januma            |  385012 | Trichi      | Kerala
      12 | Smit       | Surani    | smit@gmail.com     | 2002-03-06 | 6875423568 |            | Jonpur            |  365008 | Mirzapur    | Uttar Pradesh
      13 | Vinay      | Savaliya  | vinay@gmail.com    | 2001-11-17 | 6585275355 |            | Varachha          |  365007 | Surat       | Gujarat
       3 | Yagnik     | Kakadiya  | yagnik@gmail.com   | 2001-10-20 | 8330015125 |            | Durej             |  395004 | Patiyala    | Hariyana
       4 | Yash       | Dhokia    | yash@gmail.com     | 2001-11-18 | 8401250800 |            | Near Gandhi Home  |  369697 | Porbandar   | Gujarat
       2 | Zeel       | Gondaliya | zeel@gmail.com     | 2001-10-02 | 9685746352 | 9865328754 | Bhilor            |  395004 | Shrinagar   | Kashmir
(16 rows)
```

2) Check when enters the invalid format of email.

insert into user_info values (16, 'Neeraj', 'Chopda', 'neerajchopda', '1990-10-02', '9638527411', null, 'surat', 524163, 'surat', 'Gujrat');
insert into user_info values (16, 'Neeraj', 'Chopda', 'neeraj@gmail.com', '1990-10-02', '9638527411', null, 'surat', 524163, 'surat', 'Gujrat');

```
e_commerce=# insert into user_info values (16, 'Neeraj', 'Chopda', 'neerajchopda', '1990-10-02', '9638527411', null, 'surat', 524163, 'surat', 'Gujrat');
ERROR:  new row for relation "user_info" violates check constraint "check_email_id"
DETAIL:  Failing row contains (16, Neeraj, Chopda, neerajchopda, 1990-10-02, 9638527411, null, surat, 524163, surat, Gujrat).
e_commerce=# insert into user_info values (16, 'Neeraj', 'Chopda', 'neeraj@gmail.com', '1990-10-02', '9638527411', null, 'surat', 524163, 'surat', 'Gujrat');
INSERT 0 1
e_commerce=#
```

3) Show the list of MI and Realme Products.

select * from product where prod_name like 'Mi%';
select * from product where prod_name like 'Realme%';

```
e_commerce=# select * from product where prod_name like 'Mi%';
 prod_id | sup_id | scat_id |   prod_name    | quantity |  price  | discount
---------+--------+---------+----------------+----------+---------+----------
      14 |      3 |       6 | Mi Earphone    |       12 |  400.00 |     0.00
      23 |      3 |      10 | Mi 3i 10000mAh |       10 |  800.00 |     0.00
      24 |      3 |      10 | Mi 3i 2000mAh  |       10 | 1500.00 |     0.00
(3 rows)


e_commerce=# select * from product where prod_name like 'Realme%';
 prod_id | sup_id | scat_id |    prod_name    | quantity |  price  | discount
---------+--------+---------+-----------------+----------+---------+----------
      15 |      3 |       6 | Realme Earphone |       10 |  450.00 |     0.00
      16 |      4 |       7 | Realme Bud 3    |        8 | 1500.00 |     0.00
      21 |      2 |      10 | Realme 10000mAh |        5 |  800.00 |     0.00
      22 |      2 |      10 | Realme 20000mAh |        7 | 1700.00 |     0.00
(4 rows)
```

4) People form address Durej and Talala.

select * from user_info where address in ('Talala', 'Durej');

```
e_commerce=# select * from user_info where address in ('Talala', 'Durej');
 user_id | first_name | last_name |     email_id     |    dob     |  phn_no1   | phn_no2 | address | pincode |    city     |  state
---------+------------+-----------+------------------+------------+------------+---------+---------+---------+-------------+---------
       3 | Yagnik     | Kakadiya  | yagnik@gmail.com | 2001-10-20 | 8330015125 |         | Durej   |  395004 | Patiyala    | Hariyana
       1 | Hiren      | Jadav     | hiren@gmail.com  | 2002-02-25 | 9635842285 |         | Talala  |  362150 | Gir Somnath | Gujarat
(2 rows)
```

5) Show the products whose price in between 50000 and 100000.

select * from product where price between 50000.00 and 100000.00;

