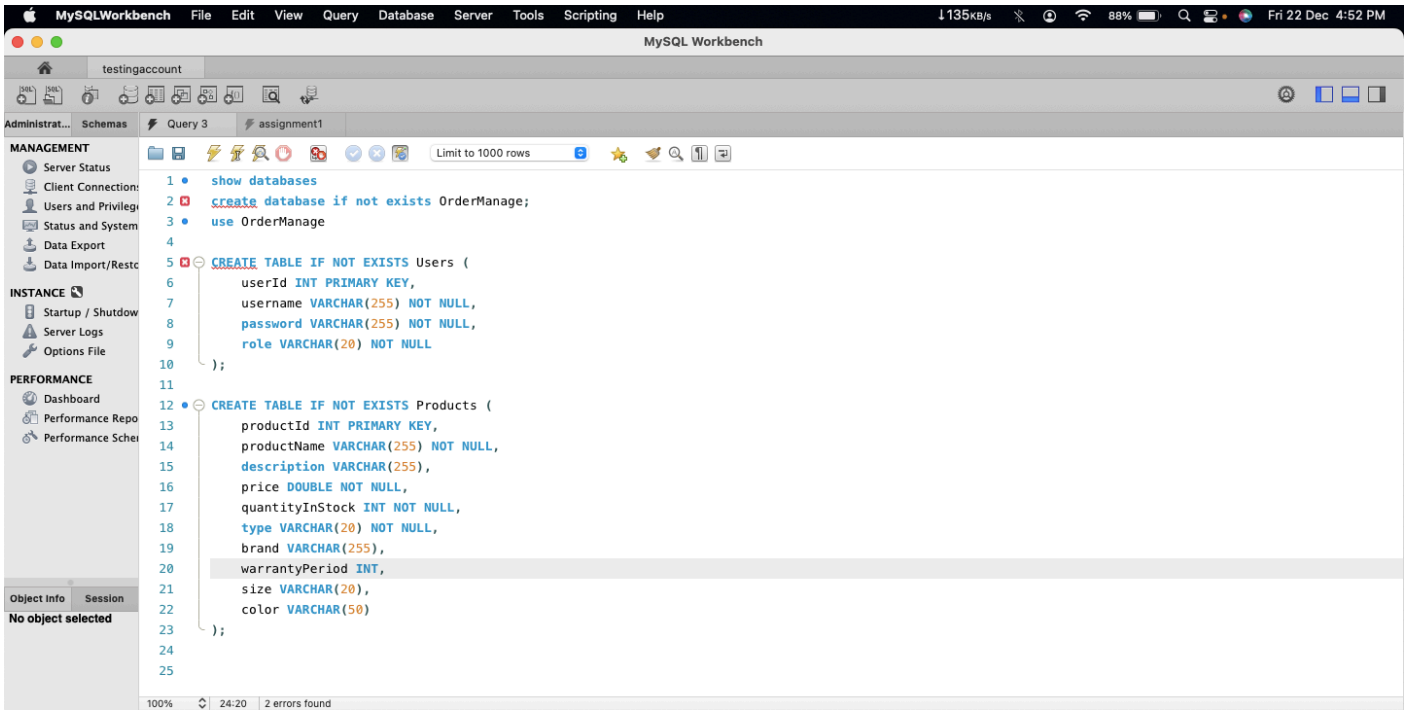
Coding Challenge - 6

Order Management System

Create SQL Schema from the product and user class, use the class attributes for table column names.

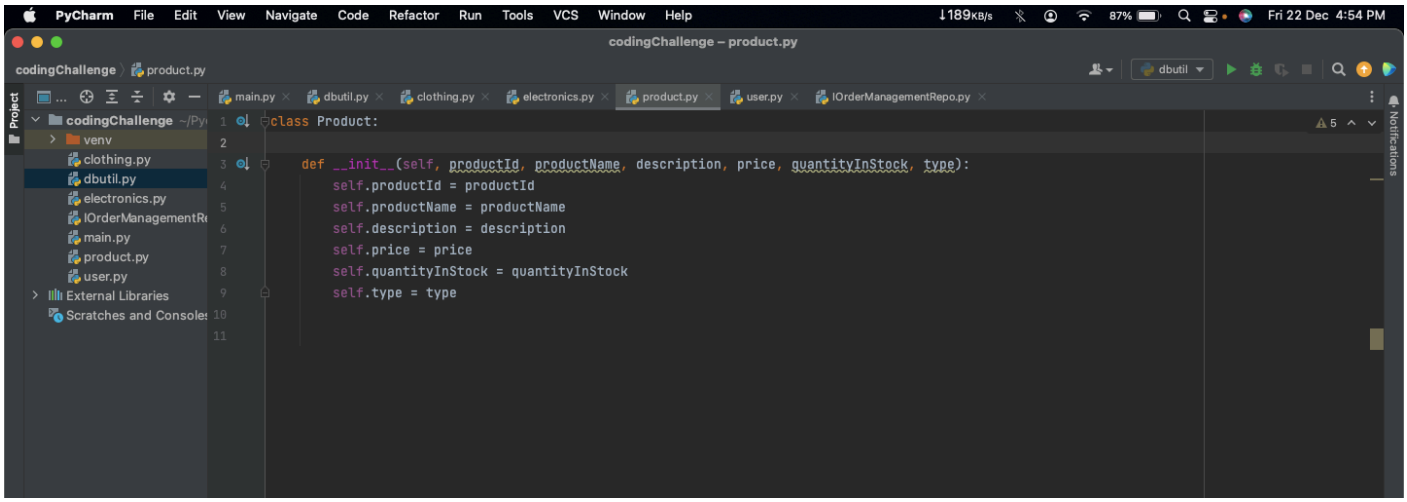


```
show databases
create database if not exists OrderManage;
use OrderManage

CREATE TABLE IF NOT EXISTS Users (
    userId INT PRIMARY KEY,
    username VARCHAR(255) NOT NULL,
    password VARCHAR(255) NOT NULL,
    role VARCHAR(20) NOT NULL
);

CREATE TABLE IF NOT EXISTS Products (
    productId INT PRIMARY KEY,
    productName VARCHAR(255) NOT NULL,
    description VARCHAR(255),
    price DOUBLE NOT NULL,
    quantityInStock INT NOT NULL,
    type VARCHAR(20) NOT NULL,
    brand VARCHAR(255),
    warrantyPeriod INT,
    size VARCHAR(20),
    color VARCHAR(50)
);
```

1.Create a base class called **Product** with the following attributes:

- **productId** (int)
- **productName** (String)
- **description** (String)
- **price** (double)
- **quantityInStock** (int)
- **type** (String) [Electronics/Clothing]

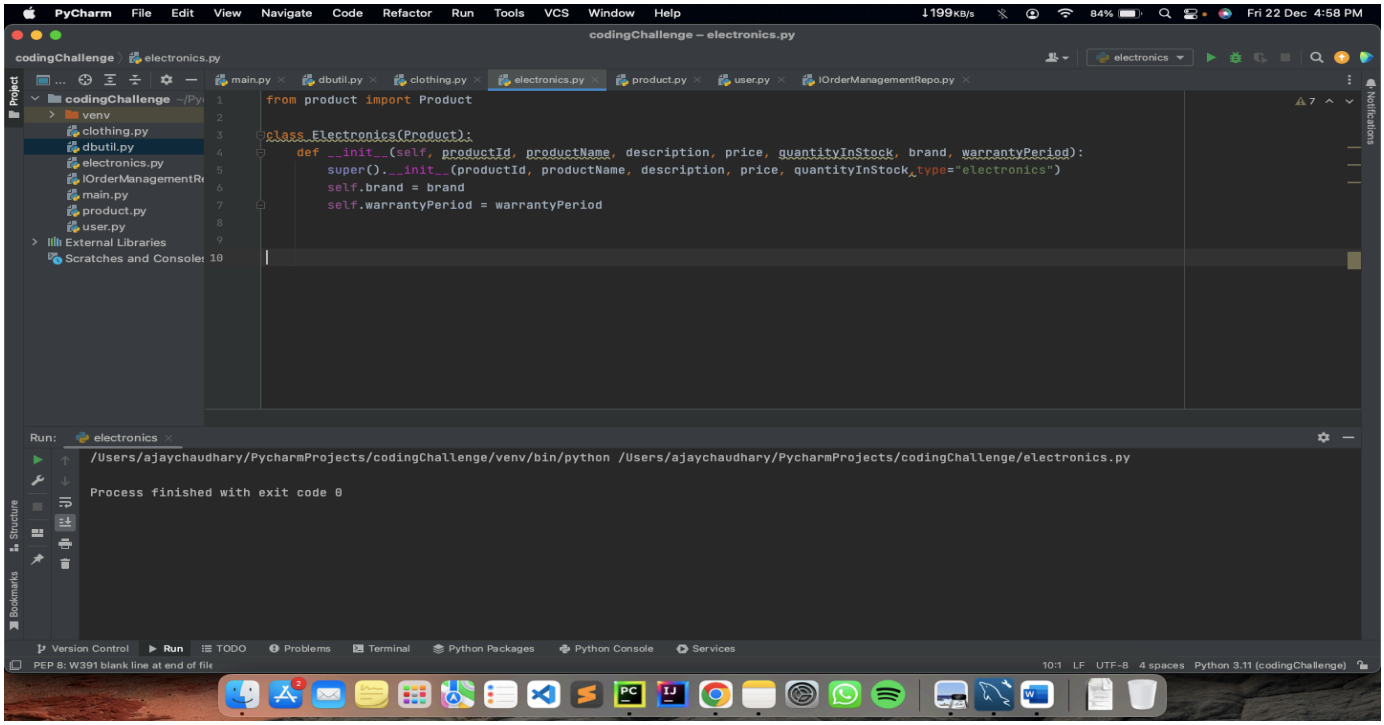
2. Implement constructors, getters, and setters for the **Product** class.



```
class Product:

    def __init__(self, productId, productName, description, price, quantityInStock, type):
        self.productId = productId
        self.productName = productName
        self.description = description
        self.price = price
        self.quantityInStock = quantityInStock
        self.type = type
```

