Assignment On: "TechShop, an electronic gadgets shop"

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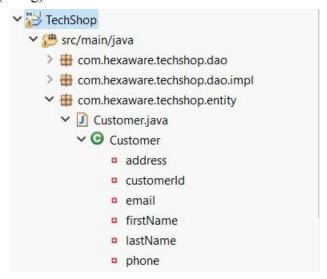
Implement OOPs

Task 1: Classes and Their Attributes:

Customers Class:

Attributes:

- CustomerID (int)
- FirstName (string)
- LastName (string)
- Email (string)
- Phone (string)
- Address (string)



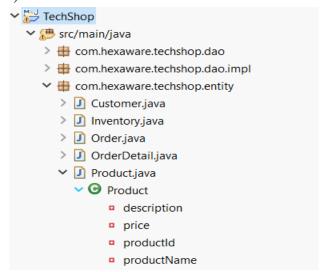
- CalculateTotalOrders(): Calculates the total number of orders placed by this customer.
- GetCustomerDetails(): Retrieves and displays detailed information about the customer.
- UpdateCustomerInfo(): Allows the customer to update their information (e.g., email, phone, or address).

```
    TechShop
    ★ src/main/java
    ★ com.hexaware.dao
    ★ CustomerDAO.java
    ★ CustomerDAO
    ★ deleteCustomer(int): boolean
    ♠ getCustomerByld(int): Customer
    ♠ insertCustomer(Customer): boolean
    ♠ updateCustomer(Customer): boolean
```

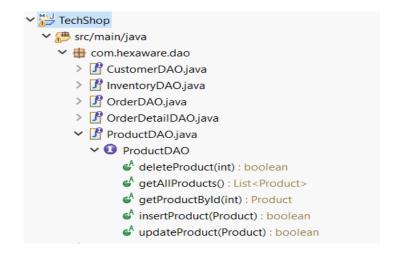
Products Class:

Attributes:

- ProductID (int)
- ProductName (string)
- Description (string)
- Price (decimal)



- GetProductDetails(): Retrieves and displays detailed information about the product.
- UpdateProductInfo(): Allows updates to product details (e.g., price, description).
- IsProductInStock(): Checks if the product is currently in stock.



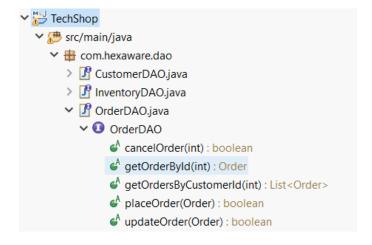
Orders Class:

Attributes:

- OrderID (int)
- Customer (Customer) Use composition to reference the Customer who placed the order.
- OrderDate (DateTime)
- TotalAmount (decimal)



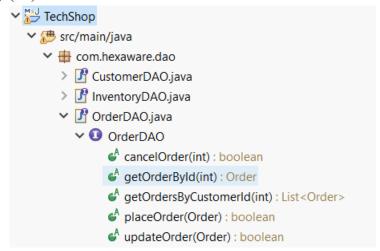
- CalculateTotalAmount() Calculate the total amount of the order.
- GetOrderDetails(): Retrieves and displays the details of the order (e.g., product list and
- quantities).
- UpdateOrderStatus(): Allows updating the status of the order (e.g., processing, shipped).
- CancelOrder(): Cancels the order and adjusts stock levels for products.



OrderDetails Class:

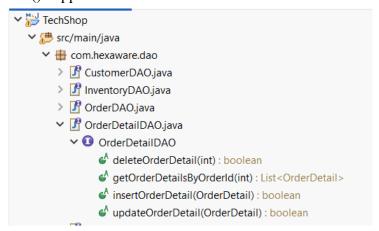
Attributes:

- OrderDetailID (int)
- Order (Order) Use composition to reference the Order to which this detail belongs.
- Product (Product) Use composition to reference the Product included in the order detail.
- Quantity (int)



Methods:

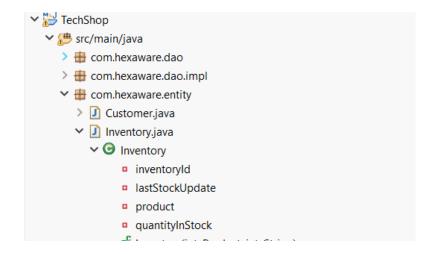
- CalculateSubtotal() Calculate the subtotal for this order detail.
- GetOrderDetailInfo(): Retrieves and displays information about this order detail.
- UpdateQuantity(): Allows updating the quantity of the product in this order detail.
- AddDiscount(): Applies a discount to this order detail.



