

ShopEasy ECommerce Backend System

ShopEasy is a Java-based backend system for an e-commerce platform. It allows users to register, log in, browse products, add items to their cart, place orders, and view order history. The system uses MySQL for database management and JDBC API for database connectivity.

Features:

- User Registration and Login: Users can register and log in to the system.
- Product Management: Users can view all products and their details.
- Cart Management: Users can add products to their cart, view the cart, and remove items.
- Order Management: Users can place orders and view their order history.
- Database Integration: MySQL is used to store user, product, cart, and order data.

Prerequisites:

Before running the project, ensure you have the following installed:

1. Java Development Kit (JDK): Version 8 or higher.
2. MySQL Server: Installed and running.
3. MySQL Connector/J: JDBC driver for MySQL (included in the project dependencies).
4. IDE: IntelliJ IDEA, Eclipse, or any Java-supported IDE.

Setup Instructions:

1. Database Setup

1. Create the Database:

Run the following SQL queries to create the ShopEasy database and tables:

```
CREATE DATABASE ShopEasy;
USE ShopEasy;

CREATE TABLE Users (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL,
```

```
password VARCHAR(255) NOT NULL,  
address TEXT NOT NULL  
);
```

```
-- Products Table  
CREATE TABLE Products (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    name VARCHAR(100) NOT NULL,  
    description TEXT,  
    price DECIMAL(10,2) NOT NULL,  
    stock_quantity INT NOT NULL  
);
```

```
-- Orders Table  
CREATE TABLE Orders (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    user_id INT,  
    total_price DECIMAL(10,2) NOT NULL,  
    status ENUM('Pending', 'Completed', 'Cancelled') DEFAULT 'Pending',  
    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,  
    FOREIGN KEY (user_id) REFERENCES Users(id) ON DELETE  
CASCADE  
);
```

```
-- OrderItems Table  
CREATE TABLE OrderItems (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    order_id INT,  
    product_id INT,  
    quantity INT NOT NULL,  
    price DECIMAL(10,2) NOT NULL,  
    FOREIGN KEY (order_id) REFERENCES Orders(id) ON DELETE  
CASCADE,  
    FOREIGN KEY (product_id) REFERENCES Products(id) ON DELETE  
CASCADE  
);
```

```
-- Cart Table  
CREATE TABLE Cart (  
    user_id INT,  
    product_id INT,  
    quantity INT NOT NULL,  
    price DECIMAL(10,2),  
    PRIMARY KEY (user_id, product_id),
```

```
        FOREIGN KEY (user_id) REFERENCES Users(id) ON DELETE  
        CASCADE,  
        FOREIGN KEY (product_id) REFERENCES Products(id) ON DELETE  
        CASCADE  
    );
```

Update Database Credentials:

Open the DBConnection.java file and update the following fields with your MySQL credentials:

```
private static final String URL = "jdbc:mysql://localhost:3306/ShopEasy";  
private static final String USER = "root";  
private static final String PASSWORD = "Rbrmng@2001";
```

2. Project Setup:

Clone the Repository:

- clone it to your local machine:
git clone <https://github.com/your-username/ShopEasy.git>cd ShopEasy

Open the Project in an IDE:

- Import the project into your preferred IDE (e.g., IntelliJ IDEA or Eclipse).
- Ensure the JDK is configured correctly.

Add MySQL Connector/J:

- Download the MySQL Connector/J driver from [here](#).
- Add the JAR file to your project's classpath.

Run the Project:

- Locate the Main.java file in the ShopEasy package.
- Run the main method to start the application.

Usage:

1. Register a New User

- Choose option 1 from the main menu.
- Enter your name, email, password, and address.

2. Login

- Choose option 2 from the main menu.
- Enter your email and password.

3. Browse Products

- After logging in, choose option 1 to view all products.

4. Add Products to Cart

- Choose option 3 and enter the product ID and quantity to add items to your cart.

5. View Cart

- Choose option 4 to view items in your cart.
- You can remove items by entering the product ID.

6. Place an Order

- Choose option 5 to place an order with items in your cart.

7. View Order History

- Choose option 6 to view your order history.

8. Exit

- Choose option 7 to exit the application.

Project Structure:

ShopEasy/	
├── Main.java	# Entry point of the application
├── DBConnection.java	# Handles database connection
├── User.java	# User entity
├── UserDAO.java	# Data access object for Users
├── Product.java	# Product entity
├── ProductDAO.java	# Data access object for Products
├── CartDAO.java	# Data access object for Cart
├── Order.java	# Order entity
├── OrderDAO.java	# Data access object for Orders
├── OrderItem.java	# OrderItem entity
└── ErrorHandler.java	# Handles SQL exceptions

Database Schema:

Tables:

- Users: Stores user information.
- Products: Stores product details.
- Orders: Stores order information.
- OrderItems: Stores items in each order.
- Cart: Stores items in the user's cart.