```
e_commerce=# select * from product where price between 50000.00 and 100000.00;
 prod_id | sup_id | scat_id |     prod_name     | quantity |  price   | discount
---------+--------+---------+-------------------+----------+----------+----------
       1 |      1 |       1 | Dell G3           |        7 | 78000.00 |    10.00
       2 |      1 |       1 | Dell G5           |       10 | 84000.00 |     1.54
       4 |      2 |       1 | MacBook           |       21 | 55000.00 |     6.00
       6 |      3 |       2 | HP Ryzen 3        |       41 | 65000.00 |    12.00
       7 |      4 |       2 | Lenovo Ideacentre |       12 | 62000.00 |    10.00
      11 |      2 |       5 | IPhone 13         |       10 | 90000.00 |    10.00
      12 |      2 |       5 | Samsng Fold 3     |       15 | 78000.00 |     5.00
(7 rows)
```

6) Show total product of each Category

```
select c.cat_id, c.cat_name, count(p.prod_name) as Total_Products
from category c, sub_category s, product p
where s.scat_id=p.scat_id and c.cat_id=s.cat_id
group by c.cat_id
order by Total_Products desc;
```

```
e_commerce=# select c.cat_id, c.cat_name, count(p.prod_name) as Total_Products
e_commerce-# from category c, sub_category s, product p
e_commerce-# where s.scat_id=p.scat_id and c.cat_id=s.cat_id
e_commerce-# group by c.cat_id
e_commerce-# order by Total_Products desc;
 cat_id |  cat_name   | total_products
--------+-------------+----------------
      1 | Computer    |              8
      3 | Earphone    |              6
      4 | Accessories |              6
      2 | Mobile      |              5
(4 rows)
```

- **Join and Subqueries**

1) FIND THE PRODUCT NAME, QUANTITY, PRICE AND DISCOUNT WHICH ARE SUPPLIED BY "Mega Brand".

```
select p.prod_name, p.quantity, p.price, p.discount
from product p
where p.sup_id in
(select s.sup_id from supplier s where s.comp_name = 'Mega
Brand' )
order by p.prod_name;
```

```
e_commerce=# select p.prod_name, p.quantity, p.price, p.discount
e_commerce-# from product p
e_commerce-# where p.sup_id in
e_commerce-# ( select s.sup_id from supplier s where s.comp_name = 'Mega Brand' )
e_commerce-# order by p.prod_name;
     prod_name     | quantity |  price   | discount
-------------------+----------+----------+----------
 Lenovo Ideacentre |       12 | 62000.00 |    10.00
 Oneplus Bullet    |        9 |  2000.00 |     0.00
 Realme Bud 3      |        8 |  1500.00 |     0.00
 Samsung WINgFI    |       10 |   600.00 |     0.00
(4 rows)
```

2) FIND THE CUSTOMER'S NAME & CITY WHOSE ORDER IS SHIPPED BY Ship_Id=4.

```
select u.first_name, u.last_name, u.city
from user_info u
inner join customer c on c.user_id=u.user_id
inner join orders o on o.cust_id=c.cust_id
inner join shipper s on s.ord_id=o.ord_id
where s.ship_id=4;
```

```
e_commerce=# select u.first_name, u.last_name, u.city
e_commerce-# from user_info u
e_commerce-# inner join customer c on c.user_id=u.user_id
e_commerce-# inner join orders o on o.cust_id=c.cust_id
e_commerce-# inner join shipper s on s.ord_id=o.ord_id
e_commerce-# where s.ship_id=4;
 first_name |  last_name  |    city
------------+-------------+-------------
 Nikhil     | Gadhesariya | Gir Somnath
(1 row)
```

3) FIND THE PAYMENT DETAILS WHOSE TOTAL AMOUNT IS EQUAL TO MAX AMOUNT OF ALL ORDERS.

select * from payment where ttl_amt = (select max(ttl_amt) from payment);