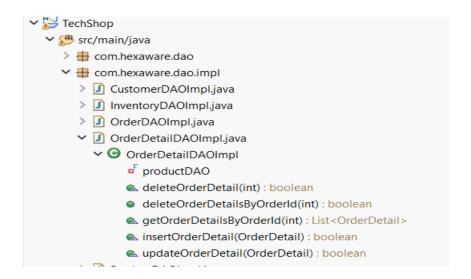
Inventory class:

Attributes:

- InventoryID(int)
- Product (Composition): The product associated with the inventory item.
- QuantityInStock: The quantity of the product currently in stock.
- LastStockUpdate



- GetProduct(): A method to retrieve the product associated with this inventory item.
- GetQuantityInStock(): A method to get the current quantity of the product in stock.
- AddToInventory(int quantity): A method to add a specified quantity of the product to the
- inventory.
- RemoveFromInventory(int quantity): A method to remove a specified quantity of the product
- from the inventory.
- UpdateStockQuantity(int newQuantity): A method to update the stock quantity to a new value.
- IsProductAvailable(int quantityToCheck): A method to check if a specified quantity of the
- product is available in the inventory.
- GetInventoryValue(): A method to calculate the total value of the products in the inventory
 - based on their prices and quantities.
- ListLowStockProducts(int threshold): A method to list products with quantities below a specified
- threshold, indicating low stock.
- ListOutOfStockProducts(): A method to list products that are out of stock.



Task 2: Class Creation

```
eclipse-workspace - TechShop/src/main/java/com/hexaware/dao/impl/OrderDetailDAOImpl.java - Eclipse IDE
Q 🔡 🕏
                                                                                                                                                                                       ^ = 0× = 1
> 🔀 HelloWorld
                                                                     public boolean deleteOrderDetailsByOrderId(int orderId) {
    String sql = "DELETE FROW OrderDetails WHERE orderId = ?";
    try (Connection come = DBConnUtil, getConnection();
        PreparedStatement stmt = conn.prepareStatement(sql)) {
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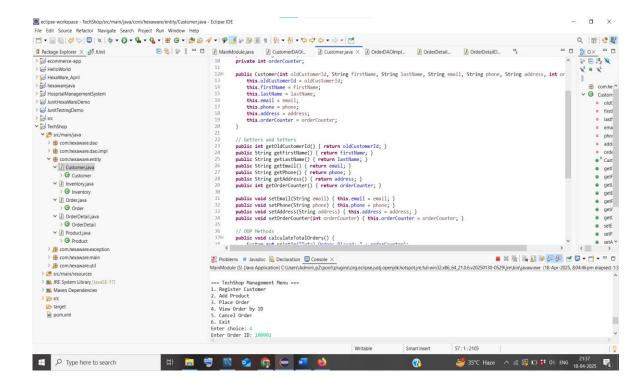
79
                                                                     @Override
public boolean updateOrderDetail(OrderDetail orderDetail) {
   // TODO Auto-generated method stub
   return false;
}
}
      ✓ ③ Order.java

>  OOrder
                                                                      @Override
public boolean deleteOrderDetail(int orderDetailId) {
    // TODO Auto-generated method stub
    return false;
}
      > G Product

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                                                              MainModule (5) [Java Application] C\Users\admin\p2\poo\plugins\org.eclipse.justj.openjdkhotspot.jre.full.win32.x86_64_21.0.6.v20250130-0529\jre\bin\javaw.exe (18-Apr-2025, 8:04:46 pm elapsed: 1:1
                                                              === TechShop Management Menu ==
1. Register Customer
2. Add Product
3. Place Order
4. View Order by ID
5. Cancel Drder
6. Exit
Enter choice: 4
Enter Order ID: 100002
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Task 3: Encapsulation:

• Customers(getter & setter)



• Product (getter & setter)

