UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS

FIRST WORKSHOP: VIRTUAL STORE OF ELECTRONIC DEVICES

David Eduardo Muñoz Mariño 20232020281

Advanced programming

Sierra Virgüez Carlos Andrés

Faculty of Engineering

Systems Engineering

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1. USER STORIES

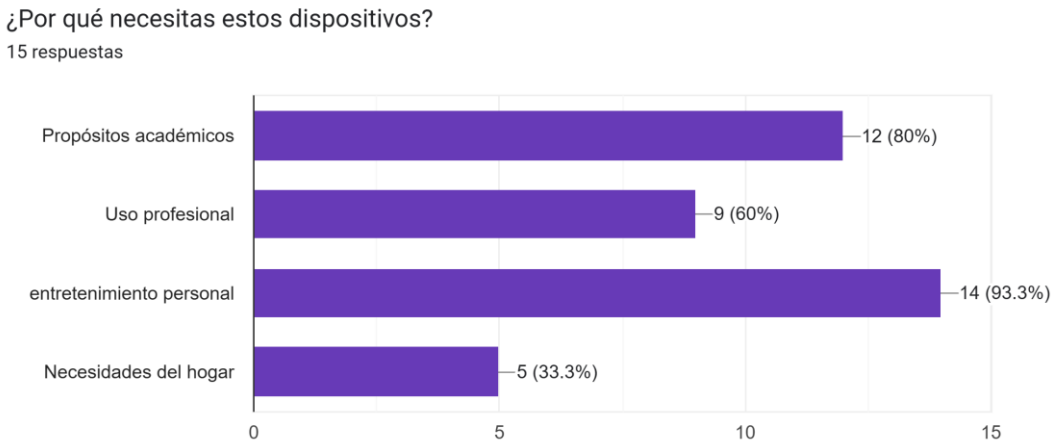
Survey and User Preferences

To better understand user needs, a survey was conducted among 15 students. The goal was to identify the most sought-after electronic devices and the essential features users expect in a digital shopping platform.

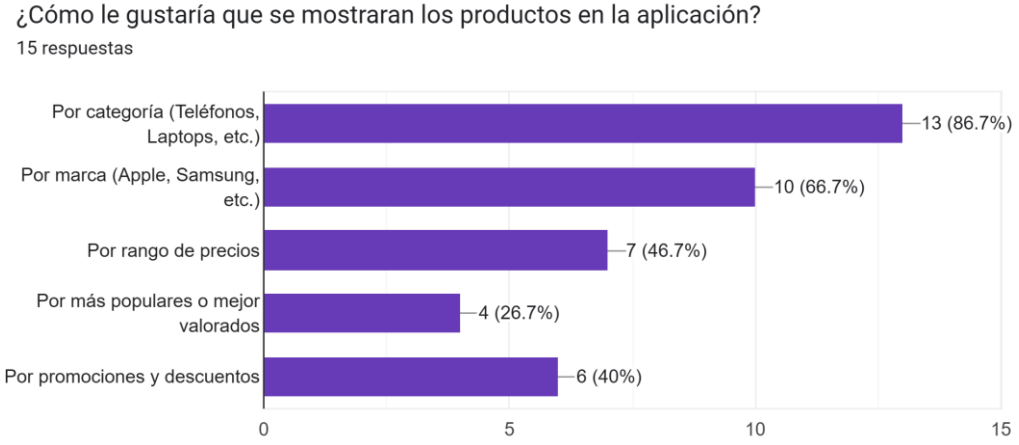
Survey Questions and Key Findings:

1. **Which electronic devices would you like to find in a virtual store?**
    - Smartphones
    - Tablets
    - Laptops
    - Gaming consoles
    - Smart TVs
    - Audio equipment
    - Home automation devices
    - Electronic accessories
    - Other : _____

2. **Why do you need these devices?**
    - Academic purposes
    - Professional use
    - Personal entertainment
    - Household needs
    - Other : ____