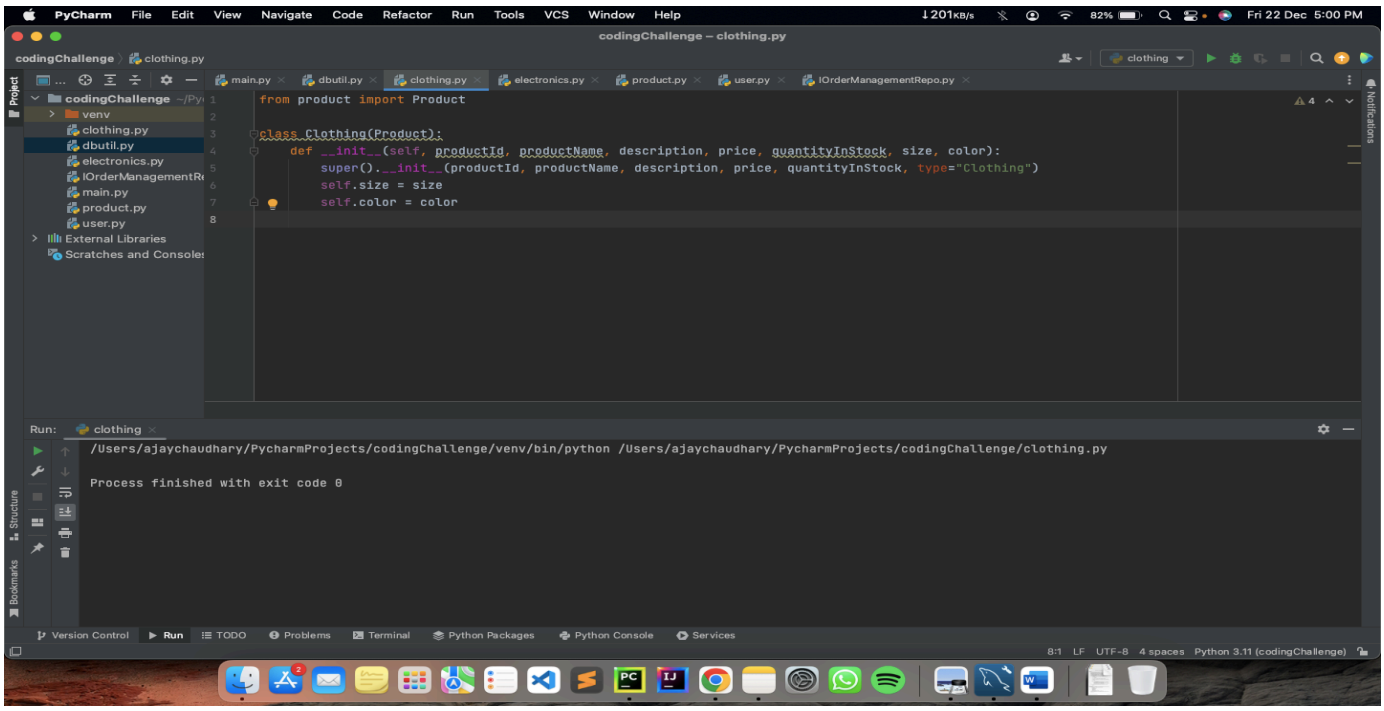
3. Create a subclass **Electronics** that inherits from **Product**. Add attributes specific to electronics products, such as:

    - **brand** (String)
    - **warrantyPeriod** (int)

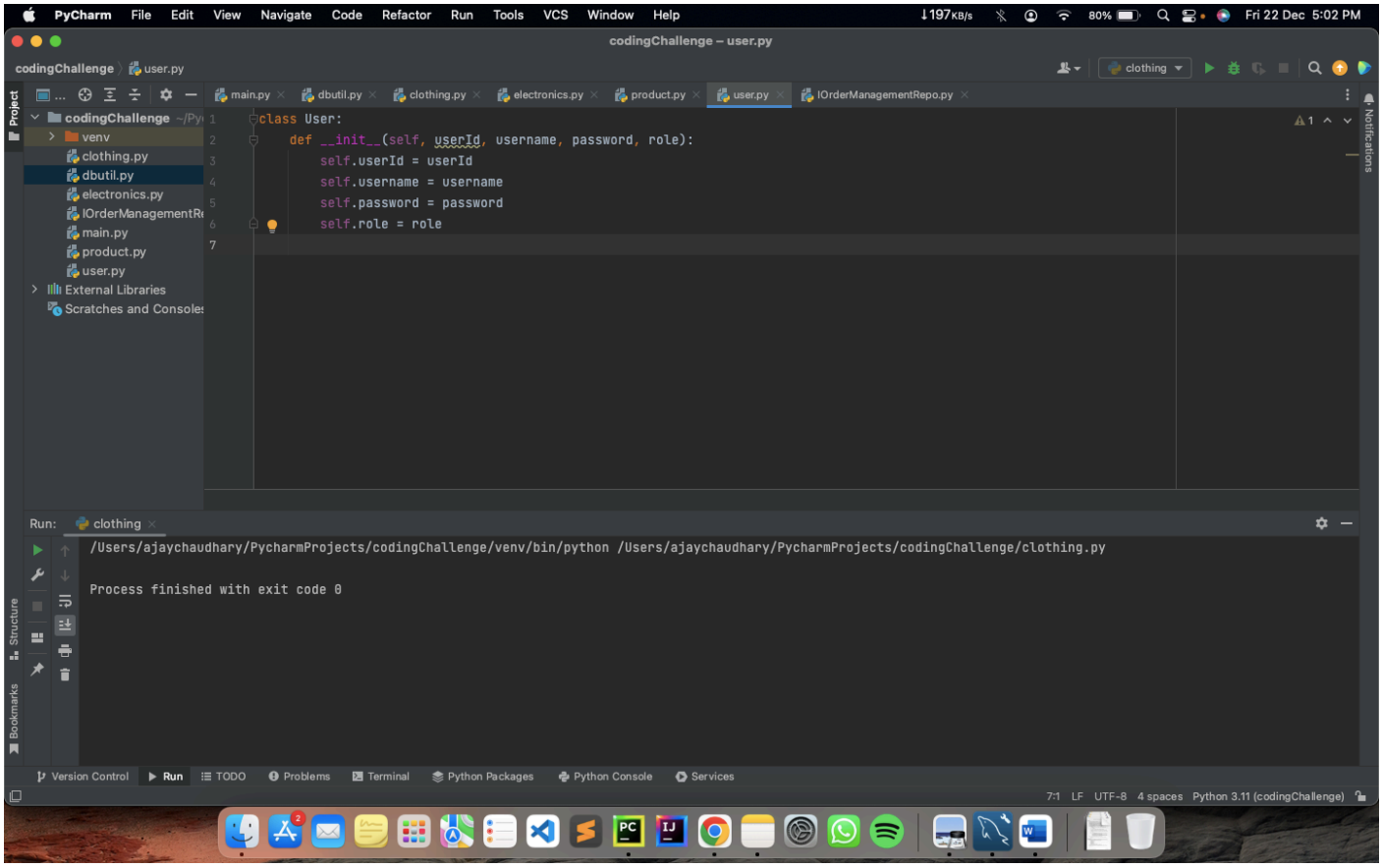


4. Create a subclass **Clothing** that also inherits from **Product**. Add attributes specific to clothing products, such as:

    - **size** (String)
    - **color** (String)

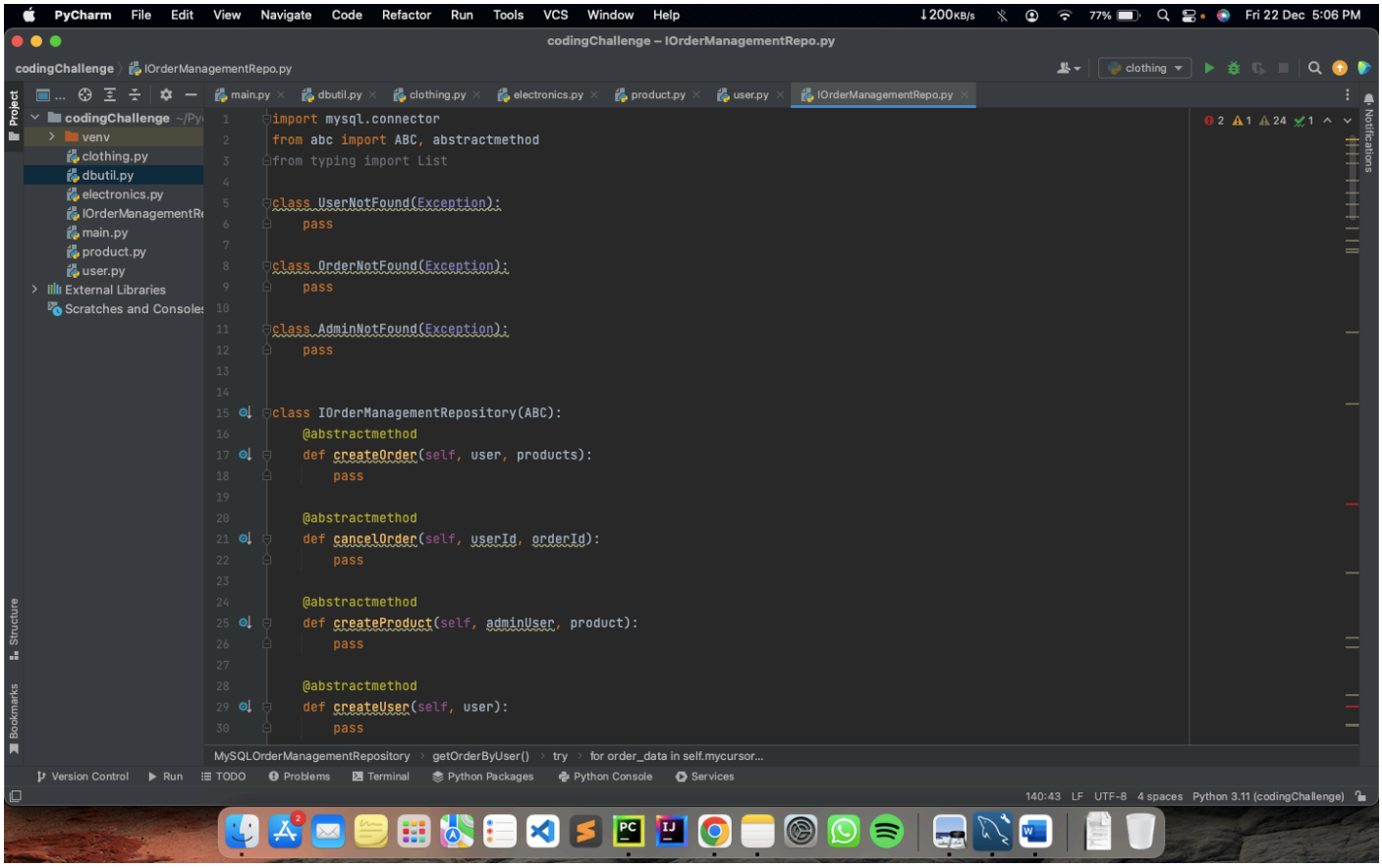


5. Create a **User** class with attributes:
    - **userId** (int)
    - **username** (String)
    - **password** (String)
    - **role** (String) // "Admin" or "User"