```
e_commerce=# select * from payment
e_commerce-# where ttl_amt =
e_commerce-# ( select max(ttl_amt) from payment );
 pay_id | ord_id | pay_type |  ttl_amt
--------+--------+----------+-----------
      4 |      4 | EMI      | 150000.00
(1 row)
```

4) FIND THE CUSTOMER'S NAME, PAYMENT TYPE AND TOTAL AMOUNT WHOSE TOTAL AMOUNT IS GREATER THAN OR EQUAL TO AVERAGE AMOUNT OF ALL ORDERS.

```
select u.first_name, u.last_name, p.pay_type, p.ttl_amt
from user_info u, customer c , orders o, payment p
where u.user_id=c.cust_id
        and c.cust_id=o.ord_id
        and o.ord_id=p.ord_id
        and o.ord_id in
        (Select ord_id from payment where ttl_amt >=
                (Select avg(ttl_amt) from payment));
```

```
e_commerce=# select u.first_name, u.last_name, p.pay_type, p.ttl_amt
e_commerce-# from user_info u, customer c , orders o, payment p
e_commerce-# where u.user_id=c.cust_id
e_commerce-# and c.cust_id=o.ord_id
e_commerce-# and o.ord_id=p.ord_id
e_commerce-# and o.ord_id in
e_commerce-# ( select ord_id from payment where ttl_amt >=
e_commerce(# ( select avg(ttl_amt) from payment ) );
 first_name | last_name |  pay_type   |  ttl_amt
------------+-----------+-------------+-----------
 Hiren      | Jadav     | Cash        |  78000.00
 Zeel       | Gondaliya | Net Banking |  81000.00
 Yash       | Dhokia    | EMI         | 150000.00
(3 rows)
```

5) SHOWS ALL PRODUCT WITH THEIR PRODUCT ID, PRODUCT NAME, CUSTOMER ID, CUSTOMER NAME WHO HAS GIVEN REVIEW.

```
select p.prod_id, p.prod_name, u.user_id, u.first_name,
u.last_name, r.rev_desc
from product p
left outer join review r on r.prod_id=p.prod_id
left outer join customer c on c.cust_id=r.cust_id
left outer join user_info u on u.user_id=c.user_id
order by p.prod_id;
```