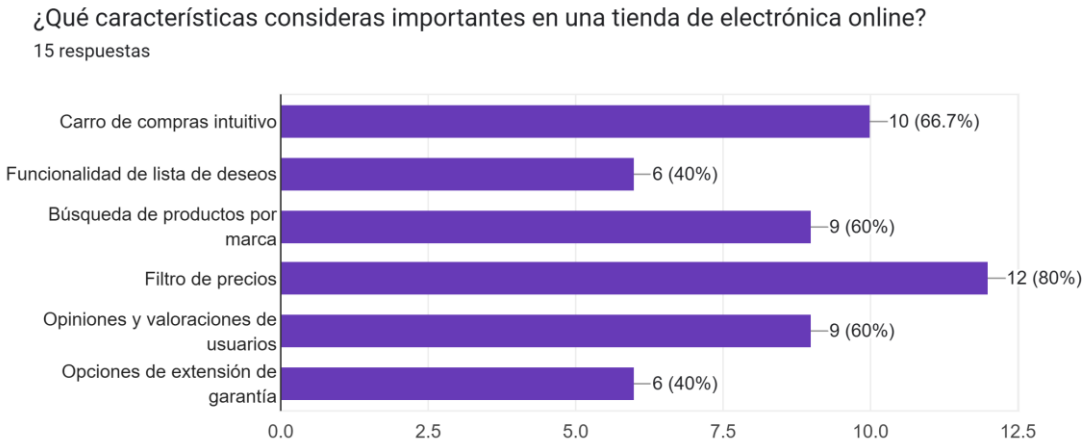


3. **How would you like the products to be displayed in the application?**
    - By category (Phones, Laptops, etc..)
    - By Brand (Apple, Samsung, etc..
    - By Price range
    - By most popular or best rated
    - Other:____



4. **What features do you consider important in an online electronics store?**
    - Intutive shopping cart
    - Wishlist funcionality
    - Product search by brand
    - Price filter
    - User reviews and ratings
    - Warranty extensión options

- Other:____



The survey was carried out by 15 students from the district university in the entire engineering area.

Julian Romero

Arley Leonardo Quintana Sepúlveda

Elva Ginon Ramírez

Daniel Gómez

Gerson David Cruz Rodríguez

Santiago Alejandro Guada Bohórquez

Based on the survey responses, the following user stories were created:

User Stories

1. As a student, I want to browse different categories of devices so that I can easily find the type of product I need.

2. As a customer, I want to see a detailed list of available products in each category so that I can compare my options before purchasing.

3. As a brand-loyal buyer, I want to filter products by brand so that I can quickly find my preferred devices.

4. As a budget-conscious shopper, I want to filter products by price range so that I can find options within my budget.

5. As a buyer, I want to add devices to my shopping cart so that I can review my selection before completing my purchase.

6. As a customer, I want to modify my shopping cart so that I can add or remove products before checkout.

7. As a user, I want a secure and simple checkout process so that I can easily complete my purchase.

8. As a student, I want to have the option to extend my product's warranty so that I can ensure long-term protection.

9. As an informed buyer, I want to see warranty policies by brand so that I can make the best purchase decision.

10. As an administrator, I want to collect user feedback through surveys so that I can improve the store's offerings based on customer preferences.

These user stories highlight the key functionalities that will enhance the user experience. The platform will include an improved shopping cart system, advanced search filters, and clear warranty options to meet customer expectations.

The user needs identified will be covered with the proposed functionalities and most requested product categories. Additionally, the shopping cart experience will be improved, allowing users to view, edit, and remove products. The filtering system will also be optimized to allow searches by brand and price range.

2. **OBJECT-ORIENTED PROGRAMMING PRINCIPLES ANALYSIS**

The provided code follows several Object-Oriented Programming (OOP) principles, ensuring modularity, reusability, and maintainability. Below is an analysis of these principles applied within the project:

Encapsulation

Encapsulation is evident in the way data is structured within classes. Attributes such as name, category, price, brand, and warranty in the Device class are well-defined, keeping related data within a single unit. The ShoppingCart class also encapsulates the list of items in a cart, allowing operations to be performed through its methods rather than directly modifying the data.

Abstraction

The code abstracts complexities by defining clear interfaces through class methods. For example, ShoppingCart provides methods like add_item(), show_cart(), and checkout(), allowing users to interact with the shopping process without needing to know the internal implementation details.

Inheritance

Although the provided code does not explicitly use inheritance, an improvement could be to create a base class, such as Product, from which Device inherits. This would allow more product types to be added in the future with shared characteristics.

Polymorphism

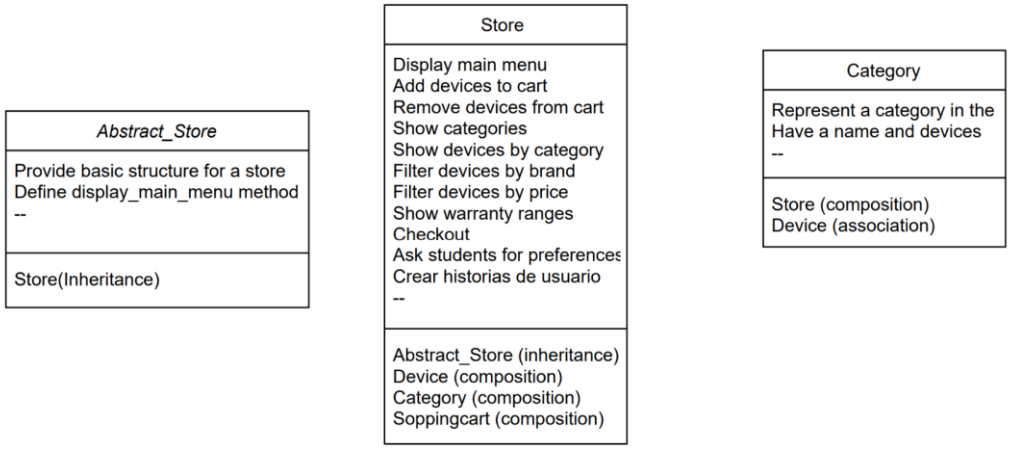
The system could benefit from polymorphism by introducing methods that allow different device types to implement their own version of actions such as displaying product details or calculating warranties dynamically. Using method overriding would enhance flexibility in handling different product behaviors.

Composition

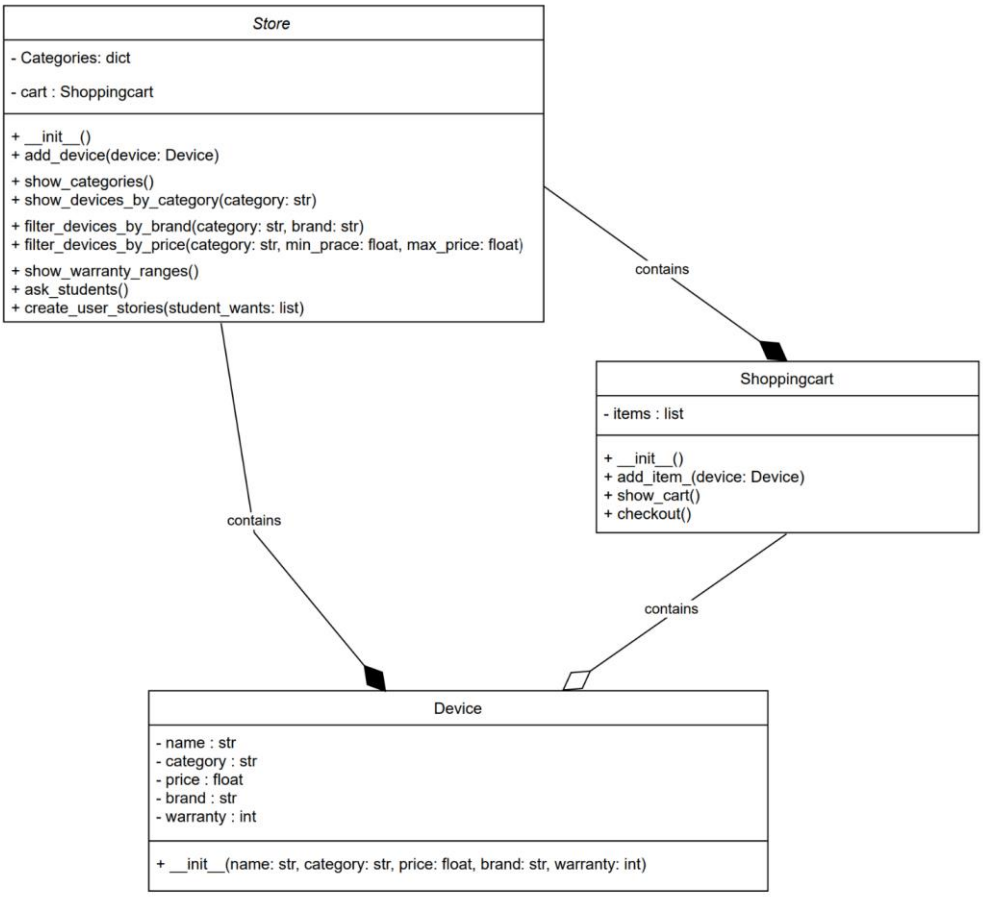
The Store class demonstrates composition by including a ShoppingCart object as an attribute, meaning that the store manages shopping-related functionalities while maintaining separation between catalog and cart operations. Additionally, the store contains a dictionary of categories, grouping related objects efficiently.

By adhering to these OOP principles, the project ensures a scalable and maintainable system for managing electronic devices in a virtual store.

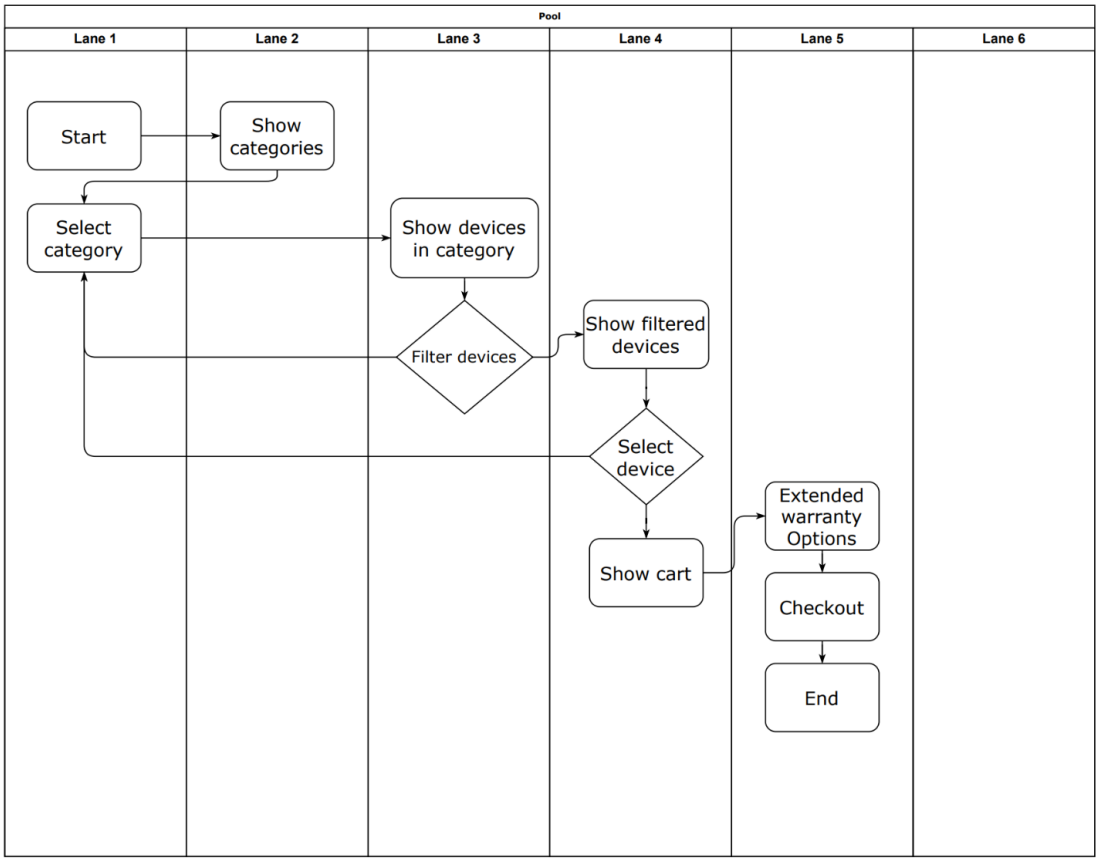
3. CRC CARDS



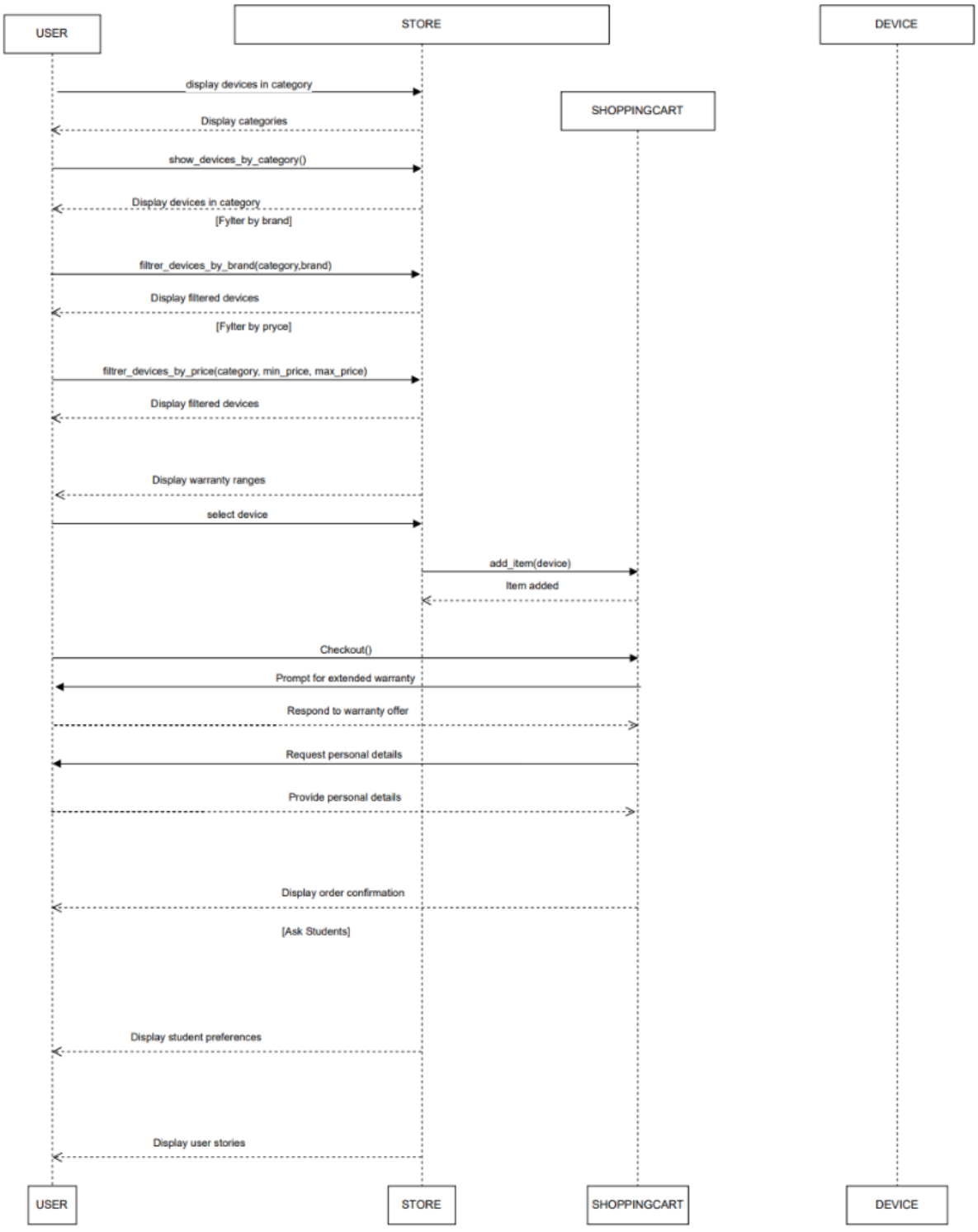
5. CLASS DIAGRAMS



6. FLOW DIAGRAM



7. SEQUENCE DIAGRAM


USER
STORE
DEVICE
SHOPPINGCART
display devices in category
Display categories
show_devices_by_category()
Display devices in category
[Fylter by brand]
filtrer_devices_by_brand(category,brand)
Display filtered devices
[Fylter by pryce]
filtrer_devices_by_price(category, min_price, max_price)
Display filtered devices
Display warranty ranges
select device
add_item(device)
Item added
Checkout()
Prompt for extended warranty
Respond to warranty offer
Request personal details
Provide personal details
Display order confirmation
[Ask Students]
Display student preferences
Display user stories
USER
STORE
SHOPPINGCART
DEVICE