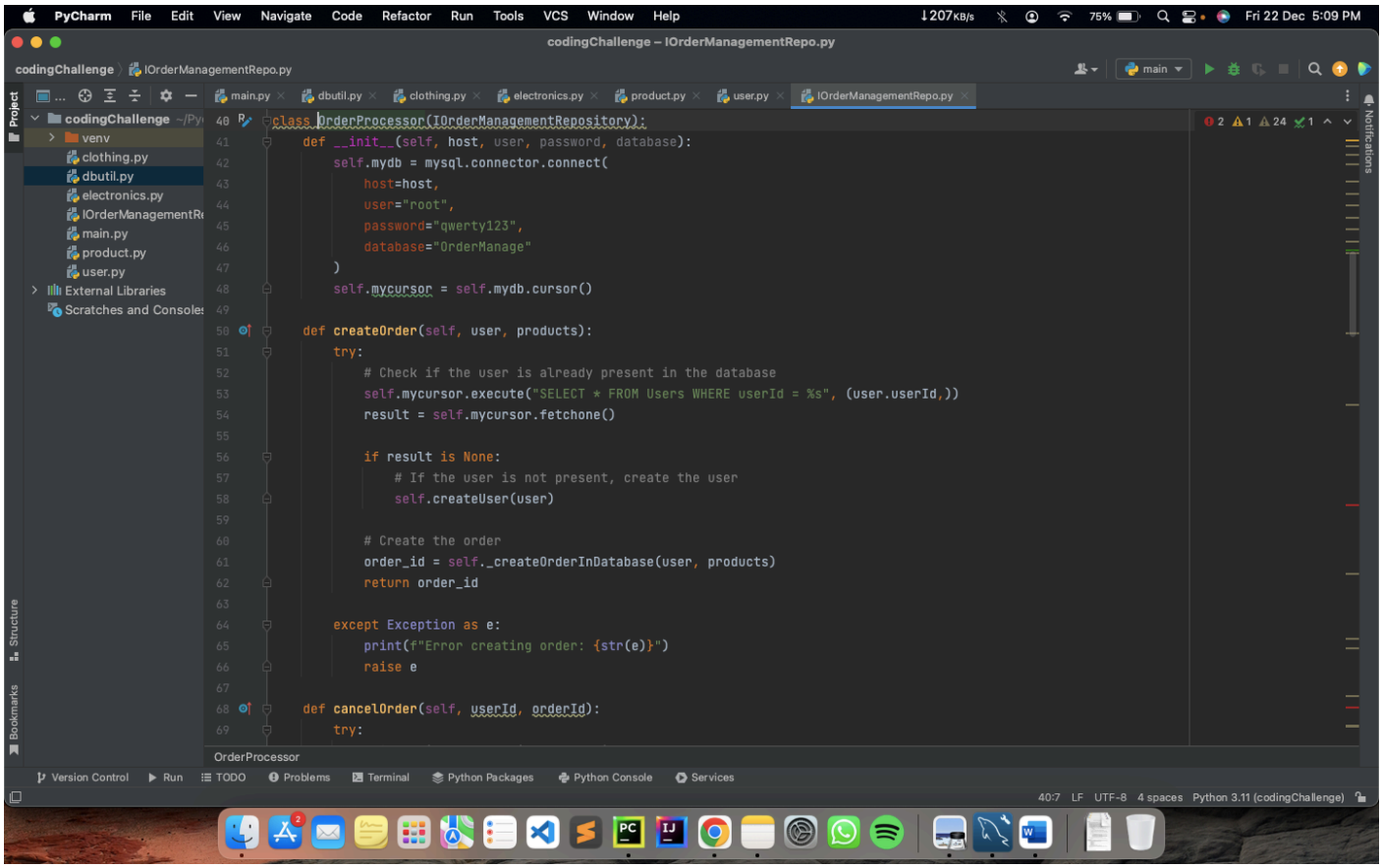
6. Define an interface/abstract class named **IOrderManagementRepository** with methods for:

    - **createOrder(User user, list of products):** check the user as already present in database to create order or create user (store in database) and create order.
    - **cancelOrder(int userId, int orderId):** check the userid and orderId already present in database and cancel the order. if any userId or orderId not present in database throw exception corresponding **UserNotFound or OrderNotFound exception**
    - **createProduct(User user, Product product):** check the admin user as already present in database and create product and store in database.
    - **createUser(User user):** create user and store in database for further development.
    - **getAllProducts():** return all product list from the database.
    - **getOrderByUser(User user):** return all product ordered by specific user from database.

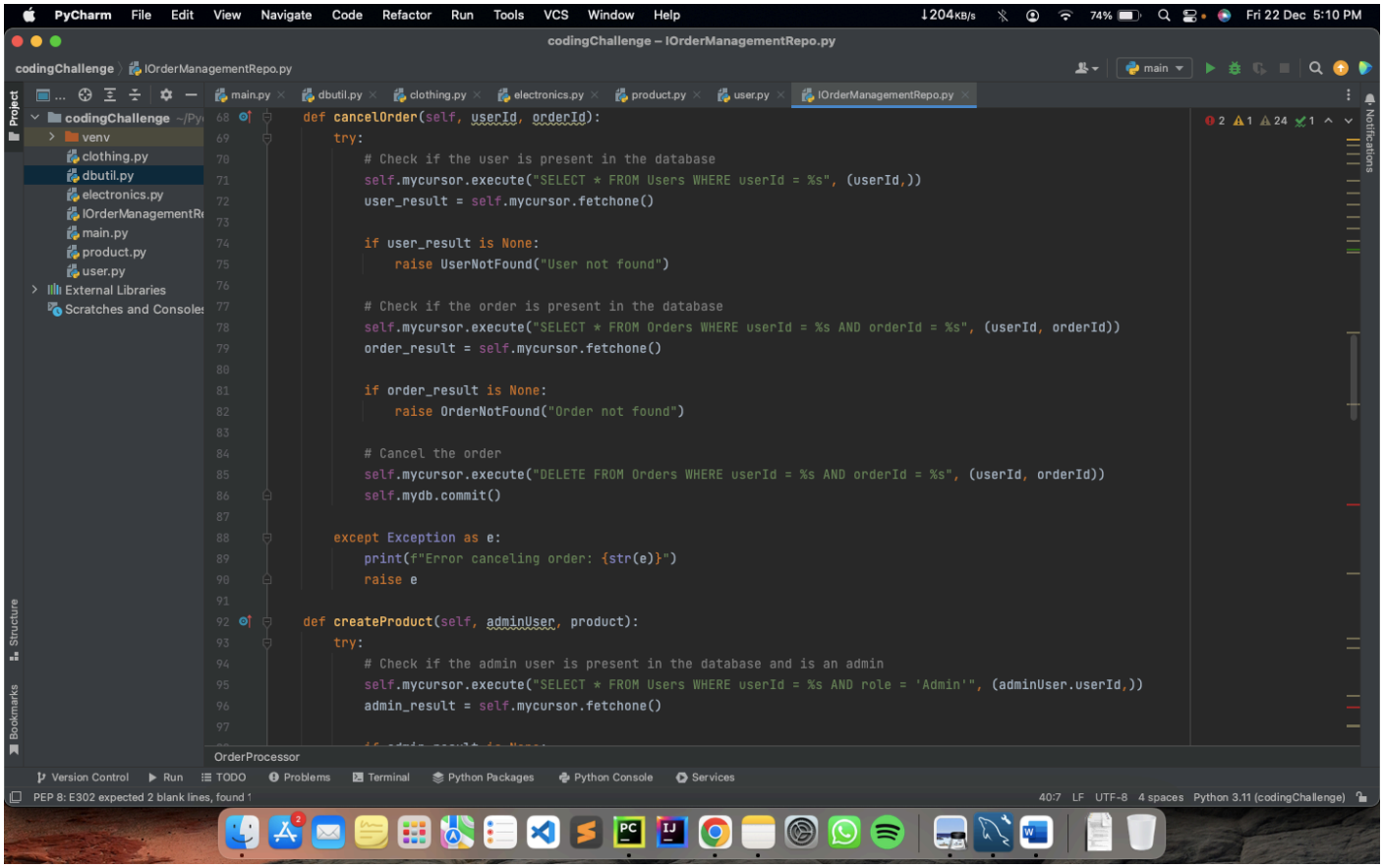



```
    @abstractmethod
    def createUser(self, user):
        pass

    @abstractmethod
    def getAllProducts(self):
        pass

    @abstractmethod
    def getOrderByUser(self, user):
        pass
```

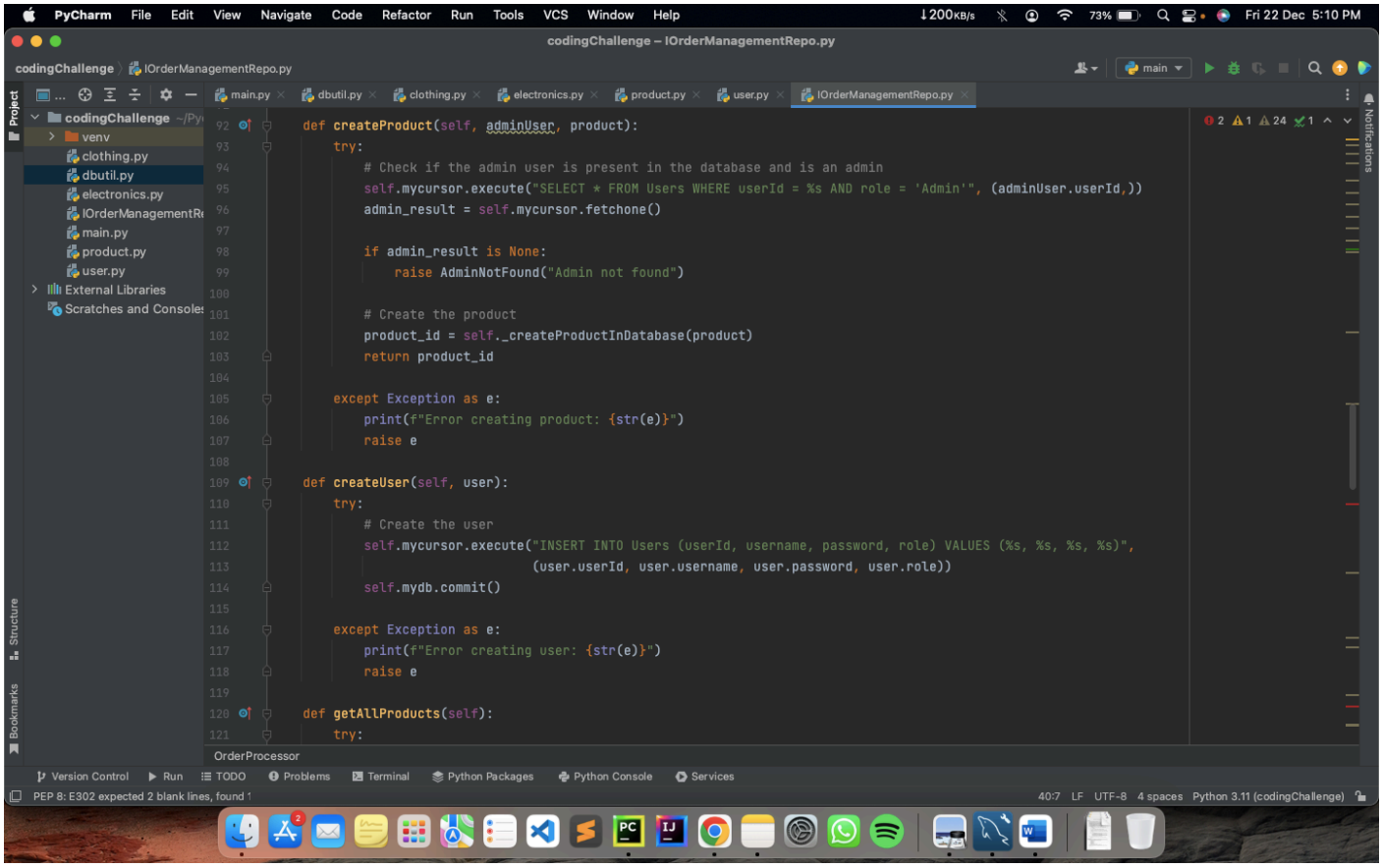
7. Implement the **IOrderManagementRepository** interface/abstractclass in a class called **OrderProcessor**. This class will be responsible for managing orders.

