Rebuilding Gilded Rose

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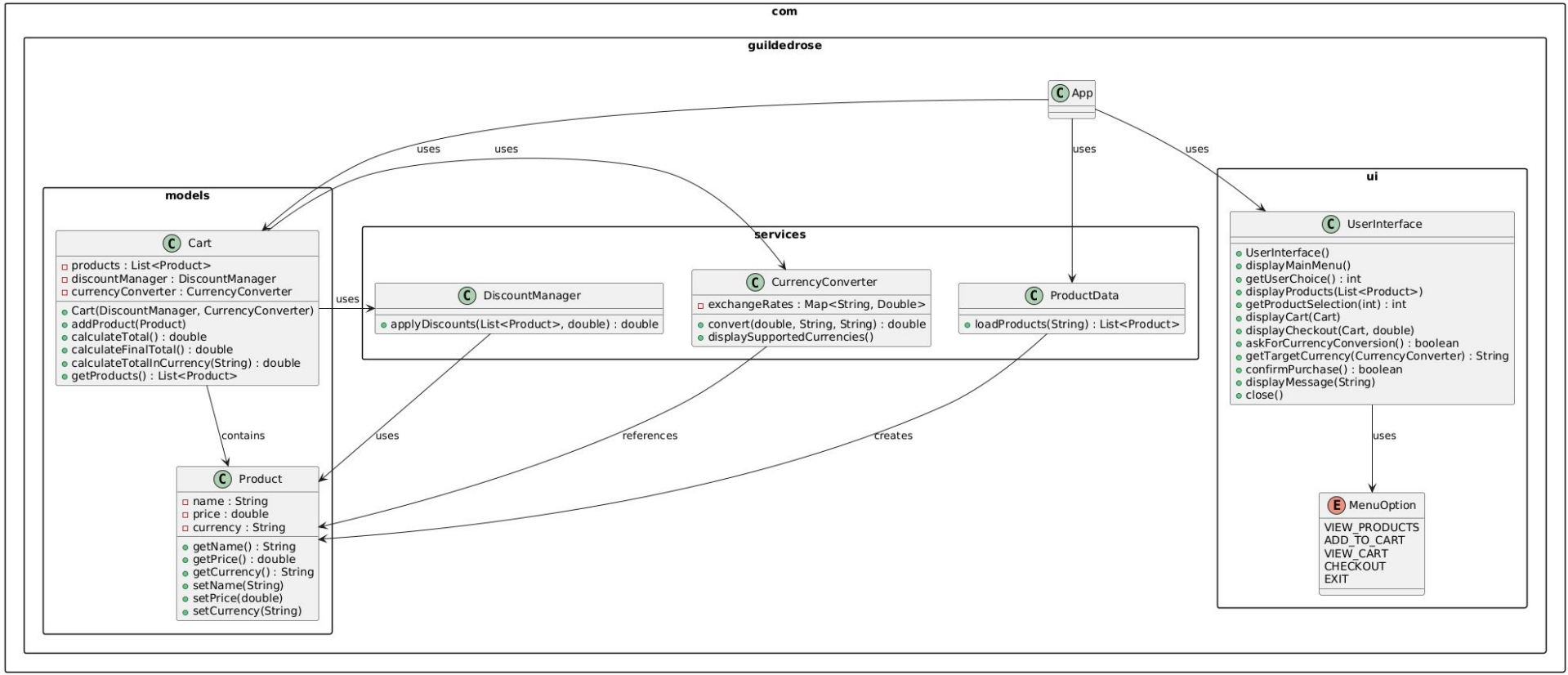
High
Complexity
Low
Core
Product Management
Discount Management
Generic
Supporting
Currency Conversion
Cart Management
Low
Business differentiation
High


com
guildedrose
App
uses
uses
uses
uses
models
Cart
- products : List<Product>
- discountManager : DiscountManager
- currencyConverter : CurrencyConverter
+ Cart(DiscountManager, CurrencyConverter)
+ addProduct(Product)
+ calculateTotal() : double
+ calculateFinalTotal() : double
+ calculateTotalInCurrency(String) : double
+ getProducts() : List<Product>
uses
contains
services
DiscountManager
+ applyDiscounts(List<Product>, double) : double
CurrencyConverter
- exchangeRates : Map<String, Double>
+ convert(double, String, String) : double
+ displaySupportedCurrencies()
ProductData
+ loadProducts(String) : List<Product>
uses
references
creates
Product
- name : String
- price : double
- currency : String
+ getName() : String
+ getPrice() : double
+ getCurrency() : String
+ setName(String)
+ setPrice(double)
+ setCurrency(String)
ui
UserInterface
+ UserInterface()
+ displayMainMenu()
+ getUserChoice() : int
+ displayProducts(List<Product>)
+ getProductSelection(int) : int
+ displayCart(Cart)
+ displayCheckout(Cart, double)
+ askForCurrencyConversion() : boolean
+ getTargetCurrency(CurrencyConverter) : String
+ confirmPurchase() : boolean
+ displayMessage(String)
+ close()
uses
MenuOption
VIEW_PRODUCTS
ADD_TO_CART
VIEW_CART
CHECKOUT
EXIT

Gilded Rose Application: Solution Benefits

- **Separation of Concerns:**
  - Clear division between models, services, and user interface.
  - Enhances code readability and maintainability.

- **Single Responsibility Principle:**
  - Each class and component has a distinct responsibility.
  - Simplifies debugging and future development.

- **Flexible Structure:**
  - Easy to add new features or modify existing ones.
  - Modular design allows for isolated changes.

- **User-Friendly Interface:**
  - Clear prompts and menu options.
  - Consistent input validation and error messages.

- **Calculations:**
  - Correct application of discounts and currency conversions.
  - Total price.

- **Data Integrity:**
  - Safe handling of product data and cart operations.
  - Prevents errors like duplicate messages or invalid selections.