CASE STUDY

Ecom

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Create following tables in SQL Schema with appropriate class and write the unit test case for the Ecommerce application.

Schema Design:

1.customers table:

customer_id (Primary Key)

name

email

password

```
3 •  use hexaware;
4 •  drop table orders;
5 •  CREATE TABLE customers (
6        customer_id INT PRIMARY KEY,
7        name VARCHAR(100) NOT NULL,
8        email VARCHAR(100) UNIQUE NOT NULL,
9        password VARCHAR(255) NOT NULL
```

Result Grid | Filter Rows: | Edit: | Export/Import:

customer_id	name	email	password
1	John	johndoe@example.com	123456
2	Jane	janesmith@example.com	4561234@
3	Robert	robert@example.com	789@WRRq
4	Sarah	sarah@example.com	101Aa@$er
5	David	david@example.com	234R#566
6	Laura	laura@example.com	567Yui
7	Michael	michael@example.com	890@wety
8	Emma	emma@example.com	321%yui
9	William	william@example.com	432*7yui
10	Olivia	olivia@example.com	765%uioi
NULL	NULL	NULL	NULL

customers 2 ×

2. products table:

- **product_id (Primary Key)**
- **name**
- **price**
- **description**
- **stockQuantity**

```sql
CREATE TABLE products (
    product_id INT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    price DECIMAL(10, 2) NOT NULL,
    description TEXT,
    stockQuantity INT NOT NULL
);
```

Result Grid | Filter Rows: | Edit: | Export/Import:

product_id	name	price	description	stc
1	Smartwatch	8999.00	Fitness focused smartwatch with heart rate mo...	80
2	Bluetooth Earbuds	5999.00	Wireless noise canceling earbuds with charging ...	100
3	Smart TV	29999.00	50-inch 4K Ultra HD Smart LED TV with built in a...	40
4	Air Conditioner (AC)	35999.00	1.5 Ton Split AC with inverter technology	30
5	Laptop	65999.00	15.6 inch laptop with Intel i5 processor and 16G...	60
6	iPhone	79999.00	Apple iPhone 14 with 128GB storage	45
7	iPad	44999.00	Apple iPad 10.9-inch with A14 Bionic chip	50
8	Tablet	18999.00	10-inch Android tablet with expandable storage	70
9	Alexa Dot	4499.00	Amazon Echo Dot (5th Gen) smart speaker with ...	150
10	Power Adapter	999.00	Fast-charging USB C wall adapter (20W)	200
NULL	NULL	NULL	NULL	NULL

products 3 ×

Output

3. cart table:

cart_id (Primary Key)

customer_id (Foreign Key)

product_id (Foreign Key)

quantity

```
87  CREATE TABLE cart (
88      cart_id INT PRIMARY KEY,
89      customer_id INT NOT NULL,
90      product_id INT NOT NULL,
91      quantity INT NOT NULL DEFAULT 1,
92      FOREIGN KEY (customer_id) REFERENCES customers(customer_id),
93      FOREIGN KEY (product_id) REFERENCES products(product_id)
```

Result Grid | Filter Rows: | Edit: | Export/Import:

cart_id	customer_id	product_id	quantity
1	1	1	2
2	1	3	1
3	2	2	3
4	3	4	4
5	3	5	2
6	4	6	1
7	5	1	1
8	6	10	2
9	6	9	3
10	7	7	2
NULL	NULL	NULL	NULL

cart 5

4. orders table:

order_id (Primary Key)

customer_id (Foreign Key)

order_date

total_price

shipping_address

```
47 • CREATE TABLE orders (
48       order_id INT PRIMARY KEY,
49       customer_id INT,
50       order_date DATE,
51       total_price DOUBLE,
52       shipping_address VARCHAR(255),
53       FOREIGN KEY (customer_id) REFERENCES customers(customer_id)
```

Result Grid | Filter Rows: | Edit: | Export/Import:

order_id	customer_id	order_date	total_price	shipping_address
1	1	2023-01-05	1200	123 Main St, City
2	2	2023-02-10	900	456 Elm St, Town
3	3	2023-03-15	300	789 Oak St, Village
4	4	2023-04-20	150	101 Pine St, Suburb
5	5	2023-05-25	1800	234 Cedar St, District
6	6	2023-06-30	400	567 Birch St, County
7	7	2023-07-05	700	890 Maple St, State
8	8	2023-08-10	160	321 Redwood St, Country
9	9	2023-09-15	140	432 Spruce St, Province
10	10	2023-10-20	1400	765 Fir St, Territory
NULL	NULL	NULL	NULL	NULL