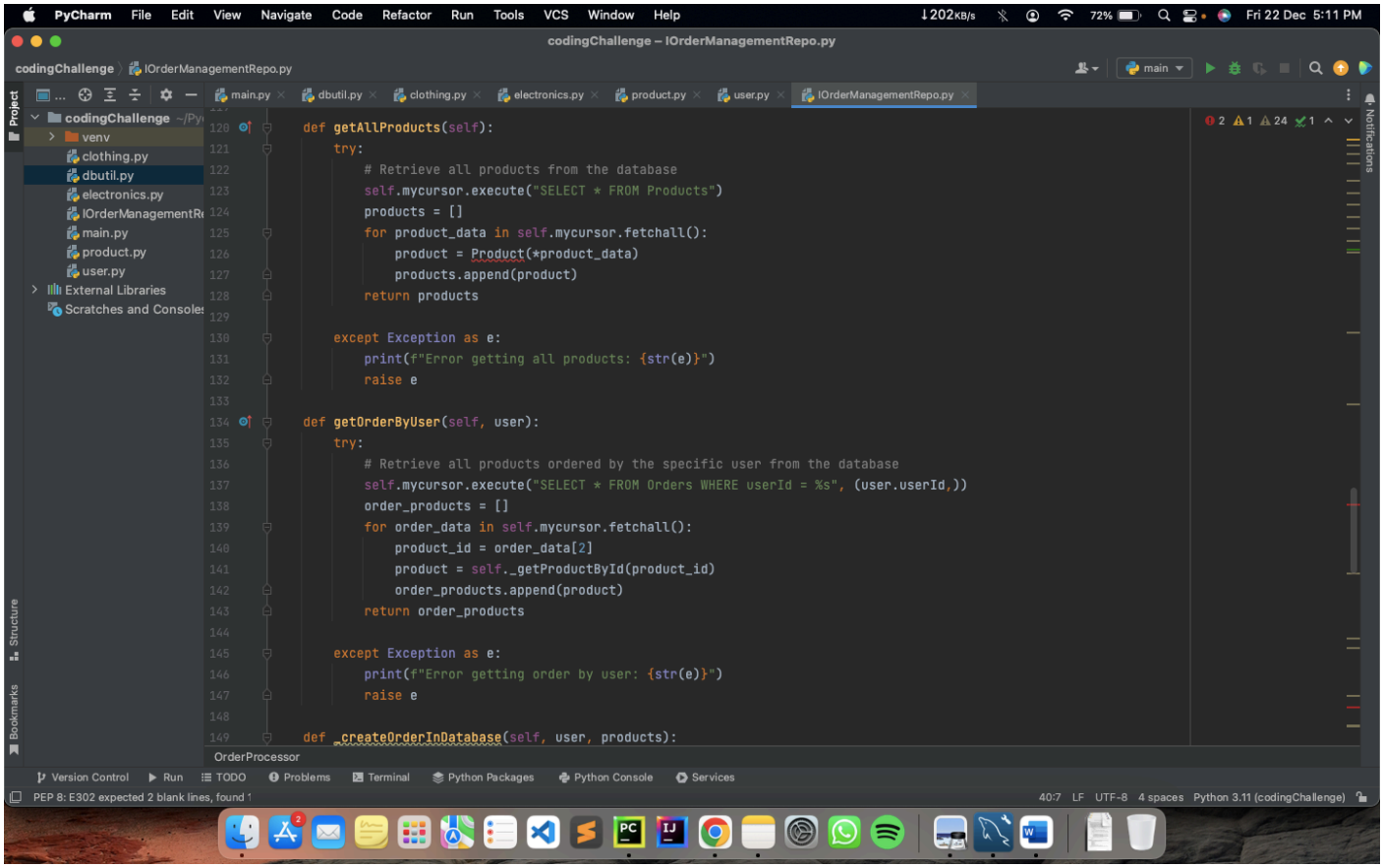


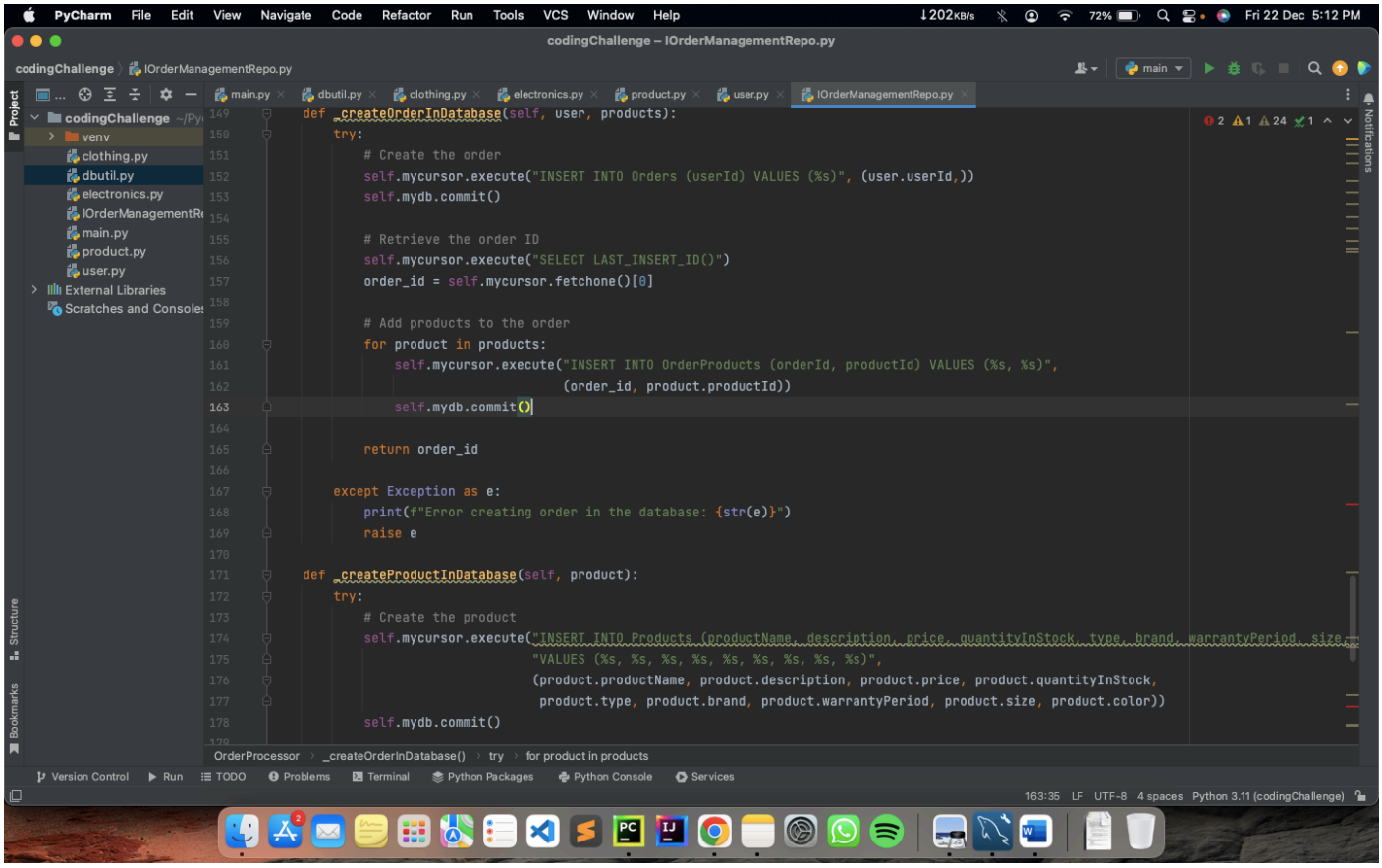
```python
class OrderProcessor(IOrderManagementRepository):
    def __init__(self, host, user, password, database):
        self.mydb = mysql.connector.connect(
            host=host,
            user="root",
            password="qwerty123",
            database="OrderManage"
        )
        self.mycursor = self.mydb.cursor()

    def createOrder(self, user, products):
        try:
            # Check if the user is already present in the database
            self.mycursor.execute("SELECT * FROM Users WHERE userId = %s", (user.userId,))
            result = self.mycursor.fetchone()

            if result is None:
                # If the user is not present, create the user
                self.createUser(user)

            # Create the order
            order_id = self._createOrderInDatabase(user, products)
            return order_id

        except Exception as e:
            print(f"Error creating order: {str(e)}")
            raise e

    def cancelOrder(self, userId, orderId):
        try:
```

