

## Workshop 1 - Object Oriented Programming

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## **USER STORIES**

1. As a user, I want to view a list of available materials for the machine, so I can choose one that suits my preferences.
2. As a gamer, I want to see customization options, so that I can personalize the arcade machine to my liking
3. As a user, I want to select from a variety of classic arcade games, so I can customize my machine with my favorite games.
4. As a user, I want to see a detailed description of each game available, so I can make an informed decision on which games to include.
5. As a user, I want to see the list of selected games for my machine, so I can review and confirm my choices before finalizing the purchase.
6. As a user, I want to input my personal information (name, last name, and address), so that I can complete the purchase and receive the machine at the correct location.
7. As a user, I want to be able to remove or reset the list of selected games, so I can start over if I change my mind about the games I want.
8. As a user, I want to confirm my order and finalize the purchase, so I can ensure that everything is set up correctly before the machine is processed.
9. As a user, I want to access a list of all available classic arcade games, including details like the year of release and game genre, so I can choose based on my interests.
10. As a user, I want to be able to return to previous menus easily if I make a mistake or change my mind, so I can correct my selections without starting over.
11. As a user, I want to see the material options and their descriptions, so I can choose a material that matches my preferences for the machine's appearance and durability.
12. As a user, I want to have the option to stop adding games and go back to the previous menu or finalize the selection, so I have control over the configuration process.
13. As a user, I want to see a summary of my order including the selected material, games, and personal details, so I can verify all information before confirming the purchase.
14. As a user, I want to receive a confirmation email with the order details and estimated delivery date, so I can track my purchase and know when to expect the machine.
15. As a user, I want to search for or view iconic classic games like Pac-Man in a dedicated section, so I can easily find and add popular favorites to my arcade machine configuration.

## **Object-Oriented Principles Analysis**

- **Encapsulation:** It hides the internal state of an object and only exposes a controlled interface. Classes like Maquina, Persona, and Vista encapsulate data related to their respective domains. For instance, Maquina manages its own attributes (material, juegos, comprador) and provides methods to manipulate these attributes (setMaterial, anadirJuegos, reiniciarListaDeJuegos). Methods in these classes (e.g., setNombre, getNombre) control access to the attributes, ensuring that the internal state of an object can only be changed in specific ways.
- **Abstraction:** involves hiding the complex implementation details and showing only the essential features of an object, the Control class can be seen as an example of abstraction. It manages user interactions and business logic without exposing the underlying implementation details of how the Maquina or Vista classes work

internally. The Vista Class: Provides a simplified interface for user interactions, such as displaying messages and getting user input. It abstracts away the complexity of input/output operations.

- Polymorphism allows objects of different classes to be treated as objects of a common superclass. It enables a single interface to represent different underlying forms.

**Method Overloading:** The Vista class has multiple methods for displaying menus and messages, which could be considered an example of polymorphism in terms of method overloading. Each method has a different purpose but operates in a similar way—interacting with the user. The Control class uses polymorphism when handling different types of responses from users in menus. The responses can lead to different behaviors (e.g., adding different games or setting different materials).

## CRC Cards

Class: Control

Class Control	
Responsability	Collaboration
<ul style="list-style-type: none"><li>• Manage the main logic and flow of the application.</li><li>• Validate user input and handle transitions between different states of the application.</li><li>• Interact with Vista to display information and receive user input.</li><li>• Configure the Maquina object based on user selections.</li><li>• Manage user interactions for selecting materials and games.</li><li>• Collect and set personal information of the buyer.</li><li>• Confirm and finalize the purchase.</li></ul>	<ul style="list-style-type: none"><li>• Vista</li><li>• Maquina</li><li>• Persona</li></ul>

Class: Maquina

Class Maquina	
Responsability	Collaboration
<ul style="list-style-type: none"><li>• Store information about the machine, such as selected material and list of games.</li><li>• Manage the list of games that can be added or cleared.</li><li>• Store and manage buyer details (of type Persona).</li></ul>	<ul style="list-style-type: none"><li>• Juegos</li><li>• Persona</li></ul>

Class: Persona

Class Persona	
Responsability	Collaboration
<ul style="list-style-type: none"> <li>• Store and manage personal information of the buyer, including name, last name, and address.</li> </ul>	

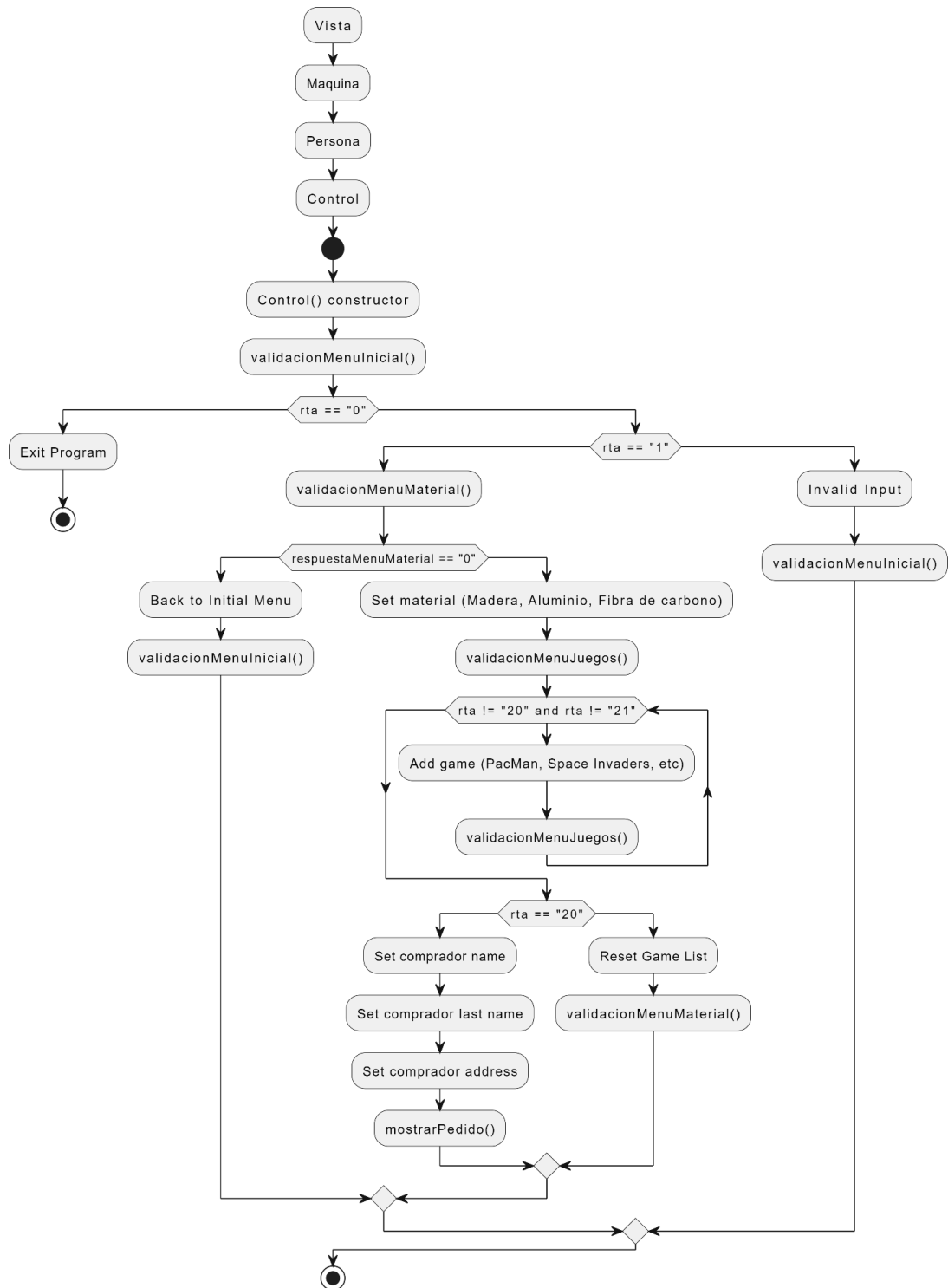
Class: Juegos

Class Juegos	
Responsability	Collaboration
<ul style="list-style-type: none"> <li>•</li> <li>• Provide a list of available classic games as an enumeration.</li> <li>• Represent game options for selection and addition to the machine.</li> </ul>	Maquina

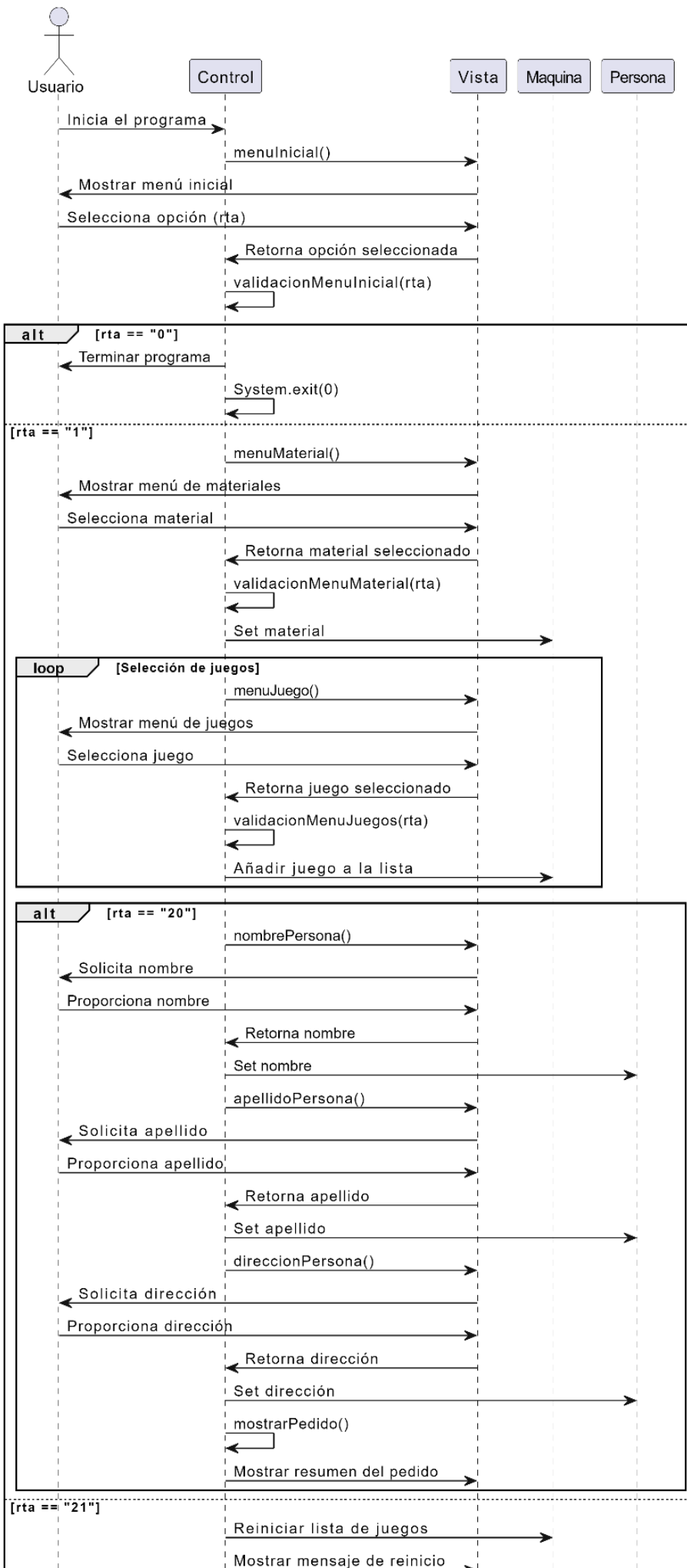
Class: Vista

Class Vista	
Responsability	Collaboration
<ul style="list-style-type: none"> <li>• Display menus, messages, and prompts to the user.</li> <li>• Collect user input for various options and personal information.</li> <li>• Provide methods for interacting with the user and guiding them through the application.</li> </ul>	Control

**Activity Diagram:**



**Sequence diagram:**



## Class Diagram