5. order_items table (to store order details): □order_item_id (Primary Key)

□order_id (Foreign Key)

□product_id (Foreign Key)

□quantity

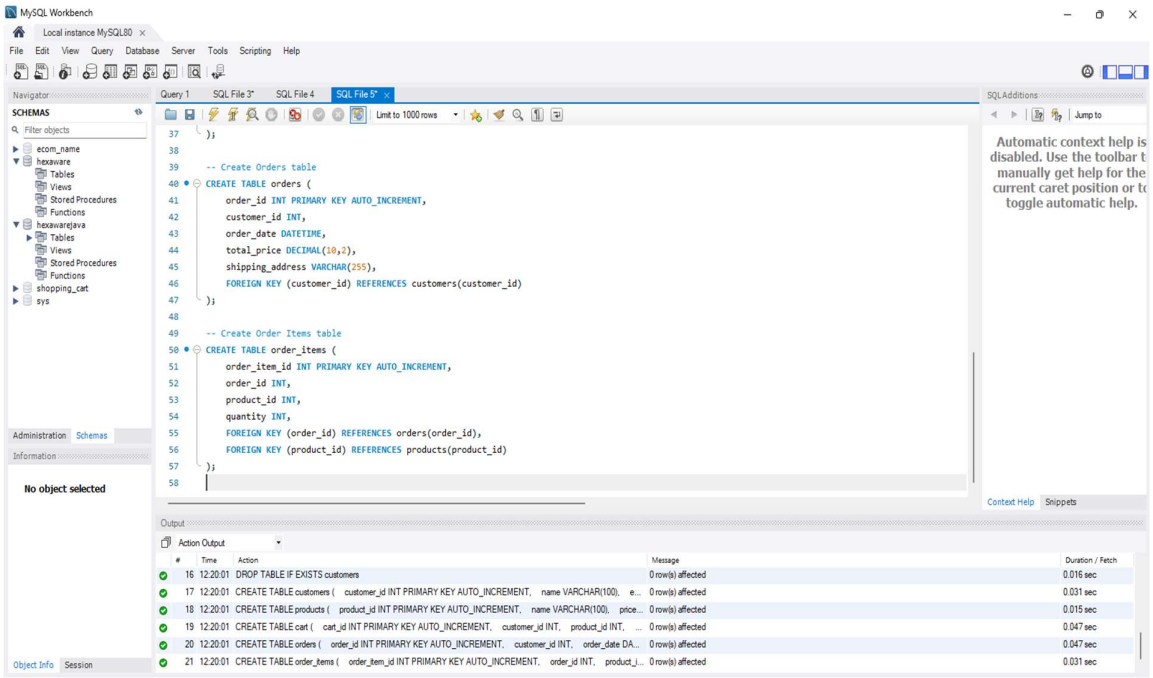
```
67 • CREATE TABLE order_items (
68       order_item_id INT PRIMARY KEY,
69       order_id INT,
70       product_id INT,
71       quantity INT,
72       FOREIGN KEY (order_id) REFERENCES orders(order_id),
73       FOREIGN KEY (product_id) REFERENCES products(product_id)
```