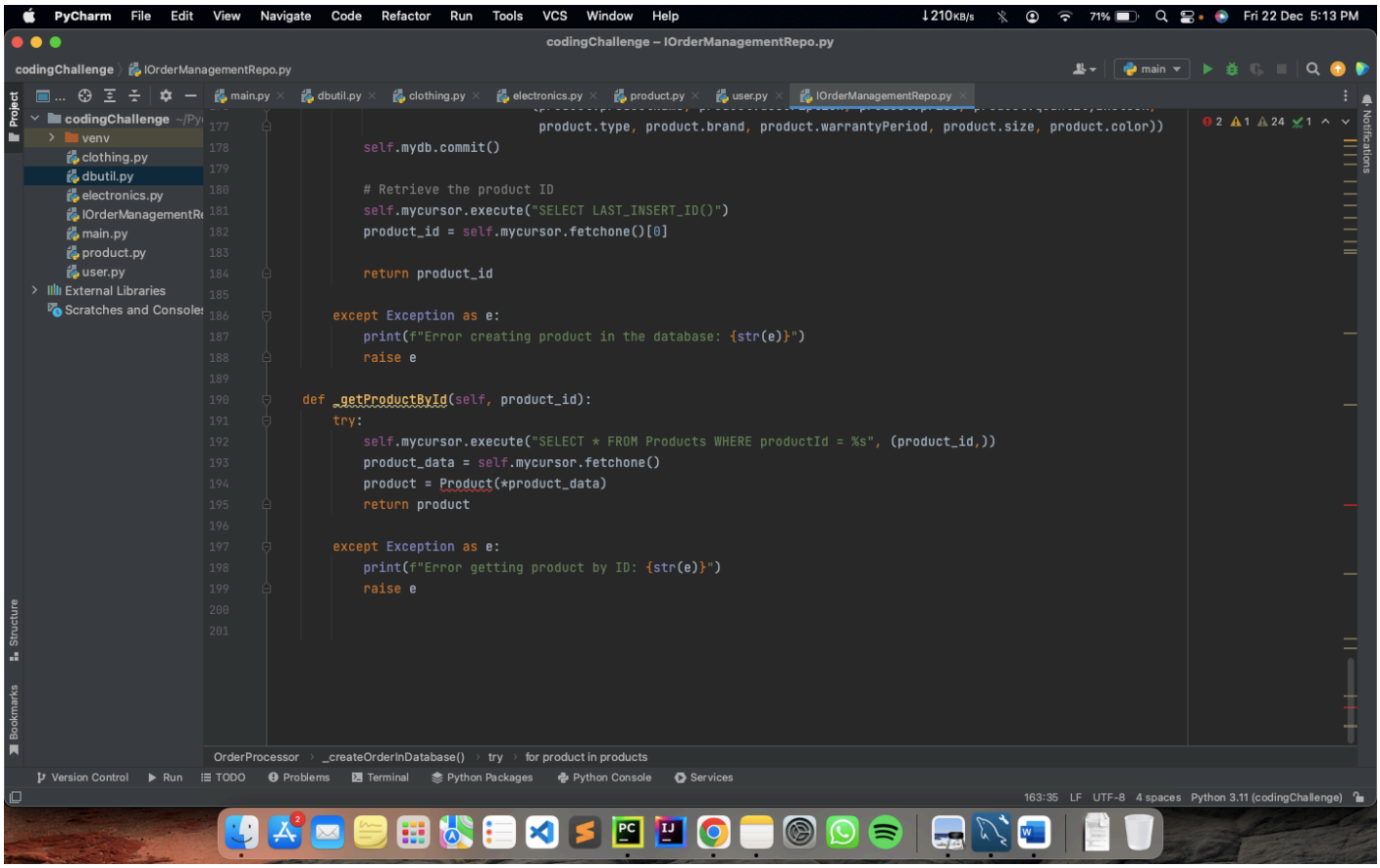


```python
    def cancelOrder(self, userId, orderId):
        try:
            # Check if the user is present in the database
            self.mycursor.execute("SELECT * FROM Users WHERE userId = %s", (userId,))
            user_result = self.mycursor.fetchone()

            if user_result is None:
                raise UserNotFound("User not found")

            # Check if the order is present in the database
            self.mycursor.execute("SELECT * FROM Orders WHERE userId = %s AND orderId = %s", (userId, orderId))
            order_result = self.mycursor.fetchone()

            if order_result is None:
                raise OrderNotFound("Order not found")

            # Cancel the order
            self.mycursor.execute("DELETE FROM Orders WHERE userId = %s AND orderId = %s", (userId, orderId))
            self.mydb.commit()

        except Exception as e:
            print(f"Error canceling order: {str(e)}")
            raise e

    def createProduct(self, adminUser, product):
        try:
            # Check if the admin user is present in the database and is an admin
            self.mycursor.execute("SELECT * FROM Users WHERE userId = %s AND role = 'Admin'", (adminUser.userId,))
            admin_result = self.mycursor.fetchone()
```

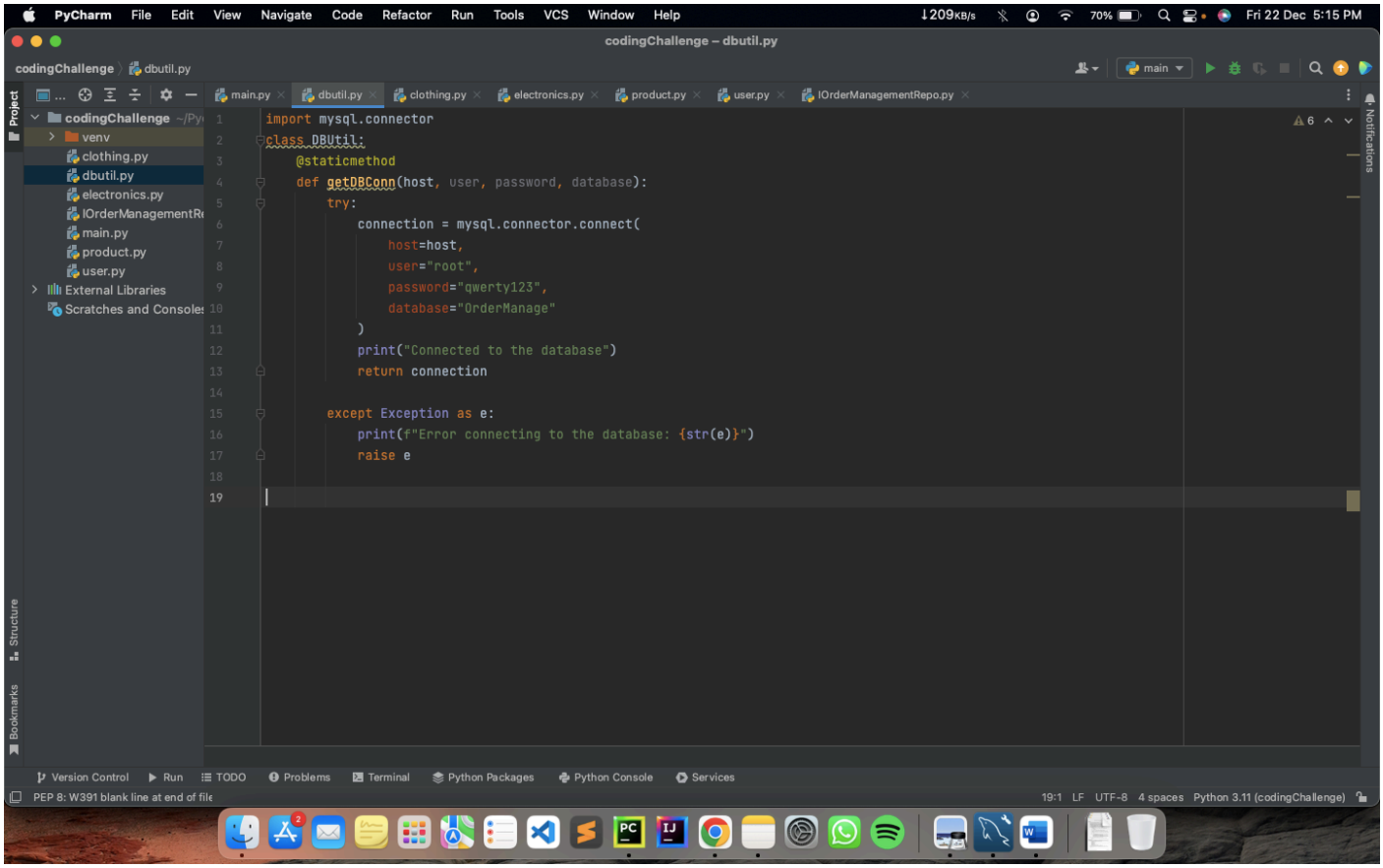

codingChallenge – IOrderManagementRepo.py
main.py
dbutil.py
clothing.py
electronics.py
product.py
user.py
IOrderManagementRepo.py
def createProduct(self, adminUser, product):
try:
# Check if the admin user is present in the database and is an admin
self.mycursor.execute("SELECT * FROM Users WHERE userId = %s AND role = 'Admin'", (adminUser.userId,))
admin_result = self.mycursor.fetchone()
if admin_result is None:
raise AdminNotFound("Admin not found")
# Create the product
product_id = self._createProductInDatabase(product)
return product_id
except Exception as e:
print(f"Error creating product: {str(e)}")
raise e
def createUser(self, user):
try:
# Create the user
self.mycursor.execute("INSERT INTO Users (userId, username, password, role) VALUES (%s, %s, %s, %s)",
(user.userId, user.username, user.password, user.role))
self.mydb.commit()
except Exception as e:
print(f"Error creating user: {str(e)}")
raise e
def getAllProducts(self):
try:
OrderProcessor
Version Control
Run
TODO
Problems
Terminal
Python Packages
Python Console
Services
PEP 8: E302 expected 2 blank lines, found 1
40:7
LF
UTF-8
4 spaces
Python 3.11 (codingChallenge)


codingChallenge – IOrderManagementRepo.py
main.py
dbutil.py
clothing.py
electronics.py
product.py
user.py
IOrderManagementRepo.py
def getAllProducts(self):
try:
# Retrieve all products from the database
self.mycursor.execute("SELECT * FROM Products")
products = []
for product_data in self.mycursor.fetchall():
product = Product(*product_data)
products.append(product)
return products
except Exception as e:
print(f"Error getting all products: {str(e)}")
raise e
def getOrderByUser(self, user):
try:
# Retrieve all products ordered by the specific user from the database
self.mycursor.execute("SELECT * FROM Orders WHERE userId = %s", (user.userId,))
order_products = []
for order_data in self.mycursor.fetchall():
product_id = order_data[2]
product = self._getProductById(product_id)
order_products.append(product)
return order_products
except Exception as e:
print(f"Error getting order by user: {str(e)}")
raise e
def _createOrderInDatabase(self, user, products):
OrderProcessor
Version Control
Run
TODO
Problems
Terminal
Python Packages
Python Console
Services
PEP 8: E302 expected 2 blank lines, found 1
40:7
LF
UTF-8
4 spaces
Python 3.11 (codingChallenge)


codingChallenge – IOrderManagementRepo.py
main.py
dbutil.py
clothing.py
electronics.py
product.py
user.py
IOrderManagementRepo.py
def _createOrderInDatabase(self, user, products):
try:
# Create the order
self.mycursor.execute("INSERT INTO Orders (userId) VALUES (%s)", (user.userId,))
self.mydb.commit()
# Retrieve the order ID
self.mycursor.execute("SELECT LAST_INSERT_ID()")
order_id = self.mycursor.fetchone()[0]
# Add products to the order
for product in products:
self.mycursor.execute("INSERT INTO OrderProducts (orderId, productId) VALUES (%s, %s)",
(order_id, product.productId))
self.mydb.commit()
return order_id
except Exception as e:
print(f"Error creating order in the database: {str(e)}")
raise e
def _createProductInDatabase(self, product):
try:
# Create the product
self.mycursor.execute("INSERT INTO Products (productName, description, price, quantityInStock, type, brand, warrantyPeriod, size, color) "
"VALUES (%s, %s, %s, %s, %s, %s, %s, %s, %s)",
(product.productName, product.description, product.price, product.quantityInStock,
product.type, product.brand, product.warrantyPeriod, product.size, product.color))
self.mydb.commit()
OrderProcessor › _createOrderInDatabase() › try › for product in products
Version Control
Run
TODO
Problems
Terminal
Python Packages
Python Console
Services
163:35 LF UTF-8 4 spaces Python 3.11 (codingChallenge)

