UNIVERSIDAD DISTRITAL
FRANCISCO JOSÉ DE CALDAS

FIRST WORKSHOP: VIRTUAL STORE OF USED ELECTRONIC PRODUCTS OBJECT-ORIENTED PROGRAMMING

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Advanced programming

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Systems Engineering

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1. USER STORIES

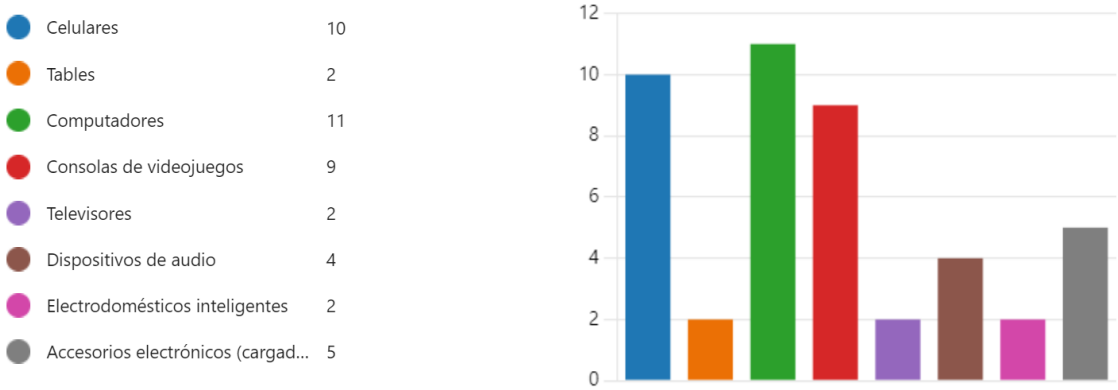
A survey was conducted with 15 students with the objective of knowing their preferences and needs when purchasing electronic products. The questions aimed to identify the most popular device categories, as well as the desired functionalities in a digital catalog.

The questions and their results were:

1. What electronic devices would you like to find in a virtual store?

   Options:

   - Cell pones
   - Tablets
   - Computers
   - Video game consoles
   - Televisions
   - Audio devices
   - Smart appliances
   - Electronic accessories



2. Why these devices?

   Options:

   - For my profession
   - for my studies
   - For my hobbies or entertainment
   - For personal or family use

3. What features would you like to see in an electronic device sales application?

   Options:

   - Shopping cart visible and easy to edit
   - Options for saving products
   - Product search by brand and price

The students from Universidad Distrital Francisco José de Caldas University who completed the form were:

15 Respuestas

ID ↑	Nombre	Respuestas
1	ANA MARIA QUINTERO RAMIREZ	20231020211
2	BETTSY LILIANA GARCES BURITICA	20231020222
3	JOHAN SEBASTIAN BARRAGAN RODRIGUEZ	20231265037
4	GABRIELA MARTINEZ SILVA	20231020205
5	JOHAN ALEJANDRO TALERO CARDENAS	20201578020
6	STEVEN ALBERTO NINO RIVERA	20231020209
7	EDUAR LEONARDO RODRIGUEZ RATIVA	20232140061
8	DARLY CATALINA NIETO VARGAS	20231020229
9	PAULA NATALIA RINCON SANABRIA	20231020226
10	SANTIAGO CHAVARRO FLOREZ	20231020219
11	DEVIN SANTIAGO ALZATE FIGUEROA	20231020214
12	JAIDER SANTIAGO QUIMBAY AVILA	20231020200
13	SERGIO NICOLAS MENDIVELSO MARTINEZ	20231020227
14	SAMUEL EDUARDO DELGADILLO SEPULVEDA	20231020218
15	DAVID SANTIAGO ALVAREZ RIOS	20231020122

Once the students' responses have been collected, user stories are created:

- “As a customer, I want to add products to my cart to review the amount I should save"
- “As a systems engineering student, I want to edit my shopping cart since sometimes I can change my mind due to advances in technology”
- “As a customer, I want to search for devices from my favorite brand in a simple way”
- “As a student, I want to see devices in a price range to know which ones fit my budget”

The needs of users will be mostly covered with the proposed functionalities and the most voted categories. However, when reviewing the students' responses, it was noted that they would like to have other options. Therefore, the shopping cart experience will be improved, allowing you to view and delete products. Additionally, functionality will be added that will allow you to search for products by directly typing the brand name and look at products that are in a price range.

2. OBJECT-ORIENTED PRINCIPLE ANALYSIS

This code demonstrates several key concepts of Object-Oriented Programming (OOP). One of the main concepts used is **encapsulation**, where the **“Store”** class encapsulates its data and behavior, making it a self-contained unit. The **“Store”** class also uses **inheritance**, as it inherits from the **“Abstract_Store”** class, which provides a basic structure for a store. Additionally, the code uses **polymorphism**, as the **“Store”** class overrides the **“display_main_menu”** method from the **“Abstract_Store”** class. This allows the **“Store”** class to provide its own implementation of the method, while still maintaining the same interface as the **“Abstract_Store”** class. Finally, the code uses **composition**, as the **“Store”** class contains a list of products, which are instances of the **“Product”** class. This allows the **“Store”** class to manage a collection of products, and perform operations on them.