```
eclipse-workspace - TechShop/src/main/java/com/hexaware/entity/Product.java - Eclipse IDE File Edit Source Refactor Navigate Search Project Run Window Help
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                                                                                                                                                                                                                                                                                       // Getters
public int getProductId() {
    return productId;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                com.hexav
         > HospitalManagementSystem
         ₩ JunitHexaWareDemo
         descrip
price:
                                                                                                                                                                                                                                                                                    public String getDescription() {
    return description;

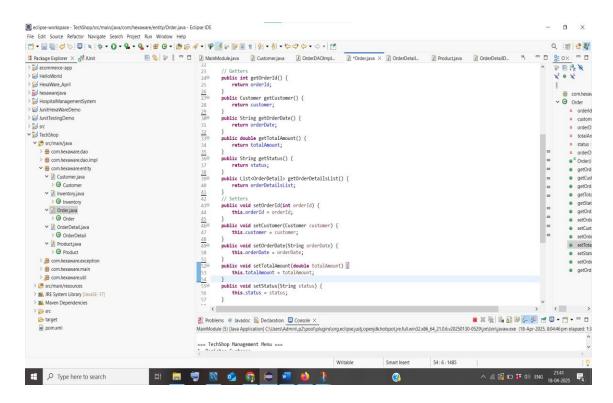
    getDes
    getPrio
    setProd
    setProd

                                                                                                                                                                                                                                                                                 public double getPrice() {
    return price;

✓ 
☑ Customer.java
                                          O Customer
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     setPrice
                                           Order
                                                                                                                                                                                                                                                                                 public void setProductName(String productName) {
    this.productName = productName;
                          Product.java
                                                                                                                                                                                                                                                                                 public void setDescription(String description) {
   this.description = description;
                     > # com.hexaware.exception
                                                                                                                                                                                                                                                                              public void setPrice(double price) {
                                                                                                                                                                                                                                                                                                     this.price = price;
                  ■ JRE System Library [JavaSE-17]
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                     === TechShop Management Menu ===
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```

• Order (getter & setter)