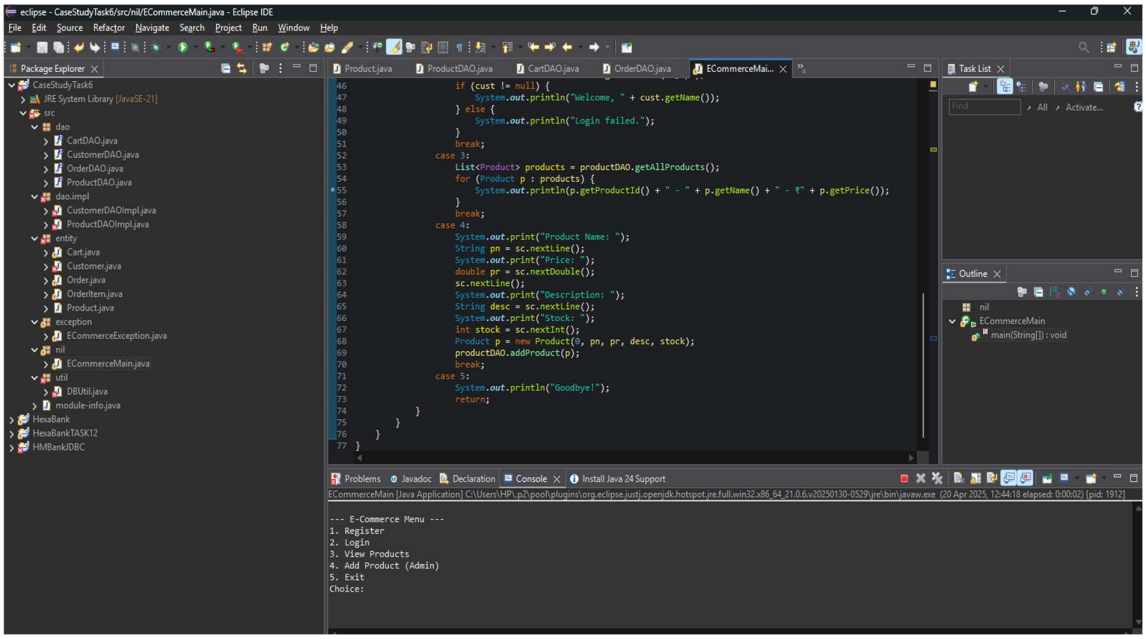
Result Grid | Filter Rows: | Edit: | Export/Import:

order_item_id	order_id	product_id	quantity
1	1	1	2
2	1	3	1
3	2	2	3
4	3	5	2
5	4	4	4
6	4	6	1
7	5	1	1
8	5	2	2
9	6	10	2
10	6	9	3
NULL	NULL	NULL	NULL

