

E-Commerce System

Detailed Class List

1 User (*Base Class*)

Attributes:

- name
- email
- phone
- address

Methods:

- update_contact(email, phone)
- __str__()

2 Customer (*inherits User*)

Attributes:

- customer_id
- cart : ShoppingCart
- order_history : list

Methods:

- add_to_cart(product, qty)
- place_order()

3 Admin (*inherits User*)

Attributes:

- admin_id
- privileges

Methods:

- add_product(product)
- remove_product(product_id)

4 Product

Attributes:

- product_id
- name
- price
- stock_quantity

Methods:

- update_stock(qty)
- __str__()

5 ShoppingCart

Encapsulation demo

Attributes:

- `_items` (dict: `product_id` → `quantity`)
- `customer`

Methods:

- `add_item(product, qty)`
- `remove_item(product_id)`
- `get_total()`
- `__str__()`

6 Order

Attributes:

- `order_id`
- `customer`
- `items`
- `total_amount`
- `payment_status`

Methods:

- `mark_paid()`
- `__str__()`

7 Payment (Abstract)

Abstract Class

- `process_payment(amount)`

Subclasses for next day (Hour 7+):

CardPayment, WalletPayment, CashOnDelivery

8 OrderManager

Static/Class Method Demo

- `total_orders` (class variable)
- `generate_order_id()` (class method)

Relationships

- Customer → has-a → ShoppingCart
- Customer → places → Order
- Order → contains → multiple Products
- Payment → associated with → Order
- Admin → manages → Product