• Orderdetails (getter & setter)

```
File Edit Source Refactor Navigate Search Project Run Window Help
Q 18 18 8
                                                                                                                                                                                                                                                                                                                                                                                                                 // Constructor with all fields
public OrderDetail(int orderDetailId, int orderId, Product product, int quantity) {
    this orderDetailId or orderDetailId;
    this orderId or orderId;
    this orderId orderId;
    this orderId orderId;
    this openit or product;
    this quantity = quantity;
}
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OrderDeta
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orderId
produc
                                                                                                                                                                                                                                                                                                                                                            public OrderDetail(int orderDetailId, int is. orderDetailId = orderDetailId;

this.orderDetailId = orderDetailId;

this.orderId = orderId;

this.orderId = orderId;

this.orderId = product;

this.quantity = quantity;

// Getters

public int getOrderDetailId() [ return orderId;

public Product getProduct() [ return orderId;

public Product getProduct() [ return quantity,

// Setters

public void setOrderDetailId(int orderDetailId() [ return orderId;

public void setOrderDetailId(int orderDetailId() [ return orderId;

public void setOrderDetailId(int orderDetailId() [ return orderDetailId() [ return orderId() [ return orderId() [ return orderDetailId() [ return orde
           hexawarejava

HospitalManagementSystem

☑ JunitHexaWareDemo

☑ JunitTestingDemo

                                                                                                                                                                                                                                                                                                                                                                                                               // Getters
public int getOrderDetailId() { return orderDetailId; }
public int getOrderId() { return orderId; }
public Product getProduct() { return product; }
public int getQuantity() { return quantity; }
                             src/main/java

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                                                                                                                                                                                                                                                                                                                                                                                                                 // Setters
public void setOrderDetailId(int orderDetailId) { this.orderDetailId = orderDetailId; }
public void setOrderId(int orderId) { this.orderId = orderId; }
public void setProduct(Product product) { this.product = product; }
public void setQuantity(int quantity) { this.quantity = quantity; }
                                                         O Customer
                                                         > @ Inventory
                                     ✓ ② Order.java

> ③ Order
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             calculagetOrd
                           → ☑ OrderDetail