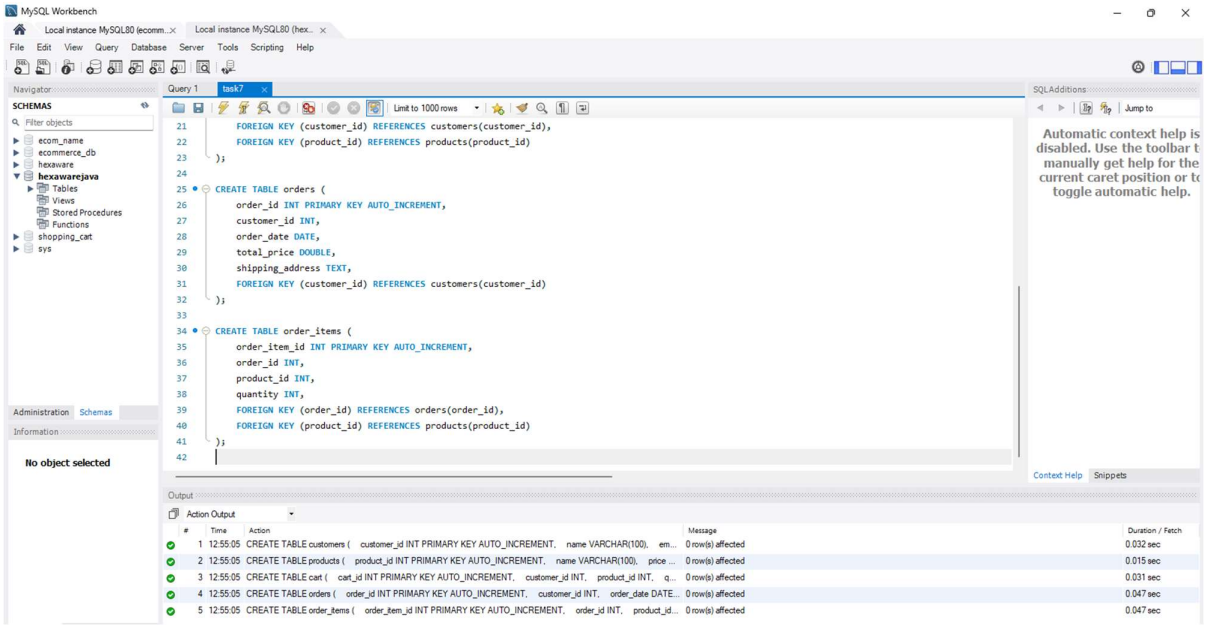
order_items 6 ×

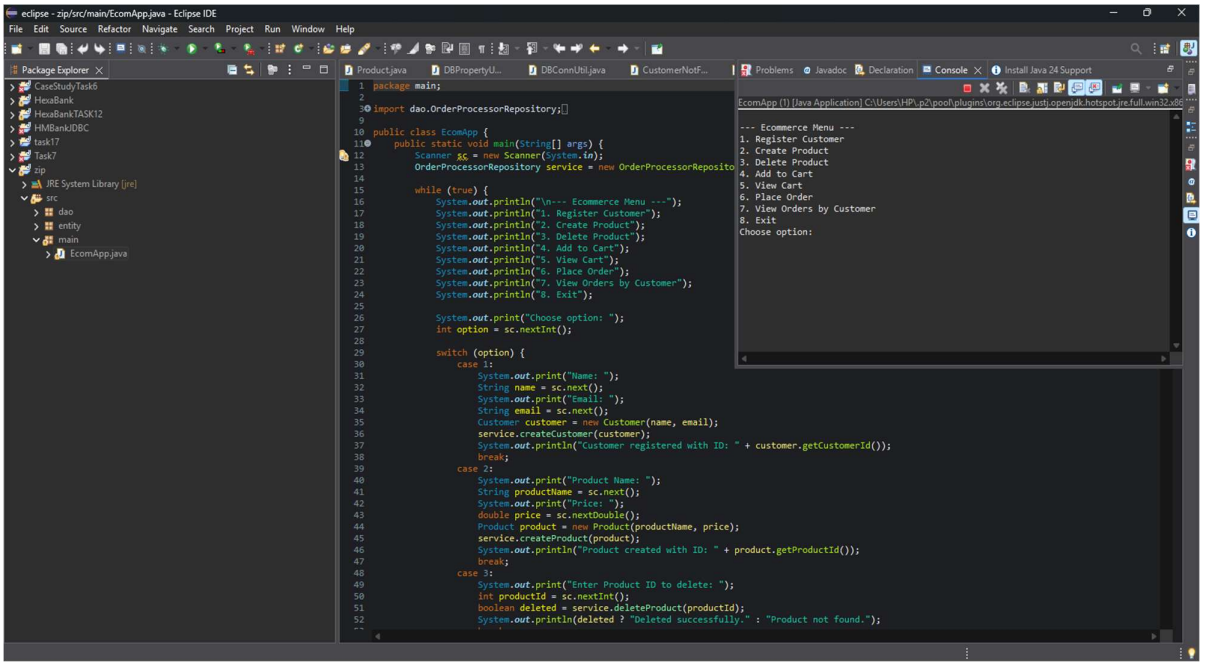
Task 6 : Service Provider Interface/Abstract class