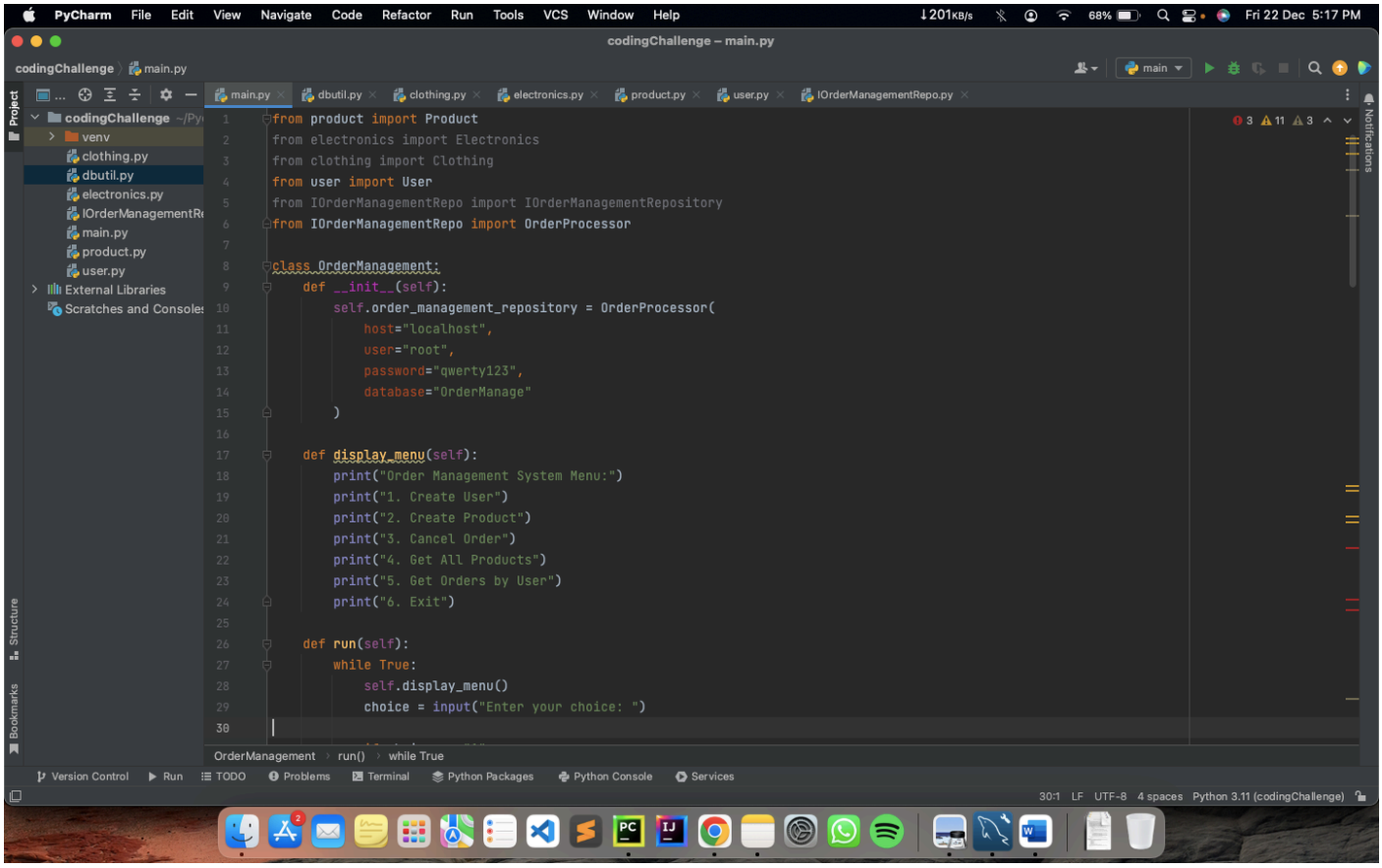

codingChallenge – IOrderManagementRepo.py
product.type, product.brand, product.warrantyPeriod, product.size, product.color))
self.mydb.commit()
# Retrieve the product ID
self.mycursor.execute("SELECT LAST_INSERT_ID()")
product_id = self.mycursor.fetchone()[0]
return product_id
except Exception as e:
print(f"Error creating product in the database: {str(e)}")
raise e
def _getProductById(self, product_id):
try:
self.mycursor.execute("SELECT * FROM Products WHERE productId = %s", (product_id,))
product_data = self.mycursor.fetchone()
product = Product(*product_data)
return product
except Exception as e:
print(f"Error getting product by ID: {str(e)}")
raise e
OrderProcessor › _createOrderInDatabase() › try › for product in products
Version Control
Run
TODO
Problems
Terminal
Python Packages
Python Console
Services
163:35 LF UTF-8 4 spaces Python 3.11 (codingChallenge)

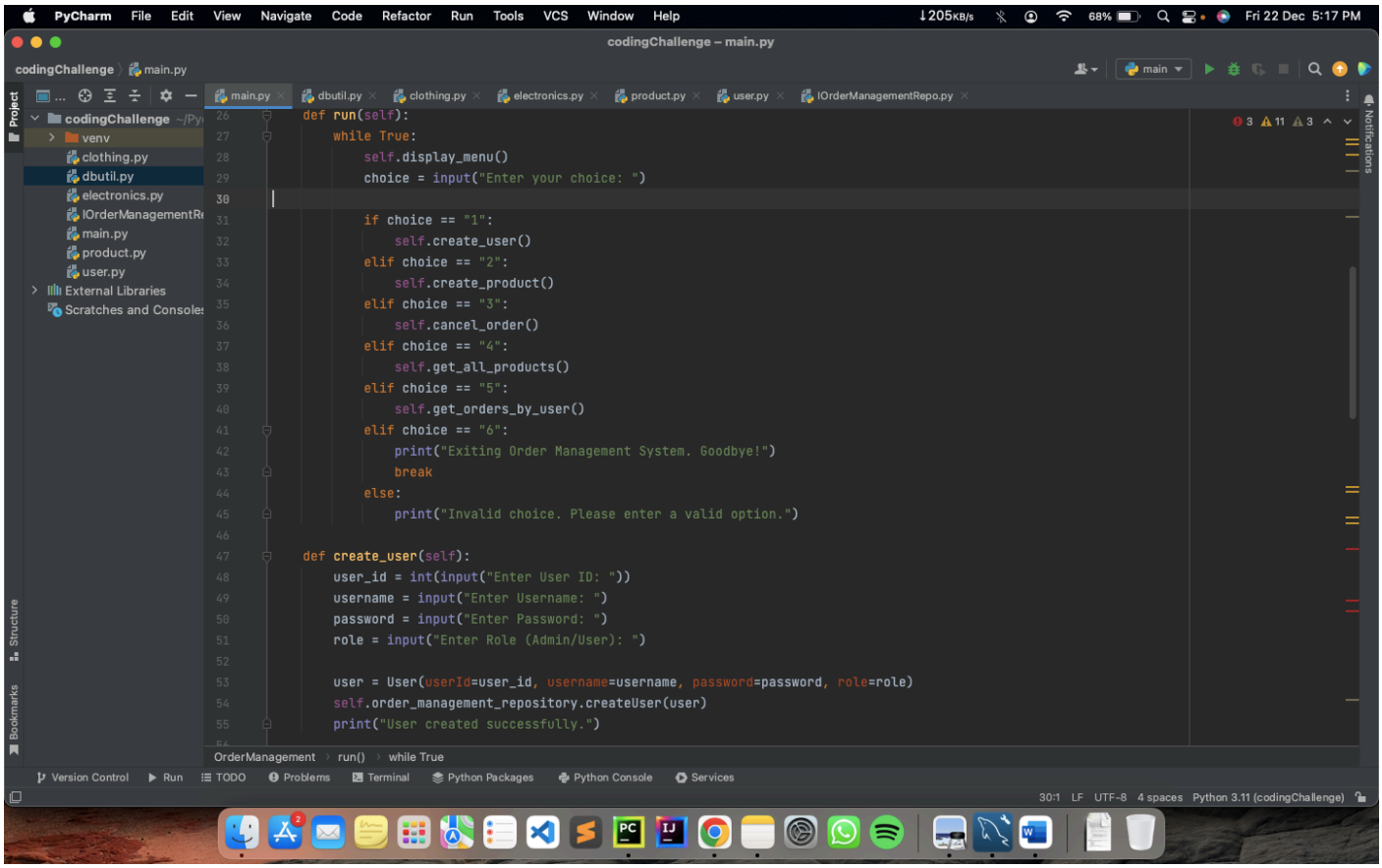
8. Create **DBUtil** class and add the following method.
    - **static getDBConn():Connection** Establish a connection to the database and return database Connection