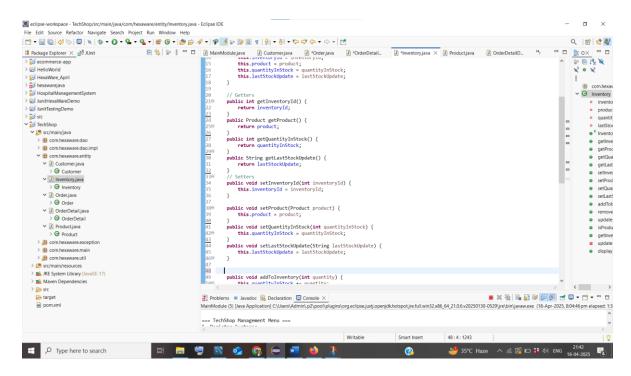
✓ ☑ Product,java

→ ☑ Product

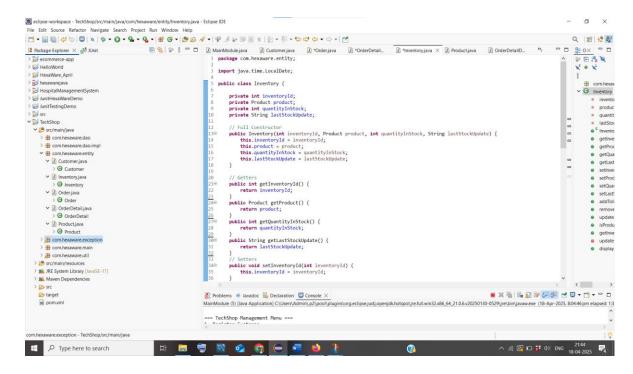
→ ② Product
                                                                                                                                                                                                                                                                                                                                                                                                               // Display order detail
public void getOrderOtailInfo() {
    System.out.println("Product: " + product.getProductName());
    System.out.println("Ountity: " + quantity);
    System.out.println("Product: per unit: " + " + product.getPrice());
    System.out.println("Subtotal: " + calculateSubtotal());
}
                                     d com.hexaware.main
                                   # com.hexaware.util
                                                                                                                                                                                                                                                                                                                                                                📳 Problems @ Javadoc 💫 Declaration 🖳 Console ×

MainModule (5) [Java Application] C.(Users\Admini.pZipoot)plugins\org.ectipse justj.openjdk.hotspot.jrefull.win32.x86.64.21.0.6.v20250130-0529[jrel:bini;araw.exe (18-Apr-2025, 80446pm elapsed: 13-4pr-2025, 80446pm elapsed: 13
                                                                                                                                                                                                                                                                                                                                                                  === TechShop Management Menu ===
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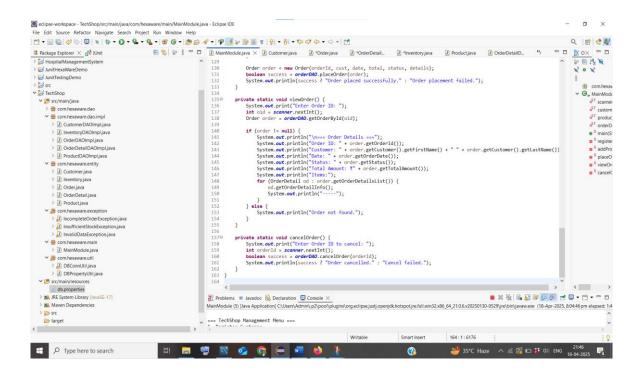
• Inventory (getter & setter)



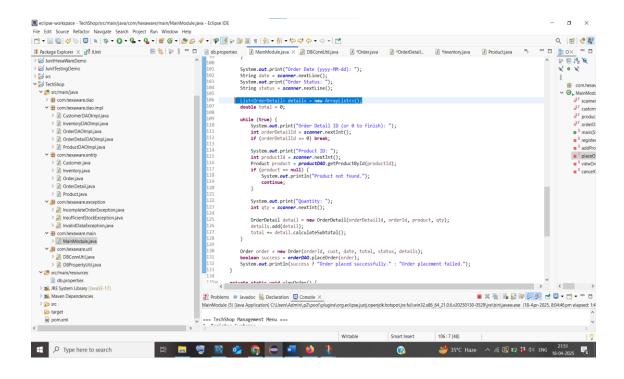
Task 4: Composition



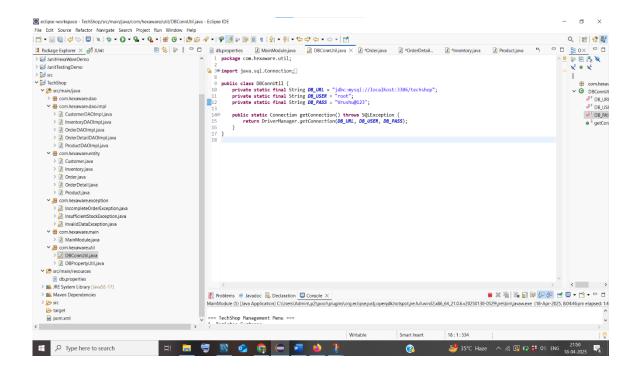
Task 5: Exceptions handling



Task 6: Collections



Task 7: Database Connectivity



Project Output

• Register Customer

=== TechShop Management Menu ===

1. Register Customer

2. Add Product

3. Place Order

4. View Order by ID

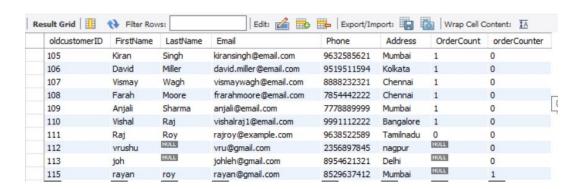
5. Cancel Order

6. Exit

Enter choice: 1 Old Customer ID: 115 First Name: rayan Last Name: roy

Email: rayan@gmail.com Phone: 8529637412 Address: Mumbai Order Counter: 1

Customer registered successfully.



Add Product

=== TechShop Management Menu ===

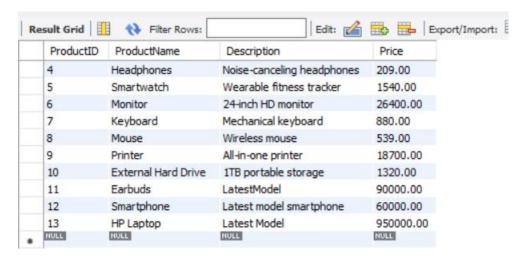
- Register Customer
- 2. Add Product
- 3. Place Order
- 4. View Order by ID
- 5. Cancel Order
- 6. Exit

Enter choice: 2 Product ID: 13

Product Name: HP Laptop Description: Latest Model

Price: 950000

Product added successfully.



Place Order

=== TechShop Management Menu ===

- 1. Register Customer
- 2. Add Product
- 3. Place Order
- 4. View Order by ID
- 5. Cancel Order
- 6. Exit

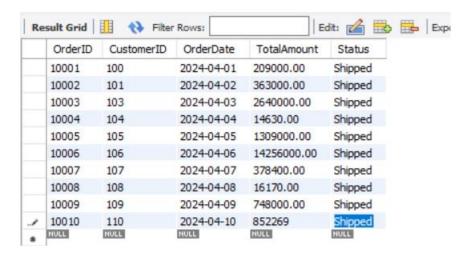
Enter choice: 3 Order ID: 10011 Customer Old ID: 111

Order Date (yyyy-MM-dd): 2025-04-19

Order Status: shipped

Order Detail ID (or 0 to finish): 0

Order placed successfully.



• View Order By ID

• Cancel Order

```
=== TechShop Management Menu ===
1. Register Customer
2. Add Product
3. Place Order
4. View Order by ID
5. Cancel Order
6. Exit
Enter choice: 4
Enter Order ID: 100002
Order not found.
=== TechShop Management Menu ===
1. Register Customer
2. Add Product
3. Place Order
4. View Order by ID
5. Cancel Order
6. Exit
Enter choice: 5
Enter Order ID to cancel: 100011
Cancel failed.
```