Shopi

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***Abstract*—Shopi is an application developed for the sale of new and used products. Users can register and manage their purchases through a shopping cart. This article presents the system's structure using an object-oriented approach, detailing key system components such as users, products, payments, and billing. The goal of Shopi is to provide a robust and scalable platform for e-commerce.**

I. Introduction

E-commerce has grown exponentially in recent years, allowing consumers to access a variety of products from anywhere, at any time. Shopi is a platform that enables the buying and selling of new and used products, providing a complete experience for buyers and sellers. This article describes the class-based design of the application, detailing the main components and their interactions.

II. System Description

Shopi's architecture is based on an object-oriented model that allows for easy scalability and system maintenance.

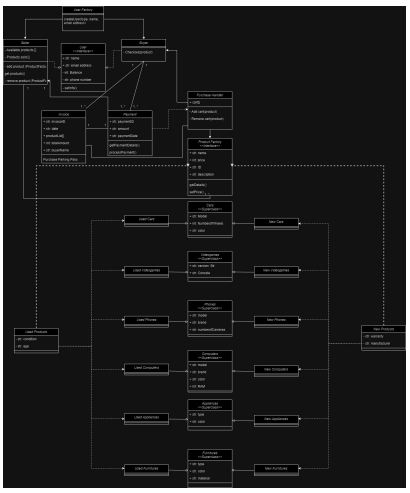

Fig. 1. Class

A. Users

The system allows for the creation of two types of users: buyers and sellers. These are managed through the **User** class, which contains essential attributes such as name, email, phone number, and balance.

- **Buyer**: A buyer can add products to a shopping cart and make payments through the system. They are associated with the **Invoice** and **Payment** classes to manage purchases.
- **Seller**: A seller can manage the products they have for sale, adding, editing, or removing products.

The **UserFactory** class is responsible for creating instances of buyers or sellers as needed.

B. Product Management

Shopi allows the sale of new and used products. The **ProductFactory** class is responsible for managing products, with attributes such as name, price, and description.

1) Used Products: Used products have additional attributes such as the product's condition and age. The derived classes from **UsedProducts** include:

- **UsedCars**: Attributes such as model, color, and number of wheels.
- **UsedVideogames**: Attributes such as version and console.
- **UsedPhones**, **UsedComputers**, **UsedAppliances**, and **UsedFurniture**.

2) New Products: New products are represented by the **NewProducts** class and have attributes such as warranty and manufacturer. There are also specific subclasses like:

- **NewCars**, **NewVideogames**, **NewPhones**, **NewComputers**, **NewAppliances**, and **NewFurniture**.

C. Shopping Cart and Payments

The **Purchase Handler** manages the shopping cart, allowing products to be added and removed. Once a buyer is ready to make a purchase, the system generates an **Invoice** with the transaction details.

The **Payment** class is responsible for processing payments. Attributes include payment ID, amount, and date. The main methods are **processPayment()** and **getPaymentDetails()**.

III. Financial Model

The system implements a simple financial model where buyers have a balance that can be used to make purchases. Sellers receive payments once the purchase is processed and an invoice is generated.

IV. Conclusion

Shopi is a platform designed to be flexible and scalable, allowing for the sale of new and used products. The object-oriented approach of the system facilitates the addition of new features and product types in the future. The robustness of the model ensures efficient management of users, products, and payments.