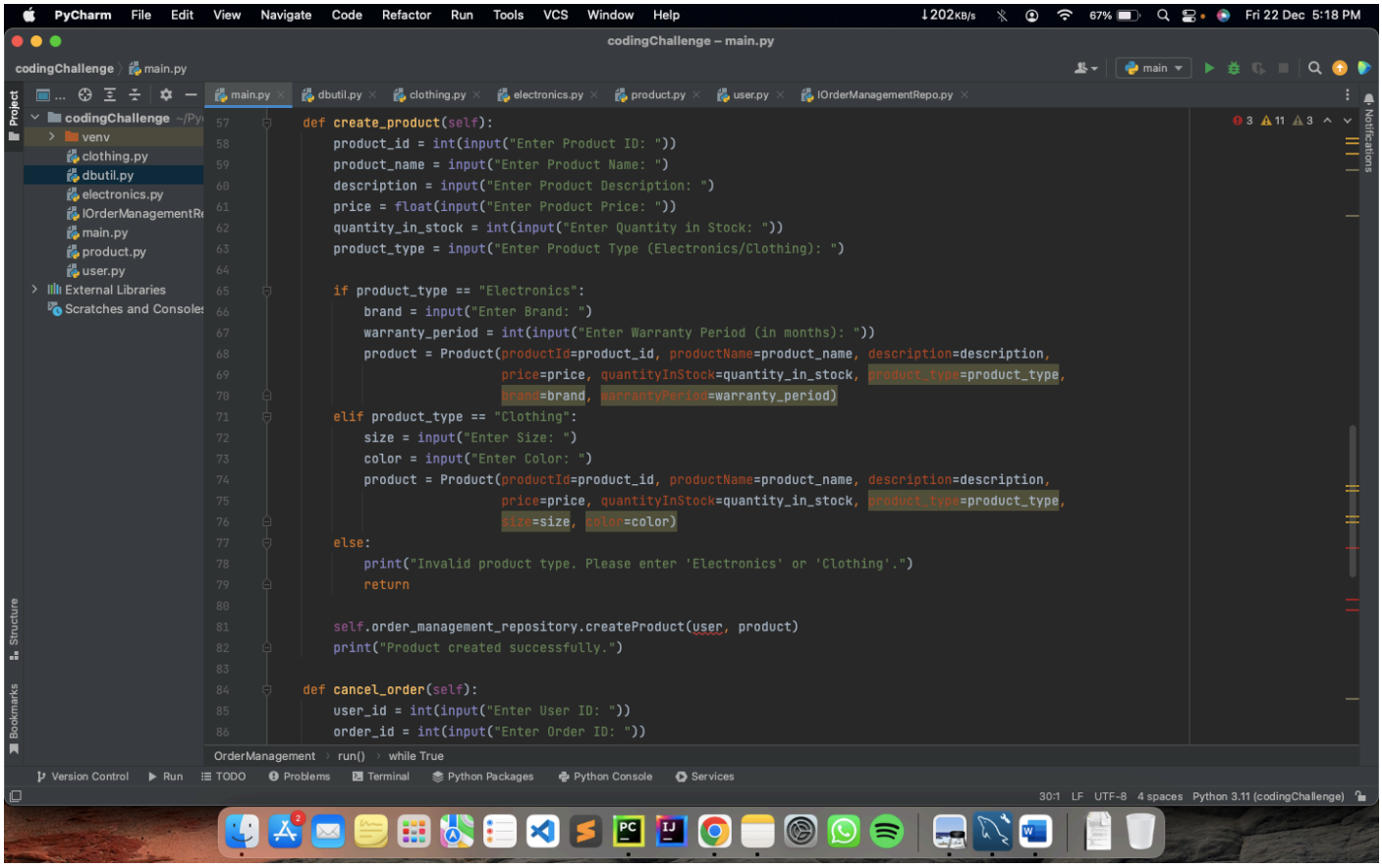


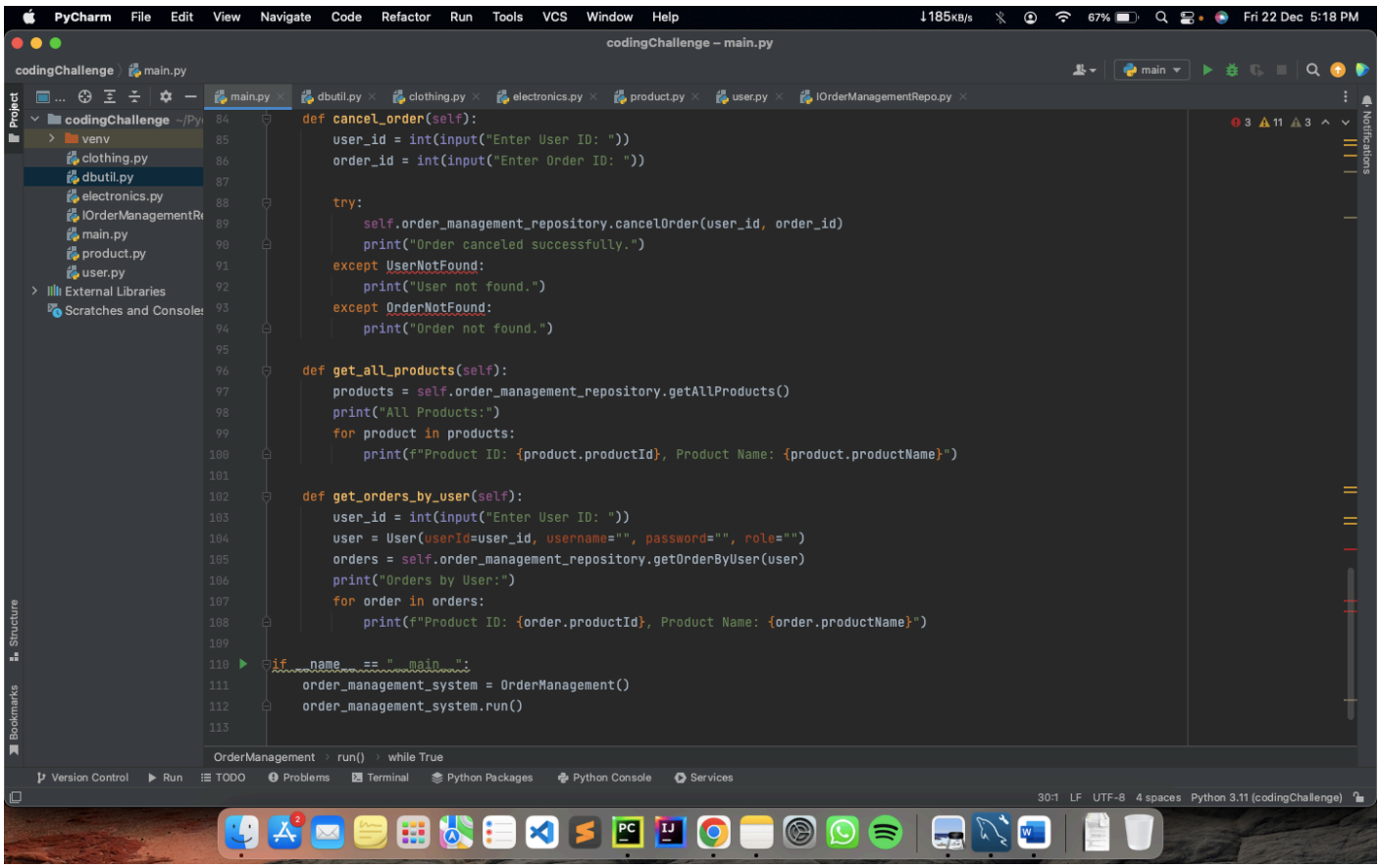
9. Create **OrderManagement** main class and perform following operation:

    - main method to simulate the loan management system. Allow the user to interact with the system by entering choice from menu such as "createUser", "createProduct", "cancelOrder", "getAllProducts", "getOrderbyUser", "exit".

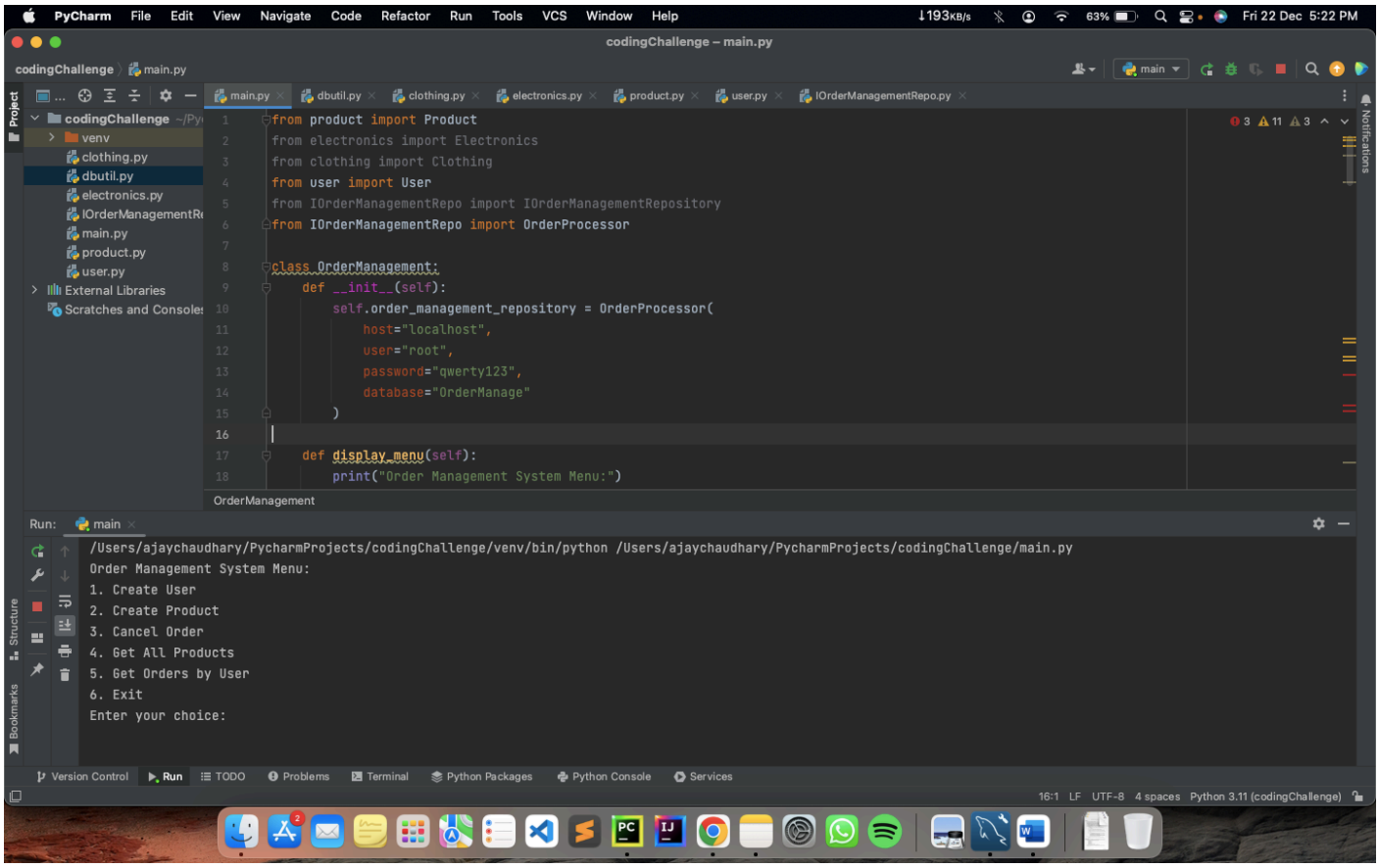

codingChallenge – main.py
main.py
dbutil.py
clothing.py
electronics.py
product.py
user.py
IOrderManagementRepo.py
from product import Product
from electronics import Electronics
from clothing import Clothing
from user import User
from IOrderManagementRepo import IOrderManagementRepository
from IOrderManagementRepo import OrderProcessor
class OrderManagement:
def __init__(self):
self.order_management_repository = OrderProcessor(
host="localhost",
user="root",
password="qwerty123",
database="OrderManage"
)
def display_menu(self):
print("Order Management System Menu:")
print("1. Create User")
print("2. Create Product")
print("3. Cancel Order")
print("4. Get All Products")
print("5. Get Orders by User")
print("6. Exit")
def run(self):
while True:
self.display_menu()
choice = input("Enter your choice: ")
OrderManagement › run() › while True

