Technical Report

1. User stories

1. I as a buyer, want to have the option of putting LED lights on the arcade machine so what I can customize it a bit.
2. I as a buyer, want to be able to select the size of the arcade machine's hard drive, its RAM, so what I can build the combination that best suits me.
3. I as a buyer, want to be able to see the available games, with their price, name and difficulty, so what to choose which ones i want to buy for my machine.
4. I as a buyer, want to know what games the machine supports and what it can emulate, so what i know its compatibility.
5. I as a buyer, want information about the size, price, name, so what i can select the one that best suits my needs.
6. I as a buyer, want to know the color options of the machine, so what i can customize it to my liking.
7. I as a buyer, want to see the number of players it supports, so what i know if it is suitable for multiplayer mode.
8. I as a buyer, want to know if it has built-in speakers, so what i can take into account the possibilities that the machine offers me.
9. I as a buyer, want information about the type of screen it uses, so what i can evaluate the display quality.
10. I as a buyer, want to know if it has online connectivity options, so what i can see if it supports updates or multiplayer modes.
11. I as a buyer, want to see details about the warranty and support, so what i can feel confident with my purchase.
12. I as a buyer, want to know if the arcade machine has customizable controls, so what i can adjust them to my preferences.
13. I as a buyer, want to know the average power consumption, so what i can estimate how much energy it will use.
14. I as a buyer, want to know if the machine comes with assembly and maintenance instructions, so what i can make sure that i can use it as soon as it arrives and that it stays in good condition over time.
15. I as a buyer, want to know if the machine has a coin-operated option or free play mode, so what i can decide how to use it.

2. Object-oriented principles analysis

- Encapsulation: In this case we do not use the encapsulation principle since we have the catalog class which interacts with the data of different classes with its own methods.
- Abstraction: For this project, abstraction was used with the application users since we were able to abstract two essential roles in it, which are the buyer, who has his

own unique attributes and behaviors, and the admin role. Although both are users, the way in which they interact with the application is different.

- Inheritance: As we mentioned before, we were able to identify the need for two specific user classes that shared certain data and behavior, so it was decided to create the user class from which Customer and Admin inherit and thus ensure the integrity of the data they share.

- Polymorphism: For this project it was not necessary to use polymorphism since the catalog class was in charge of executing most of the methods, which had a specific way of being carried out.

3. CRC Cards

ArcadeMachine	
Responsability	Collaborator
Validate the integrity and structure of data	Catalog

Videogame	
Responsability	Collaborator
Validate the integrity and structure of data	Catalog

User	
Responsability	Collaborator
Validate the integrity and structure of data, and create users	Customer & Admin

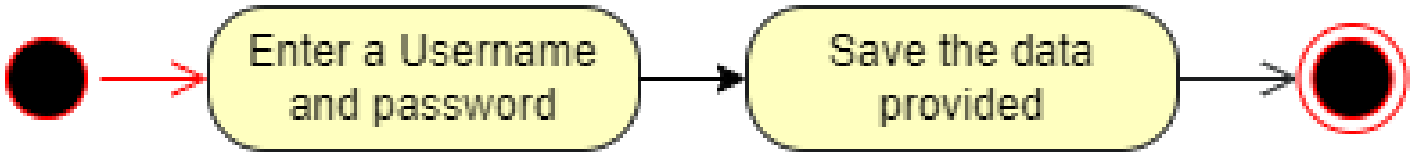
Customer	
Responsability	Collaborator
Validate the integrity and structure of data	User

Admin	
Responsability	Collaborator
Validate the integrity and structure of data	User

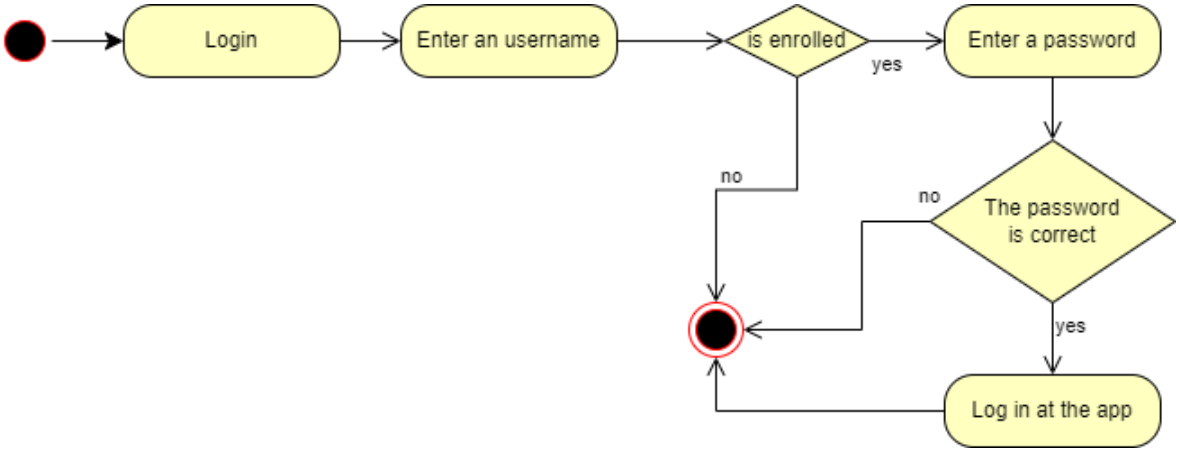
Catalog	
Responsability	Collaborator
Add ArcadeMachines, Videogames,	ArcadeMachine, Videogame, User, Customer, Admin

4. Activity diagrams

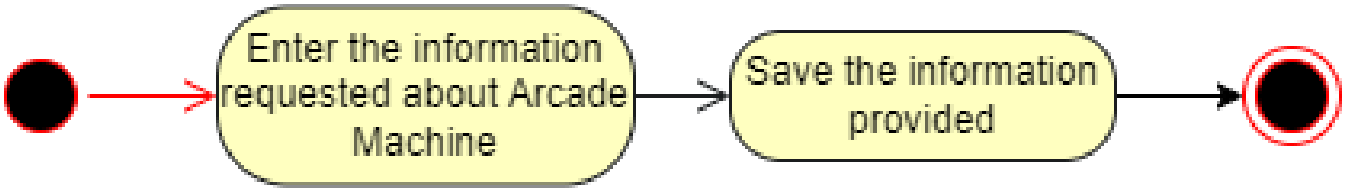
Activity Diagram - Créate Account: This diagram shows the steps to follow in the application to create a new user, which consists of filling out a form whose data will be sent to a dictionary call customers for the roll customer and admins for the user with the roll admin.



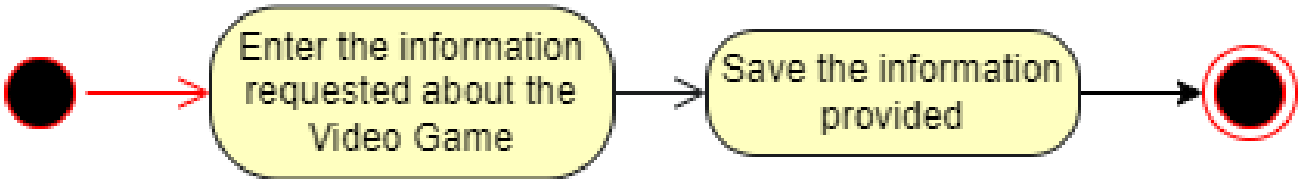
Activity Diagram - Login: This diagram shows the steps to follow in the system to validate the credential of the user which consists of filling out a form whose data will be compared directly to the data stored in the corresponding dictionary.



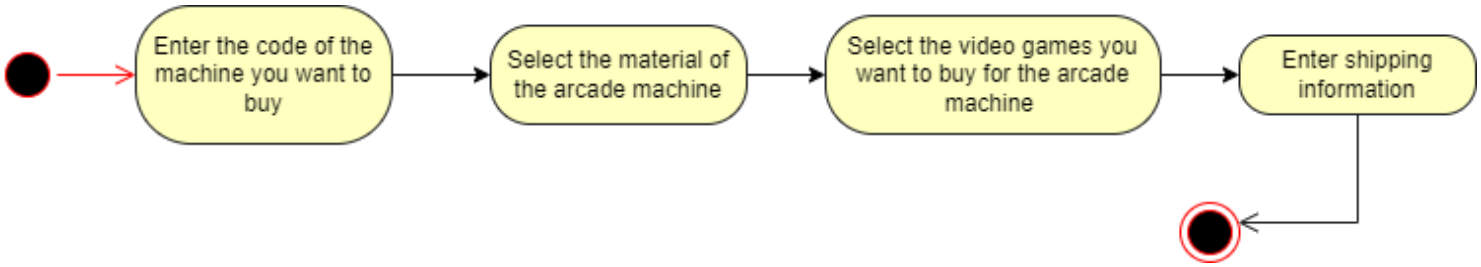
Activity Diagram - Add Arcade Machine: This diagram shows the steps to follow in the system to add a new Arcade machine, this consists in filling out a form and save the data provided in a dictionary



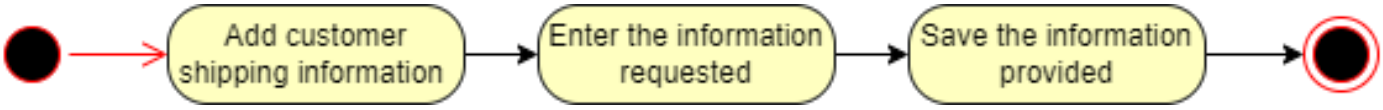
Activity Diagram - Add Videogame: This diagram shows the steps to follow in the system to add a new Video game, this consists in filling out a form and save the data provided in a dictionary



Activity Diagram - Buy Arcade machine: This diagram shows all the steps necessary to purchase an Arcade Machine, these steps consist of selecting a Arcade machine bi its code, after that selected the materials of the machine, later select the videogames available for that machine and finally enter the customer information for delivery.

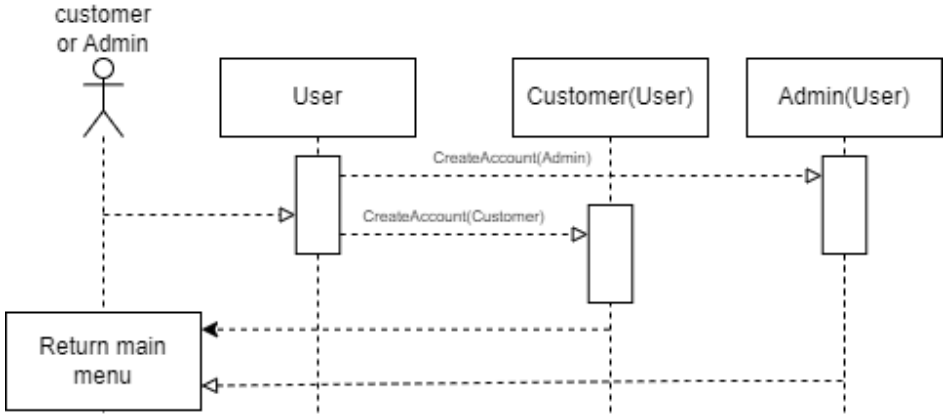


Activity Diagram - Add customer information for delivery: This diagram shows the steps to follow in the system to add customer information for delivery, which consist of filling out a form and updating the data saved in the customers dictionary whose key will be the username.

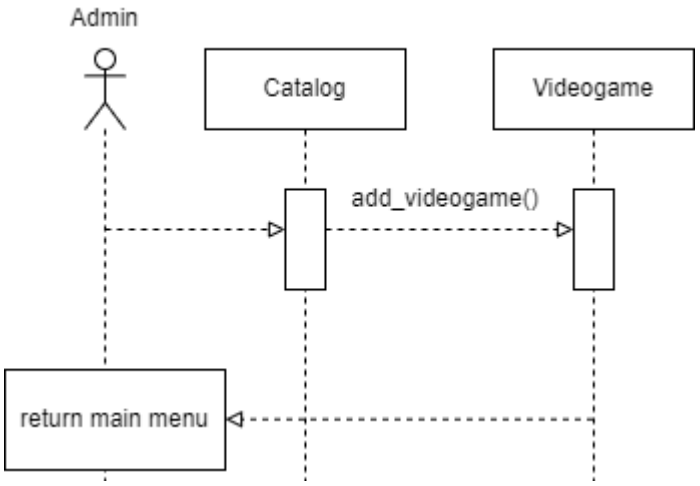


5. Sequence Diagrams

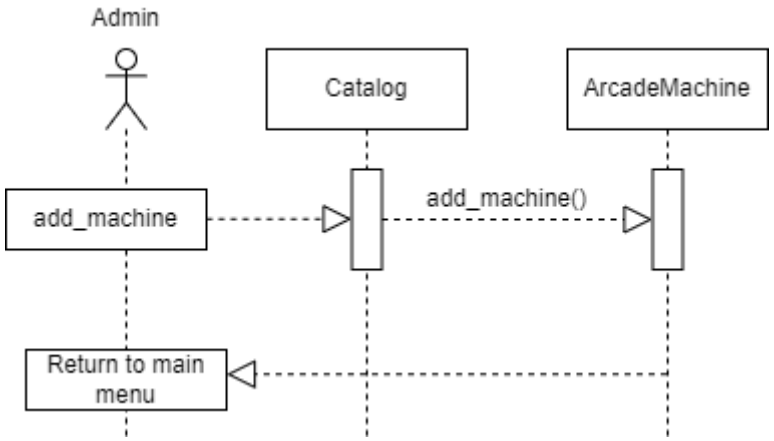
Sequence Diagram - Create account: This sequence diagram shows how the customer or admin tries to create an account and depending of the roll is called customer or admin class, and finally returns to the main menu.



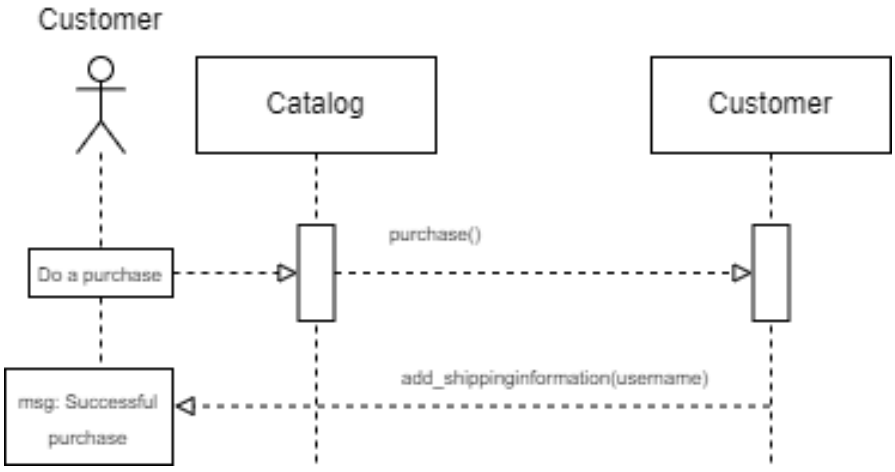
Sequence Diagram - Add Videogame: This sequence diagram shows how the admin can add a videogame to the system from the menu of the class catalog.



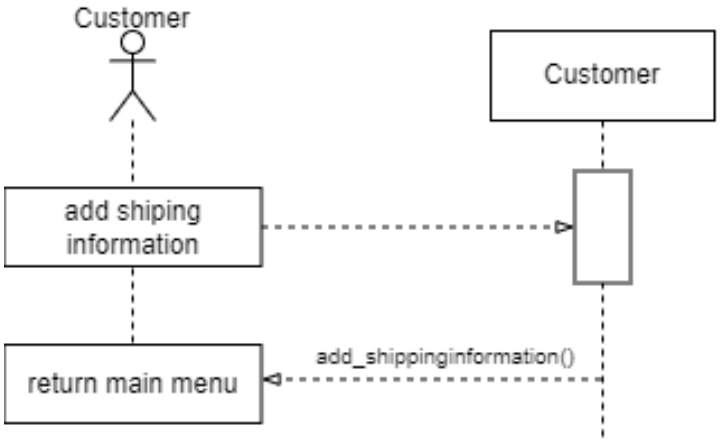
Sequence Diagram – add Arcade Machine: This sequence diagram shows how the admin can add a arcade machine to the system from the menu of the class catalog.



Sequence Diagram – do a purchase: This sequence diagram shows how the customer makes a purchase from the catalog class and enter the information necessary for the delivery of the arcade machine.



Sequence Diagram – add delivery customer information: This sequence diagram shows how the client interacts with the Client class to add the information needed for the delivery of the arcade machine.



6. Class diagrams