```
e_commerce=# select p.prod_id, p.prod_name, u.user_id, u.first_name, u.last_name, r.rev_desc
e_commerce-# from product p
e_commerce-# left outer join review r on r.prod_id=p.prod_id
e_commerce-# left outer join customer c on c.cust_id=r.cust_id
e_commerce-# left outer join user_info u on u.user_id=c.user_id
e_commerce-# order by p.prod_id;
 prod_id |     prod_name     | user_id | first_name |  last_name  |   rev_desc
---------+-------------------+---------+------------+-------------+---------------
       1 | Dell G3           |       6 | Keyur      | Dhanani     | Good Product
       2 | Dell G5           |         |            |             |
       3 | Dell G7           |       7 | Nikhil     | Gadhesariya | Nice Product
       4 | MacBook           |         |            |             |
       5 | MacBook Pro       |      11 | Gunjan     | Moradiya    | Excellent
       6 | HP Ryzen 3        |         |            |             |
       7 | Lenovo Ideacentre |         |            |             |
       8 | HP ChromeBook     |       6 | Keyur      | Dhanani     | Very Useful
       9 | Samsung Guru      |      13 | Vinay      | Savaliya    | I love it
      10 | Nokia 5233        |         |            |             |
      11 | IPhone 13         |         |            |             |
      12 | Samsng Fold 3     |         |            |             |
      13 | Oneplus Nord      |         |            |             |
      14 | Mi Earphone       |         |            |             |
      15 | Realme Earphone   |         |            |             |
      16 | Realme Bud 3      |      15 | Amil       | Rajvadi     | Worst Product
      17 | Oneplus Bullet    |      12 | Smit       | Surani      | Best Product
      18 | AirPods Pro       |         |            |             |
      19 | Oneplus Buds Z    |         |            |             |
      20 | Apple MD861ZM     |         |            |             |
      21 | Realme 10000mAh   |         |            |             |
      22 | Realme 20000mAh   |       9 | Harshil    | Goyani      | Bad Product
      23 | Mi 3i 10000mAh    |         |            |             |
      24 | Mi 3i 2000mAh     |         |            |             |
      25 | Samsung WINgFI    |       8 | Sanjay     | Chavda      | Duplicate
(25 rows)
```

3. PL/SQL Block

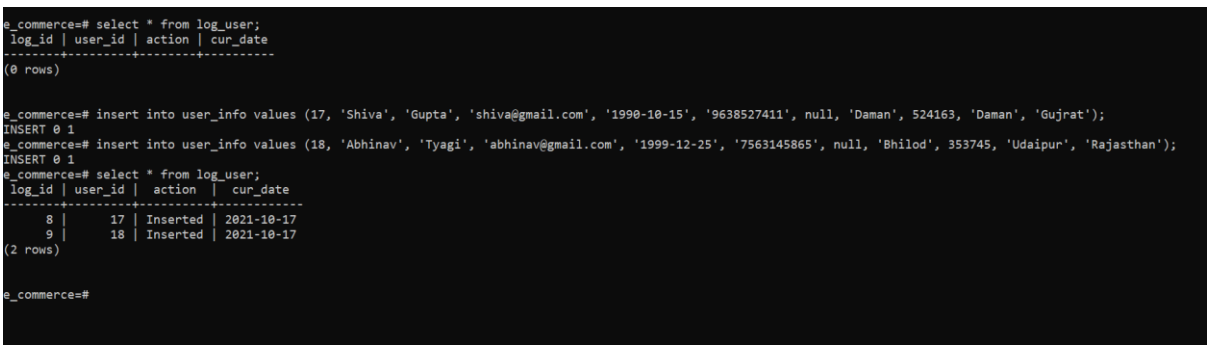
- **Triggers**

1) Insertion In user_info

```
CREATE FUNCTION public.logfuncinsert()
    RETURNS trigger
    LANGUAGE 'plpgsql'
    COST 100
    VOLATILE NOT LEAKPROOF
AS $BODY$
BEGIN
                INSERT INTO log_user(user_id, action, cur_date) VALUES
(new.user_id, 'Inserted', current_date);
                RETURN NEW;
        END;
$BODY$;

CREATE TRIGGER log_insert
    AFTER INSERT
    ON public.user_info
    FOR EACH ROW
    EXECUTE FUNCTION public.logfuncinsert();
```

Query:

```
select * from log_user;

insert into user_info values (17, 'Shiva', 'Gupta', 'shiva@gmail.com', '1990-10-
15', '9638527411', null, 'Daman', 524163, 'Daman', 'Gujrat');

insert into user_info values (18, 'Abhinav', 'Tyagi', 'abhinav@gmail.com',
'1999-12-25', '7563145865', null, 'Bhilod', 353745, 'Udaipur', 'Rajasthan');

select * from log_user;
```



2) Updating in user_info

```
CREATE FUNCTION public.logfuncupdate()
    RETURNS trigger
    LANGUAGE 'plpgsql'
    COST 100
    VOLATILE NOT LEAKPROOF
AS $BODY$
BEGIN
                INSERT INTO log_user(user_id, action, cur_date) VALUES
(new.user_id, 'Updated', current_date);
                RETURN NEW;
        END;
$BODY$;

CREATE TRIGGER log_update
    AFTER UPDATE
    ON public.user_info
    FOR EACH ROW
    EXECUTE FUNCTION public.logfuncupdate();
```

Query:

```
select * from log_user;
update user_info set last_name = 'Shukla'
where user_id = 18;
update user_info set phn_no2 = 9653248512
where user_id = 17;
select * from log_user;
```