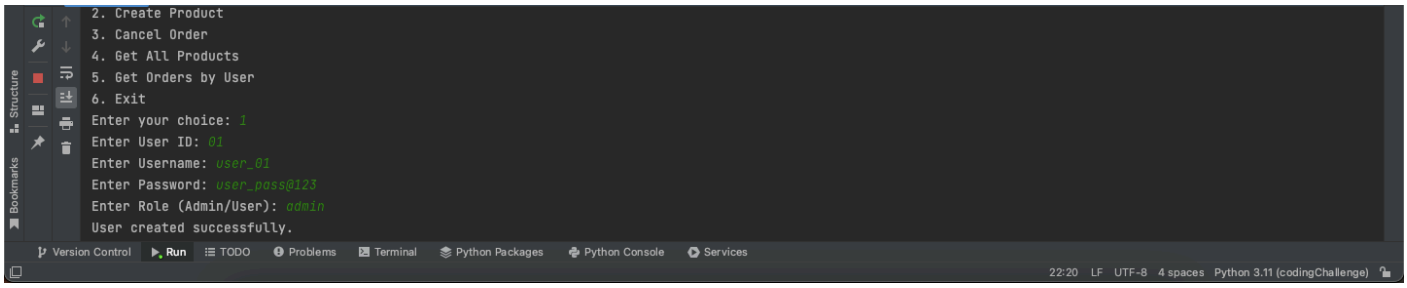

codingChallenge – main.py
def run(self):
while True:
self.display_menu()
choice = input("Enter your choice: ")
if choice == "1":
self.create_user()
elif choice == "2":
self.create_product()
elif choice == "3":
self.cancel_order()
elif choice == "4":
self.get_all_products()
elif choice == "5":
self.get_orders_by_user()
elif choice == "6":
print("Exiting Order Management System. Goodbye!")
break
else:
print("Invalid choice. Please enter a valid option.")
def create_user(self):
user_id = int(input("Enter User ID: "))
username = input("Enter Username: ")
password = input("Enter Password: ")
role = input("Enter Role (Admin/User): ")
user = User(userId=user_id, username=username, password=password, role=role)
self.order_management_repository.createUser(user)
print("User created successfully.")
OrderManagement › run() › while True

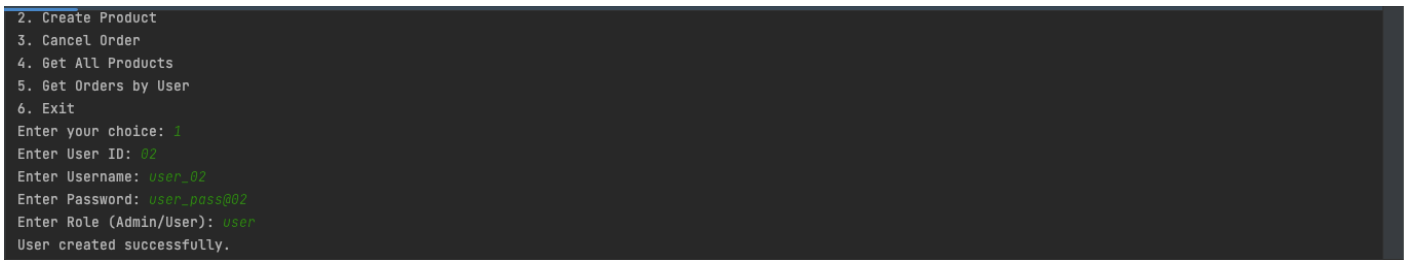

def create_product(self):
product_id = int(input("Enter Product ID: "))
product_name = input("Enter Product Name: ")
description = input("Enter Product Description: ")
price = float(input("Enter Product Price: "))
quantity_in_stock = int(input("Enter Quantity in Stock: "))
product_type = input("Enter Product Type (Electronics/Clothing): ")
if product_type == "Electronics":
brand = input("Enter Brand: ")
warranty_period = int(input("Enter Warranty Period (in months): "))
product = Product(productId=product_id, productName=product_name, description=description,
price=price, quantityInStock=quantity_in_stock, product_type=product_type,
brand=brand, warrantyPeriod=warranty_period)
elif product_type == "Clothing":
size = input("Enter Size: ")
color = input("Enter Color: ")
product = Product(productId=product_id, productName=product_name, description=description,
price=price, quantityInStock=quantity_in_stock, product_type=product_type,
size=size, color=color)
else:
print("Invalid product type. Please enter 'Electronics' or 'Clothing'.")
return
self.order_management_repository.createProduct(user, product)
print("Product created successfully.")
def cancel_order(self):
user_id = int(input("Enter User ID: "))
order_id = int(input("Enter Order ID: "))


def cancel_order(self):
user_id = int(input("Enter User ID: "))
order_id = int(input("Enter Order ID: "))
try:
self.order_management_repository.cancelOrder(user_id, order_id)
print("Order canceled successfully.")
except UserNotFound:
print("User not found.")
except OrderNotFound:
print("Order not found.")
def get_all_products(self):
products = self.order_management_repository.getAllProducts()
print("All Products:")
for product in products:
print(f"Product ID: {product.productId}, Product Name: {product.productName}")
def get_orders_by_user(self):
user_id = int(input("Enter User ID: "))
user = User(userId=user_id, username="", password="", role="")
orders = self.order_management_repository.getOrderByUser(user)
print("Orders by User:")
for order in orders:
print(f"Product ID: {order.productId}, Product Name: {order.productName}")
if __name__ == "__main__":
order_management_system = OrderManagement()
order_management_system.run()

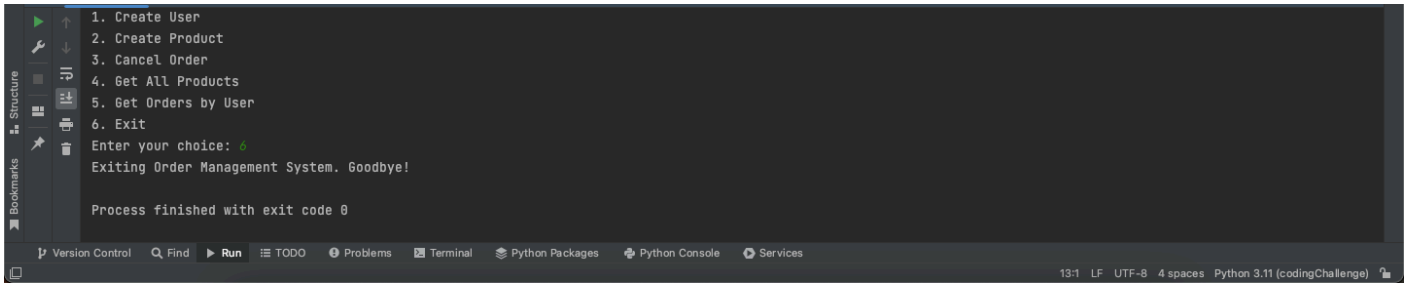
Outputs:

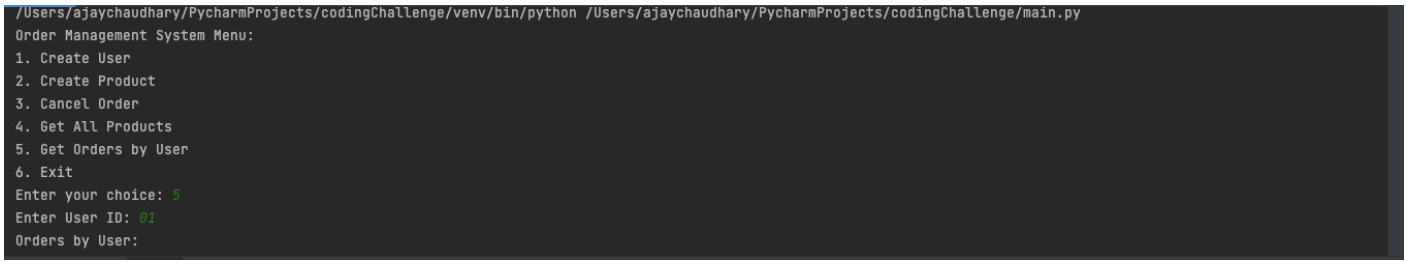

codingChallenge – main.py
from product import Product
from electronics import Electronics
from clothing import Clothing
from user import User
from IOrderManagementRepo import IOrderManagementRepository
from IOrderManagementRepo import OrderProcessor
class OrderManagement:
def __init__(self):
self.order_management_repository = OrderProcessor(
host="localhost",
user="root",
password="qwerty123",
database="OrderManage"
)
def display_menu(self):
print("Order Management System Menu:")
Run: main
/Users/ajaychaudhary/PycharmProjects/codingChallenge/venv/bin/python /Users/ajaychaudhary/PycharmProjects/codingChallenge/main.py
Order Management System Menu:
1. Create User
2. Create Product
3. Cancel Order
4. Get All Products
5. Get Orders by User
6. Exit
Enter your choice:


2. Create Product
3. Cancel Order
4. Get All Products
5. Get Orders by User
6. Exit
Enter your choice: 1
Enter User ID: 01
Enter Username: user_01
Enter Password: user_pass@123
Enter Role (Admin/User): admin
User created successfully.


2. Create Product
3. Cancel Order
4. Get All Products
5. Get Orders by User
6. Exit
Enter your choice: 1
Enter User ID: 02
Enter Username: user_02
Enter Password: user_pass@02
Enter Role (Admin/User): user
User created successfully.


Enter your choice: 2
Enter Product ID: 001
Enter Product Name: laptop
Enter Product Description: m1 macbook air
Enter Product Price: 149.99
Enter Quantity in Stock: 50
Enter Product Type (Electronics/Clothing): Electronics
Enter Brand: Apple
Enter Warranty Period (in months): 12


1. Create User
2. Create Product
3. Cancel Order
4. Get All Products
5. Get Orders by User
6. Exit
Enter your choice: 6
Exiting Order Management System. Goodbye!
Process finished with exit code 0
Structure
Bookmarks
Version Control
Find
Run
TODO
Problems
Terminal
Python Packages
Python Console
Services
13:1 LF UTF-8 4 spaces Python 3.11 (codingChallenge)


/Users/ajaychaudhary/PycharmProjects/codingChallenge/venv/bin/python /Users/ajaychaudhary/PycharmProjects/codingChallenge/main.py
Order Management System Menu:
1. Create User
2. Create Product
3. Cancel Order
4. Get All Products
5. Get Orders by User
6. Exit
Enter your choice: 5
Enter User ID: 01
Orders by User: