Software Modeling I

Season 2024-III

Workshop No.1 Object- Oriented Programming

Report From:

User Histories

Object-oriented principles analysis

CRC cards

Diagrams sequence and Class Diagrams

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Project Application to Object-Oriented Principles analysis

Classes and Objects

In the CLI menu project, the GamingConsole class acts as a template for the objects that will represent the game consoles. The class defines the attributes and methods related to the console, such as the specification, storage options, and more.

Encapsulation

The GamingConsole class encapsulates the internal details of the console specifications and functionality. Public methods such as display_specs(), storage_options(), and compatibility() provide an interface for interacting with the console without exposing the internal details.

Inheritance

In the code provided, inheritance is used through the abstract class GamingConsole. Concrete subclasses (implementations) must provide specific implementations for the abstract methods defined in the base GamingConsole class.

Polymorphism

Polymorphism manifests itself in the CLI menu when methods of the GamingConsole class are invoked. Depending on the option selected in the menu, a different method is executed, but all methods belong to the same interface (the GamingConsole class).

Abstraction

The GamingConsole class provides an abstraction of a gaming console, allowing the user to interact with it through methods such as display_specs() without needing to understand the internal implementation of how this data is handled.

Example Implementation in Code

Here is how these concepts are implemented in the code of the project:

GamingConsole class defines the structure and behavior of the gaming console.

Methods such as display_specs() and storage_options(): Provide an interface to interact with the console objects without exposing the internal logic.

User Interface in menu.py: Uses polymorphism to call different methods according to the user's choice.

a survey was made to these fifteen users to link us to the following step

¿Qué cosas les gustaría ver en un catálogo para comprar una máquina de videojuegos.?				
Nombre		**Respuesta**		
1.	Cristian Salamanca	"Me gustaría ver especificaciones detalladas de hardware y software, como procesador, memoria RAM y gráficos".		
2.	Juan Estaban Jurado	"Seria Bueno ver las opciones de configuración de almacenamiento (GB, TB, SSD, HDD), y posibilidad de actualización".		
3.	Camilo Herrera	"Información sobre la compatibilidad con juegos anteriores y futuros".		
4.	Juan Plablo Villalba	"Comparativa con otras máquinas de videojuegos del mercado".		
5.	Santiago Pinilla	"Poder perzonalizar a nuestro gusto cuestiones de Opciones de personalización y accesorios disponibles".		
6.	Luis Duarte	"Información sobre la durabilidad y construcción de la consola".		
7.	Wilson Rey	"Vídeos demostrativos de juegos en acción o pruebas por determinado tiempo ".		
8.	Karen Duarte	"Compatibilidad con dispositivos de acceso para personas con discapacidad".		
9.	Daniel Jimenez	"Soporte para tecnologías de inteligencia artificial (IA) en juegos		
10.	Daniel Hernandez	"Opciones de personalización de sonido y audio 3D".		
11.	Andres Hernzndez	"Información sobre la eficiencia energética y consumo de energía".		
12.	Isbella Forrero	"Opciones de seguridad avanzadas, como autenticación biométrica".		
13.	Gildardo Fuentes	"Análisis de rendimiento en juegos con gráficos ray-tracing".		
14.	Ingrid Zambrano	"Una amplia gama de opciones de configuración de redes y soporte para IPv6".		
15.	Diana Jaramillo	"Guiamento por partte del personal de ventas para la explicacion de todas las funcionalidades".		

List Of User Stories

1. As a potential buyer, I want to see detailed hardware and software specifications, so what can I know about the processor, RAM and graphics of the device.

2. As a potential buyer, I want to see the storage configuration and upgradeability options, so what can I choose between different capacities and storage types (GB, TB, SSD, HDD).

3. As a potential buyer, I want information on backward and forward compatibility, so what I can know if the console will work with my current games and the ones I plan to buy.

4. As a potential buyer, I want a comparison with other gaming machines on the market, so what I can evaluate the differences and advantages in relation to other similar products.

5. As a potential buyer, I want to be able to customize the console options and see the available accessories, so want I can be able to adjust the device to my taste and needs.

6. As a potential buyer, I want information about the durability and construction of the console, so what I can be sure that the device is sturdy and well-built.

7. As a potential buyer, I want to see video demonstrations of games in action or testing for a certain amount of time, so what I can observe the actual performance of the device.

8. As a potential buyer, I want to know if the console is compatible with access devices for people with disabilities, so what I can confirm that it is inclusive and accessible.

9. As a potential buyer, I want to know about support for artificial intelligence (AI) technologies in games, so what I can enjoy the latest innovations in the gaming experience.

10. As a potential buyer, I want 3D audio and sound customization options, so what I can adjust the audio for a more immersive experience.

11. As a potential buyer, I want information on energy efficiency and power consumption, so what I can make informed decisions about environmental impact and operating costs.

12. As a potential buyer, I want advanced security options, such as biometric authentication, so what I can protect my console and my data more securely.

13. As a potential buyer, I want performance analysis on games with ray-tracing graphics, so what I can see how the console handles advanced graphics.

14. As a potential buyer, I want a wide range of network configuration options and IPv6 support, so what I can connect the console efficiently and in the future.

15. As a potential buyer, I want guidance from the sales staff in explaining all the features, so what I can better understand the product and its features before I buy.

The minimum required functionalities are listed below:

1. Detailed hardware and software specifications:
    - Display information about the console's processor, RAM and graphics.

2. Storage configuration options and upgradeability:
    - Provide options for different storage capacities (GB, TB, SSD, HDD) and allow for storage upgradeability.

3. Backward and forward game compatibility:
    - Provide information on compatibility with previous and future generation games.

4. Comparison with other gaming machines on the market:
    - Include tools or resources to compare the console with other similar consoles on the market.

5. Customization options and available accessories:
    - Allow users to customize the console and choose from various available accessories.

6. Durability and construction information:
    - Provide details on the device's durability and build quality.

7. Demo videos and game testing:
    - Provide demonstration videos of games in action and performance tests for a specified time.

8. Compatibility with disability access devices:
    - Ensure that the console is accessible and compatible with assistive devices for people with disabilities.

9. Support for artificial intelligence (AI) technologies in games:
    - Include support for AI technologies in games to enhance the gaming experience.

10. 3D sound and audio customization options:
    - Provide settings to customize sound and use 3D audio.

11. Energy efficiency and power consumption:
    - Provide information on power efficiency and power consumption of the console.

12. Advanced security options:
    - Include advanced security options such as biometric authentication.

13. Performance analysis in games with ray-tracing graphics:
    - Provide analysis on how the console handles ray-tracing graphics in games.

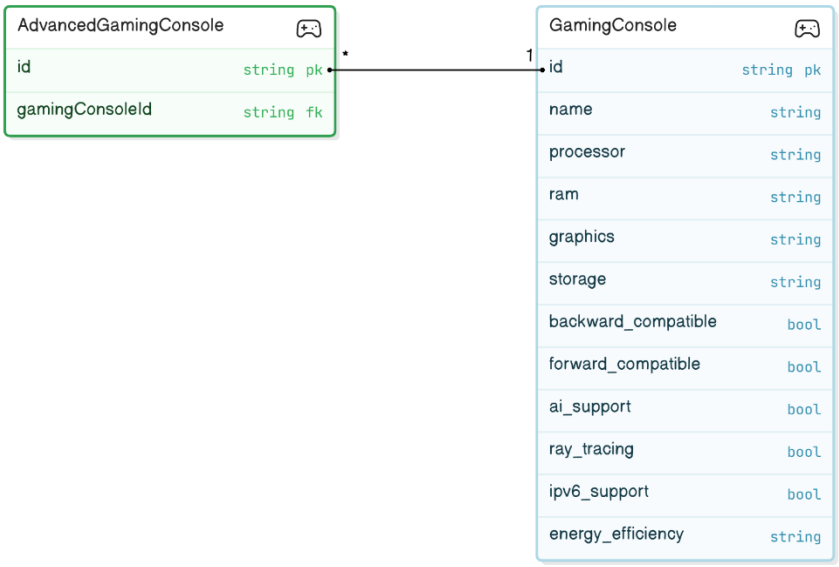
14. Network configuration options and IPv6 support:
    - Provide a wide range of network configuration options and IPv6 support.

15. Guidance from sales staff:

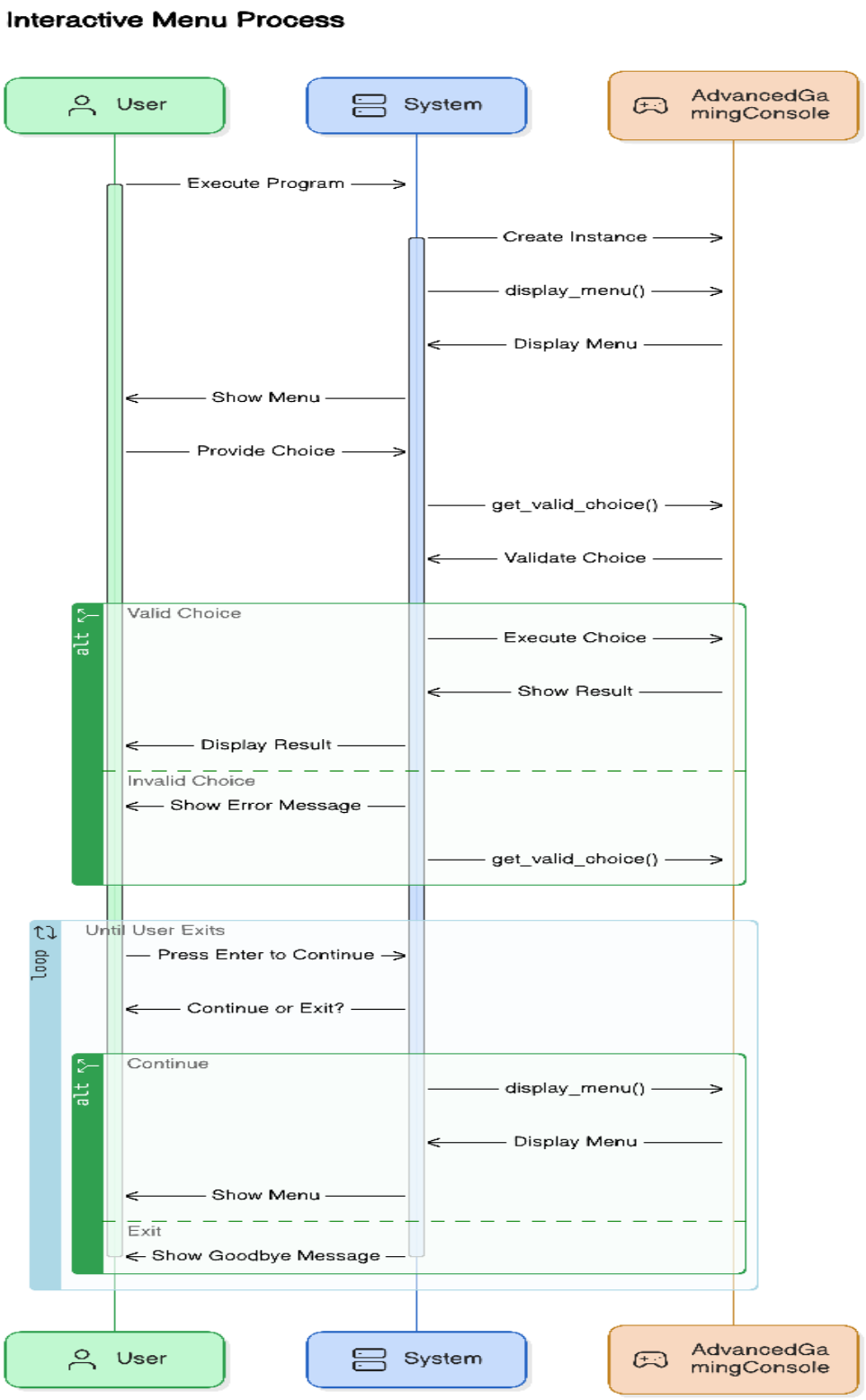
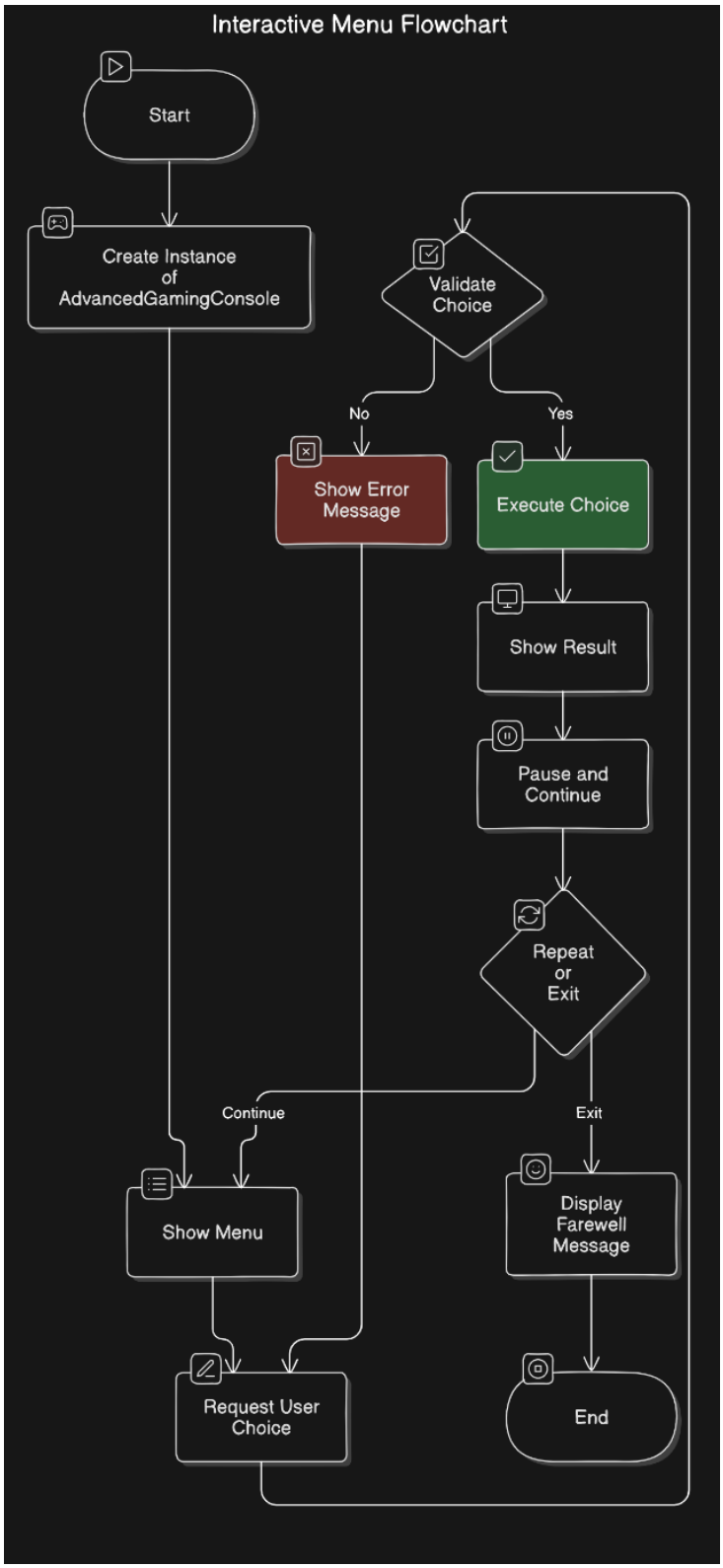
- Provide training or assistance by sales personnel to explain all product functionality.

Class Diagram

Gaming Console System



Sequence Diagram



Activity Diagram