```
e_commerce=# select * from log_user;
 log_id | user_id |  action  |  cur_date
--------+---------+----------+------------
      8 |      17 | Inserted | 2021-10-17
      9 |      18 | Inserted | 2021-10-17
(2 rows)


e_commerce=# update user_info set last_name = 'Shukla' where user_id = 18;
UPDATE 1
e_commerce=# update user_info set phn_no2 = 9653248512 where user_id = 17;
UPDATE 1
e_commerce=# select * from log_user;
 log_id | user_id |  action  |  cur_date
--------+---------+----------+------------
      8 |      17 | Inserted | 2021-10-17
      9 |      18 | Inserted | 2021-10-17
     10 |      18 | Updated  | 2021-10-17
     11 |      17 | Updated  | 2021-10-17
(4 rows)
```

3) Deletion in user_info

```
CREATE FUNCTION public.logfuncdelete()
    RETURNS trigger
    LANGUAGE 'plpgsql'
    COST 100
    VOLATILE NOT LEAKPROOF
AS $BODY$
BEGIN
                INSERT INTO log_user(user_id, action, cur_date) VALUES
(old.user_id, 'Delete', current_date);
                RETURN OLD;
END;
$BODY$;

CREATE TRIGGER log_delete
    BEFORE DELETE
    ON public.user_info
    FOR EACH ROW
    EXECUTE FUNCTION public.logfuncdelete();
```

Query:

```
select * from log_user;
delete from user_info where user_id in (17, 18);
select * from log_user;
```

```
e_commerce=# select * from log_user;
 log_id | user_id |  action  |  cur_date
--------+---------+----------+------------
      8 |      17 | Inserted | 2021-10-17
      9 |      18 | Inserted | 2021-10-17
     10 |      18 | Updated  | 2021-10-17
     11 |      17 | Updated  | 2021-10-17
(4 rows)


e_commerce=# delete from user_info where user_id in (17, 18);
DELETE 2
e_commerce=# select * from log_user;
 log_id | user_id |  action  |  cur_date
--------+---------+----------+------------
      8 |      17 | Inserted | 2021-10-17
      9 |      18 | Inserted | 2021-10-17
     10 |      18 | Updated  | 2021-10-17
     11 |      17 | Updated  | 2021-10-17
     12 |      18 | Delete   | 2021-10-17
     13 |      17 | Delete   | 2021-10-17
(6 rows)
```

4) **Trigger will be called after New Data is inserted into cart_product table and update the value of quantity in product table and value of ttl_amt and ttl_qty in cart table.**

```
CREATE FUNCTION public.cartfunc()
    RETURNS trigger
    LANGUAGE 'plpgsql'
    COST 100
    VOLATILE NOT LEAKPROOF
AS $BODY$
DECLARE
                    x numeric;
  BEGIN
            select quantity into x from product where prod_id=new.prod_id;
            x := x - new.qty;
            update product set quantity = x where prod_id=new.prod_id;

            update cart set ttl_amt = ttl_amt + ( new.qty * ( select price from
product where prod_id = new.prod_id ) )
            where cart_id = new.cart_id;

            update cart set ttl_qty = ttl_qty + new.qty where cart_id =
new.cart_id;

            return new;
  END;
$BODY$;

CREATE TRIGGER cartinsert
    AFTER INSERT
    ON public.cart_product
    FOR EACH ROW
    EXECUTE FUNCTION public.cartfunc();
```

Query:

```
insert into cart_product values (6, 13, 2);
```

```
e_commerce=# select * from cart_product;
 cart_id | prod_id | qty
---------+---------+-----
       1 |       1 |   1
       2 |      12 |   1
       2 |      19 |   1
       3 |      22 |   1
       4 |       5 |   1
       3 |      14 |   2
       5 |       4 |   3
(7 rows)
```