3. CRC CARDS

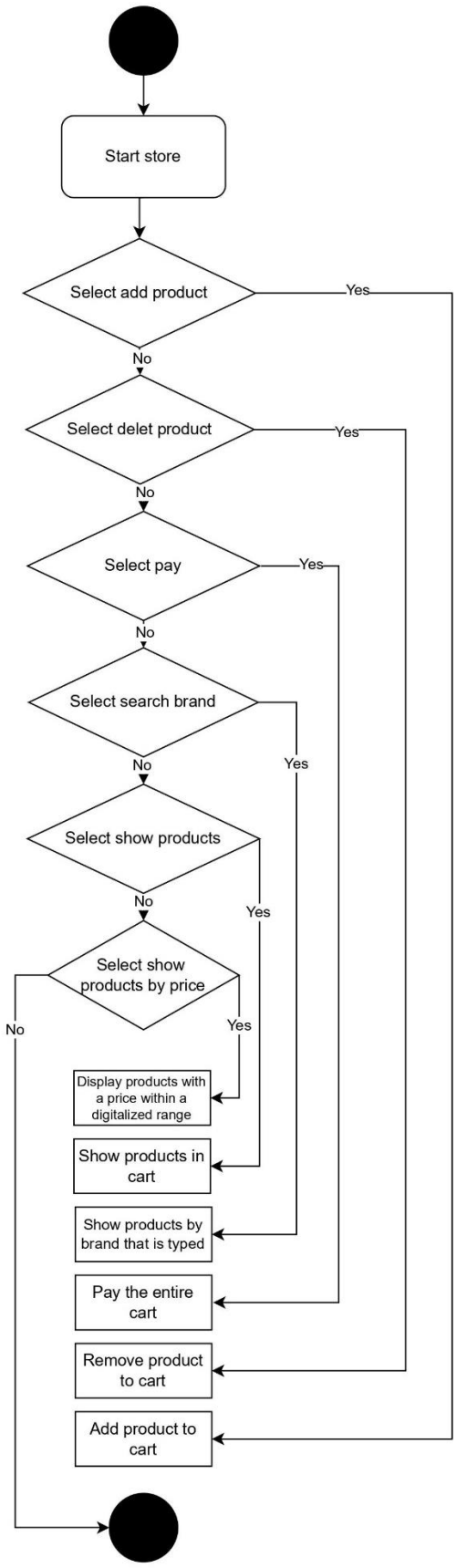
Abstract_Store	
Provide basic structure for a store Define display_main_menu method	Store (inheritance)

Store	
Display main menu Add products to cart Remove products from cart Pay for products in cart View cart Search products by brand Search products by price	AbstractStore (inheritance) Product (composition) Category (composition)

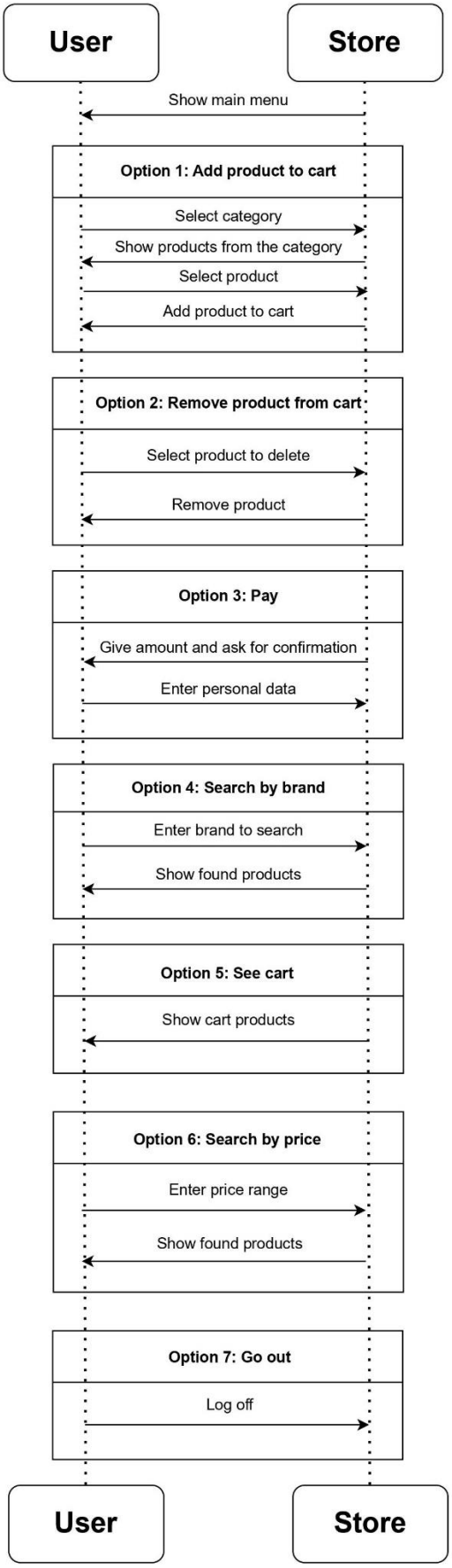
Category	
Represent a category in the store Have a name and products	Store (composition) Product (association)

Product	
Represent a product in the store Have a name, price, and brand	Store (composition) Category (association)

4. ACTIVITY DIAGRAMS



5. SEQUENCE DIAGRAMS



6. CLASS DIAGRAMS