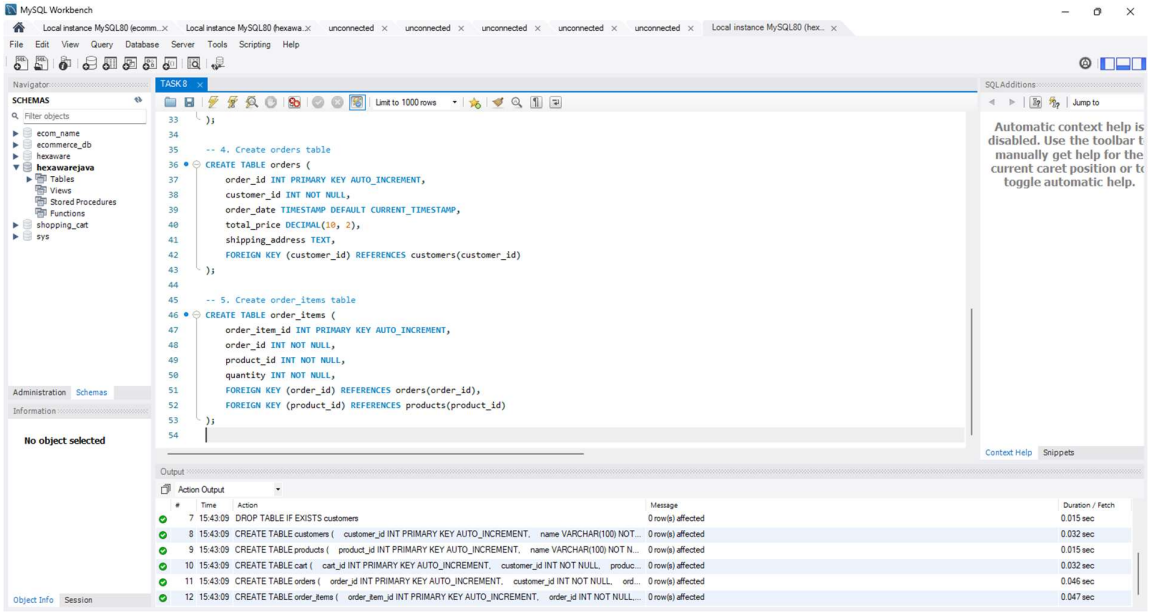


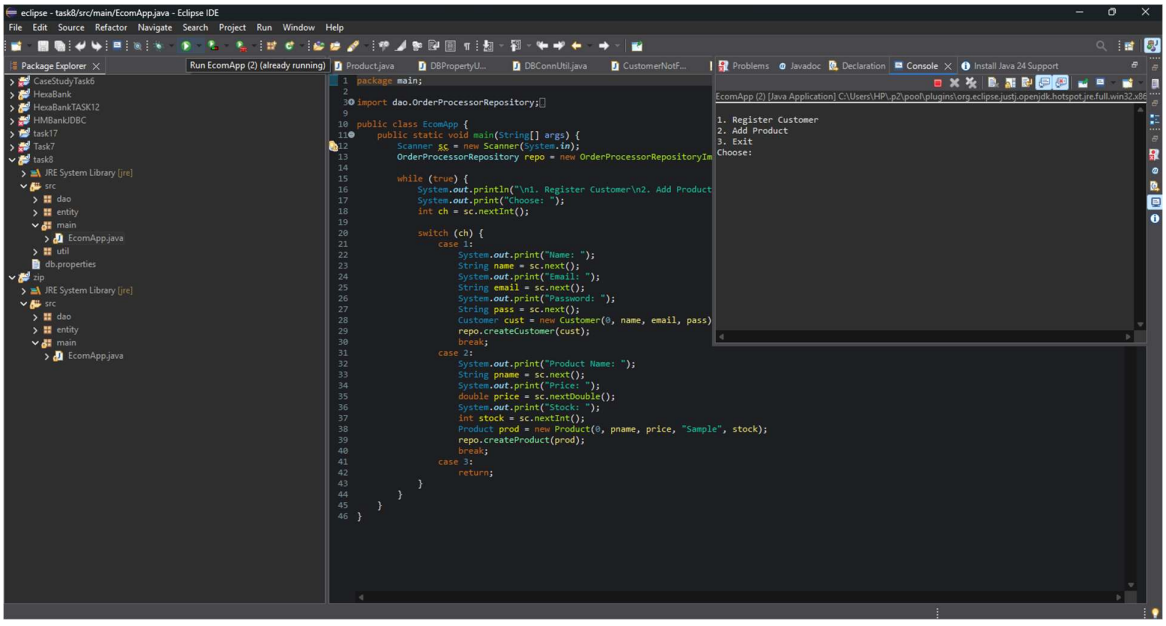
Task 7: Implement the above interface in a class called OrderProcessorRepositoryImpl in package dao