```
e_commerce=# insert into cart_product values (6, 13, 2);
INSERT 0 1
e_commerce=# select * from cart_product;
 cart_id | prod_id | qty
---------+---------+-----
       1 |       1 |   1
       2 |      12 |   1
       2 |      19 |   1
       3 |      22 |   1
       4 |       5 |   1
       3 |      14 |   2
       5 |       4 |   3
       6 |      13 |   2
(8 rows)
```

```
e_commerce=# select * from cart;
 cart_id |  ttl_amt  | ttl_qty
---------+-----------+---------
       1 |  78000.00 |       1
       2 |  81000.00 |       2
       4 | 150000.00 |       1
       3 |   2500.00 |       3
       5 | 165000.00 |       3
       6 |      0.00 |       0
(6 rows)
```

```
e_commerce=# select * from cart;
 cart_id |  ttl_amt  | ttl_qty
---------+-----------+---------
       1 |  78000.00 |       1
       2 |  81000.00 |       2
       4 | 150000.00 |       1
       3 |   2500.00 |       3
       5 | 165000.00 |       3
       6 |  68000.00 |       2
(6 rows)
```

```
e_commerce=# select * from product;
 prod_id | sup_id | scat_id |     prod_name     | quantity |   price   | discount
---------+--------+---------+-------------------+----------+-----------+----------
       1 |      1 |       1 | Dell G3           |        7 |  78000.00 |    10.00
       2 |      1 |       1 | Dell G5           |       10 |  84000.00 |     1.54
       3 |      1 |       1 | Dell G7           |       15 | 110000.00 |    15.00
       5 |      2 |       1 | MacBook Pro       |       32 | 150000.00 |    30.00
       6 |      3 |       2 | HP Ryzen 3        |       41 |  65000.00 |    12.00
       7 |      4 |       2 | Lenovo Ideacentre |       12 |  62000.00 |    10.00
       8 |      5 |       3 | HP ChromeBook     |       10 |  34000.00 |    20.00
       9 |      1 |       4 | Samsung Guru      |       17 |   1000.00 |     5.00
      10 |      1 |       4 | Nokia 5233        |        5 |   1600.00 |    10.00
      11 |      2 |       5 | IPhone 13         |       10 |  90000.00 |    10.00
      12 |      2 |       5 | Samsng Fold 3     |       15 |  78000.00 |     5.00
      13 |      2 |       5 | Oneplus Nord      |       17 |  34000.00 |     7.00
      14 |      3 |       6 | Mi Earphone       |       12 |    400.00 |     0.00
      15 |      3 |       6 | Realme Earphone   |       10 |    450.00 |     0.00
      16 |      4 |       7 | Realme Bud 3      |        8 |   1500.00 |     0.00
      17 |      4 |       7 | Oneplus Bullet    |        9 |   2000.00 |     0.00
      18 |      5 |       8 | AirPods Pro       |       16 |  25000.00 |     0.00
      19 |      5 |       8 | Oneplus Buds Z    |       15 |   3000.00 |     0.00
      20 |      1 |       9 | Apple MD861ZM     |       10 |   3500.00 |     0.00
      21 |      2 |      10 | Realme 10000mAh   |        5 |    800.00 |     0.00
      22 |      2 |      10 | Realme 20000mAh   |        7 |   1700.00 |     0.00
      23 |      3 |      10 | Mi 3i 10000mAh    |       10 |    800.00 |     0.00
      24 |      3 |      10 | Mi 3i 2000mAh     |       10 |   1500.00 |     0.00
      25 |      4 |      10 | Samsung WINgFI    |       10 |    600.00 |     0.00
       4 |      2 |       1 | MacBook           |       18 |  55000.00 |     6.00
(25 rows)
```

```
e_commerce=# select * from product;
 prod_id | sup_id | scat_id |     prod_name     | quantity |   price   | discount
---------+--------+---------+-------------------+----------+-----------+----------
       1 |      1 |       1 | Dell G3           |        7 |  78000.00 |    10.00
       2 |      1 |       1 | Dell G5           |       10 |  84000.00 |     1.54
       3 |      1 |       1 | Dell G7           |       15 | 110000.00 |    15.00
       5 |      2 |       1 | MacBook Pro       |       32 | 150000.00 |    30.00
       6 |      3 |       2 | HP Ryzen 3        |       41 |  65000.00 |    12.00
       7 |      4 |       2 | Lenovo Ideacentre |       12 |  62000.00 |    10.00
       8 |      5 |       3 | HP ChromeBook     |       10 |  34000.00 |    20.00
       9 |      1 |       4 | Samsung Guru      |       17 |   1000.00 |     5.00
      10 |      1 |       4 | Nokia 5233        |        5 |   1600.00 |    10.00
      11 |      2 |       5 | IPhone 13         |       10 |  90000.00 |    10.00
      12 |      2 |       5 | Samsng Fold 3     |       15 |  78000.00 |     5.00
      14 |      3 |       6 | Mi Earphone       |       12 |    400.00 |     0.00
      15 |      3 |       6 | Realme Earphone   |       10 |    450.00 |     0.00
      16 |      4 |       7 | Realme Bud 3      |        8 |   1500.00 |     0.00
      17 |      4 |       7 | Oneplus Bullet    |        9 |   2000.00 |     0.00
      18 |      5 |       8 | AirPods Pro       |       16 |  25000.00 |     0.00
      19 |      5 |       8 | Oneplus Buds Z    |       15 |   3000.00 |     0.00
      20 |      1 |       9 | Apple MD861ZM     |       10 |   3500.00 |     0.00
      21 |      2 |      10 | Realme 10000mAh   |        5 |    800.00 |     0.00
      22 |      2 |      10 | Realme 20000mAh   |        7 |   1700.00 |     0.00
      23 |      3 |      10 | Mi 3i 10000mAh    |       10 |    800.00 |     0.00
      24 |      3 |      10 | Mi 3i 2000mAh     |       10 |   1500.00 |     0.00
      25 |      4 |      10 | Samsung WINgFI    |       10 |    600.00 |     0.00
       4 |      2 |       1 | MacBook           |       18 |  55000.00 |     6.00
      13 |      2 |       5 | Oneplus Nord      |       15 |  34000.00 |     7.00
(25 rows)
```

- **Functions**

Function gives the in-stock quantity excluding product in cart of particular prod_id from cart_product table.

```
CREATE OR REPLACE FUNCTION public.remaining(
        pid numeric)
    RETURNS numeric
    LANGUAGE 'plpgsql'
    COST 100
    VOLATILE PARALLEL UNSAFE
AS $BODY$
DECLARE
                stock numeric;
                sell numeric;
                remain numeric;
  BEGIN
                select pro.quantity into stock from product pro where pro.prod_id=pid;
                select sum(cp.qty) into sell from cart_product cp where
cp.prod_id=pid;
                remain := stock - sell;
                return remain;
  END;
$BODY$;
```

Query:

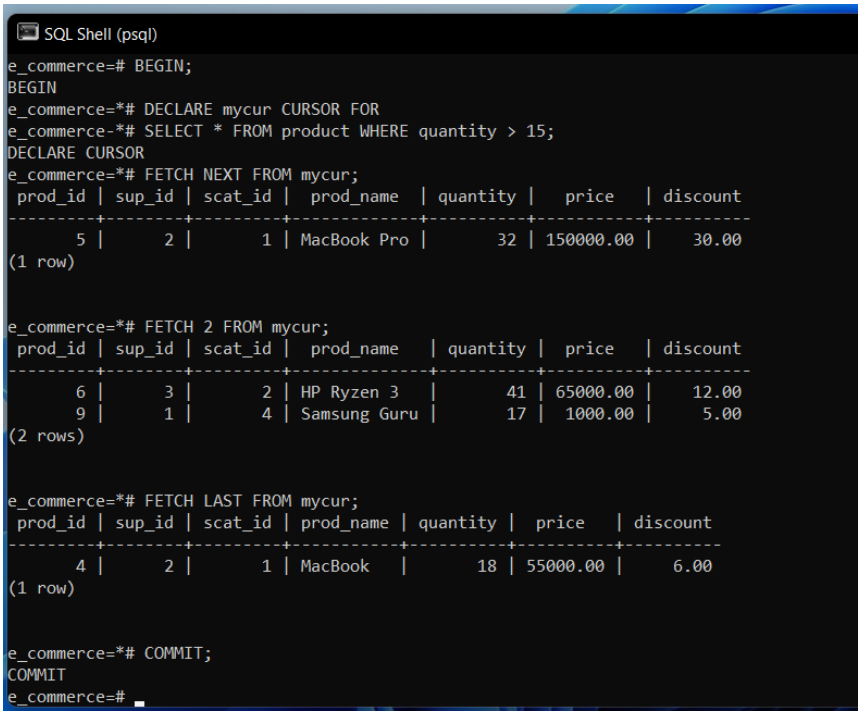
```
select sc.scat_name, p.prod_name, p.quantity, remaining(13)
from product p
inner join cart_product cp on cp.prod_id=p.prod_id
inner join sub_category sc on sc.scat_id=p.scat_id
where p.prod_id=13;
```

```
e_commerce=# select sc.scat_name, p.prod_name, p.quantity, remaining(13)
e_commerce-# from product p
e_commerce-# inner join cart_product cp on cp.prod_id=p.prod_id
e_commerce-# inner join sub_category sc on sc.scat_id=p.scat_id
e_commerce-# where p.prod_id=13;
 scat_name  |  prod_name   | quantity | remaining
------------+--------------+----------+-----------
 Smartphone | Oneplus Nord |       15 |        13
(1 row)


e_commerce=#
```

- ## Cursors

1) Using Cursor getting the product details which have Quantity more than 15.

```
BEGIN;

DECLARE mycur CURSOR FOR

SELECT * FROM product WHERE quantity > 15;

FETCH NEXT FROM mycur;

FETCH 2 FROM mycur;

FETCH LAST FROM mycur;

COMMIT;
```



2) **Function takes product amount and discount and give the product name which is come under these criteria given by user.**

```
CREATE OR REPLACE FUNCTION public.prodfunc(
        pr numeric,
        dis numeric)
    RETURNS character varying
    LANGUAGE 'plpgsql'
    COST 100
    VOLATILE PARALLEL UNSAFE
AS $BODY$
declare
        mycur cursor for select * from product where price >= pr;
        prodata record;
        ret varchar;
begin
        open mycur;
        loop
                fetch mycur into prodata;
                exit when not found;
                if prodata.discount>dis then
                        ret := prodata.prod_name;
                end if;
        end loop;
        close mycur;
        return ret;
end;
$BODY$;
```

```
e_commerce=# select prodfunc(50000, 15.0);
  prodfunc
-------------
 MacBook Pro
(1 row)


e_commerce=#
```

CONCLUSION

The development of this Project includes so many roles like customers and supplier. It is very important to identify the system requirements by properly collecting required data to interact with the system. Proper design builds upon this foundation give a blueprint, which is actually implemented in real life. On realizing the importance of the systematic documentation all the processes are implemented using a software engineering approach.

While doing this project we faced many real time problems and learned how to tackle It smoothly. We have gained a lot of practical knowledge from this project, which we think, shall make us stand in a good state in the future.

BIBLIOGRAPHY

- For the successful implementation of this project, we referred to many websites and books.
- The schema was designed by taking ideas from website of “Amazon”, “Flipkart” and many E-Commerce website.
- We created the ER Diagram and Schema Diagram on “Creatly.com”.
- Mostly we referred the online material for syntax of Triggers, Procedures, Functions and Cursors.

Reference Book:

Database System Concepts
-Abraham Silberschatz, Henry F. Korth & S. Sudarshan 4th Ed. McGraw-Hill 1991

Reference Website:

- www.mysqltutorial.org
- www.w3resource.com
- www.w3schools.com
- www.stackoverflow.com
- www.tutorialspoint.com