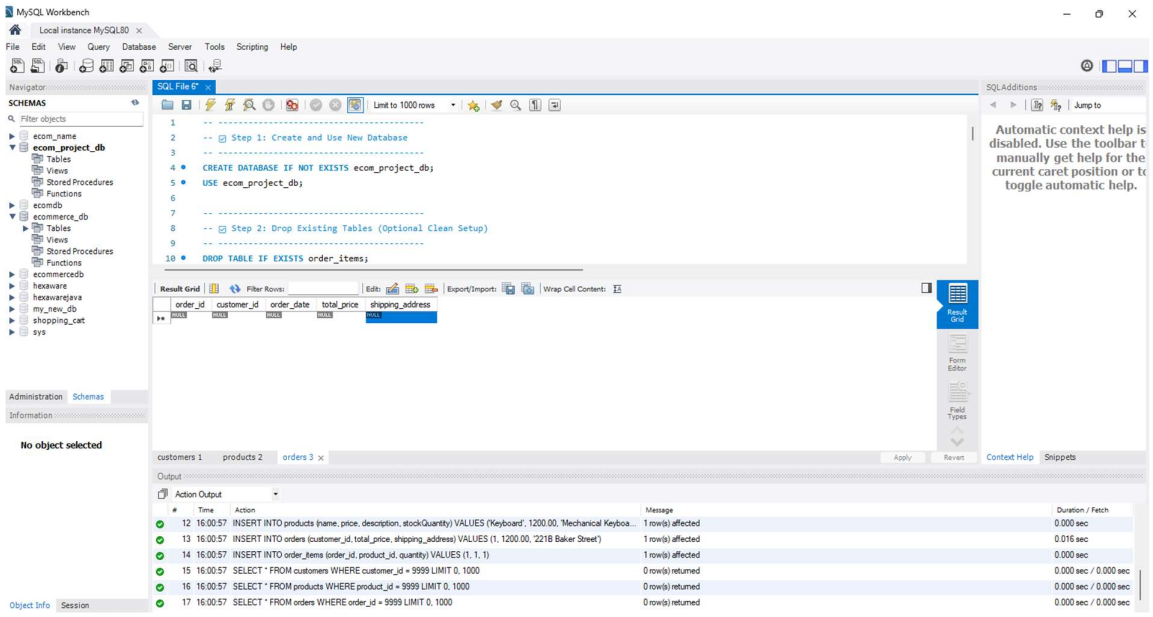


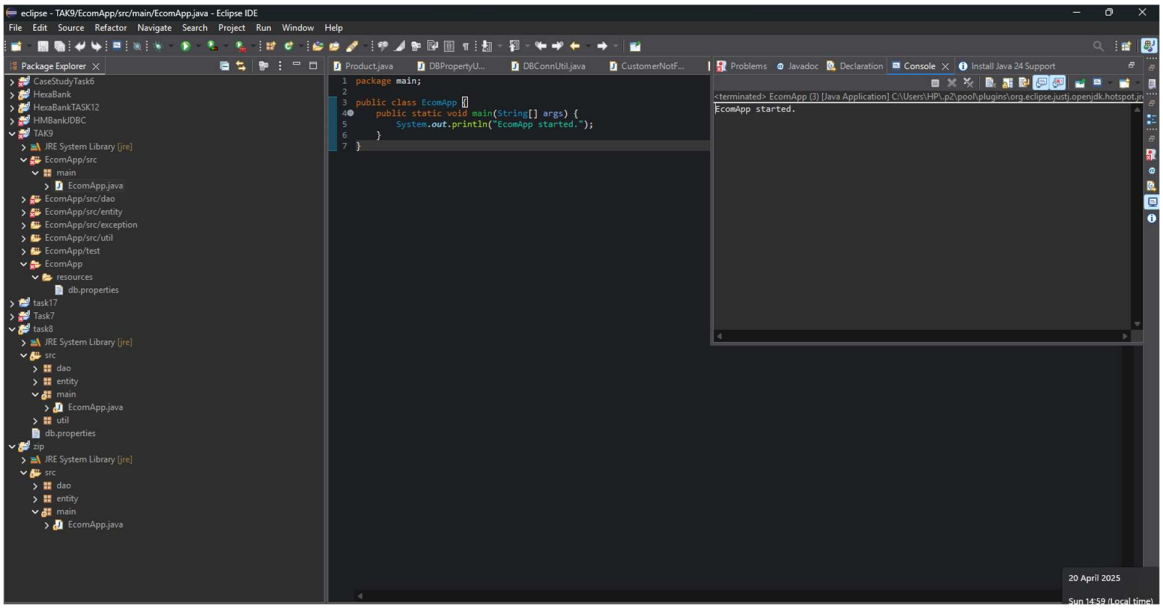
Task 8 : Write code to establish a connection to your SQL database.



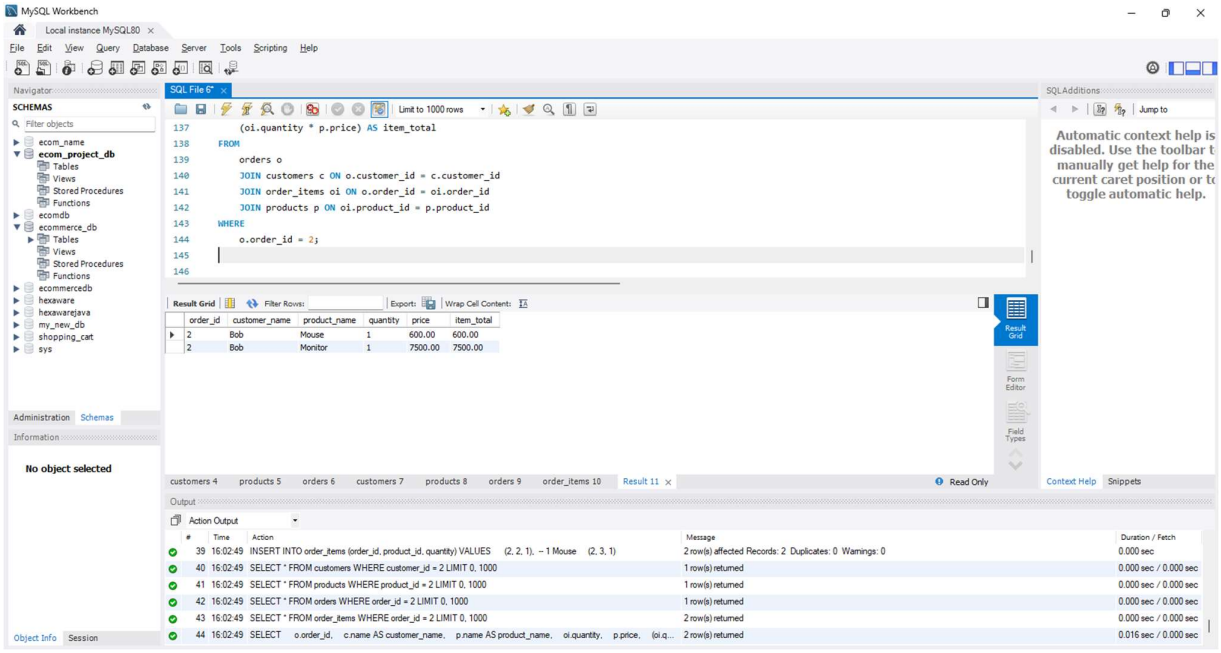


TASK 9 : Create the exceptions in package myexceptions and create the following custom exceptions and throw them in methods whenever needed.





TASK 10 : Create class named EcomApp with main method in app Trigger all the methods in service implementation class by user choose operation from the following menu.



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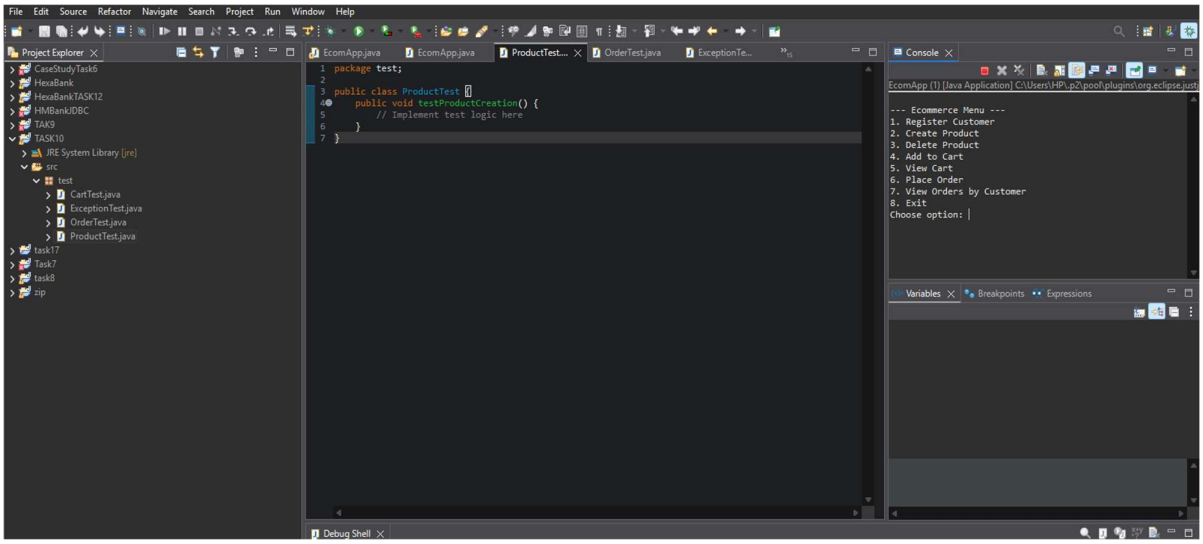

TASK 11 : Create Unit test cases for Ecommerce System are essential to ensure the correctness and reliability of your system