Activity # 1
Client Server Web Application

Our team is Team 4 and is called “RIOT” which is a recursive acronym that stands for “RIOT Is Our Team”, like YAML or GNU. Our team consists of:

- Sanguña Lanchimba Robert Denilson
- Yánez Tufiño Mishell Alexandra
- Yánez Freire José Ignacio
- Troya Acosta Alexis Santiago

We’ll explain our work related to each if the items considered in the Rubric

1. GitHub Repository

Our Project can be accessed here:
https://github.com/joseignacioyanez/Team4_RIOT_InvoicingSystem

We followed the structure of files which allowed us to develop the software from Definition until Deployment in the Cloud.

2. Idea (interview) and list of features (product Backlog)

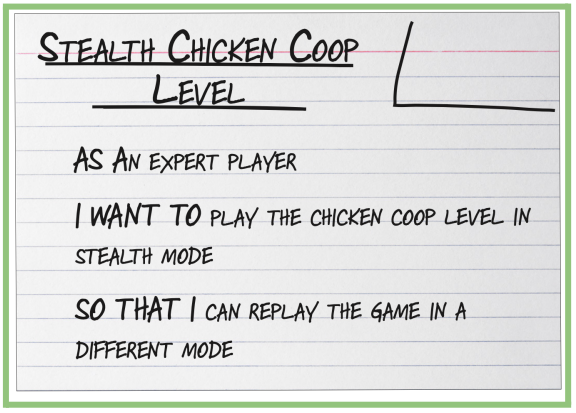
The interview is a very useful tool to know the needs of the client.
List of features.

- Manage users.
- Manage products.
- Generate invoice.
- Register payment method.

Interview with the restaurant owner.

Photo of the restaurant

We needed to understand the process of Scrum, so we read the first chapters of a book called “Head First Agile: A Brain-Friendly Guide to Agile Principles, Ideas, and Real-World Practices”. Here we understood how other teams organize their work based on User Stories and we made them based on this type of cards:



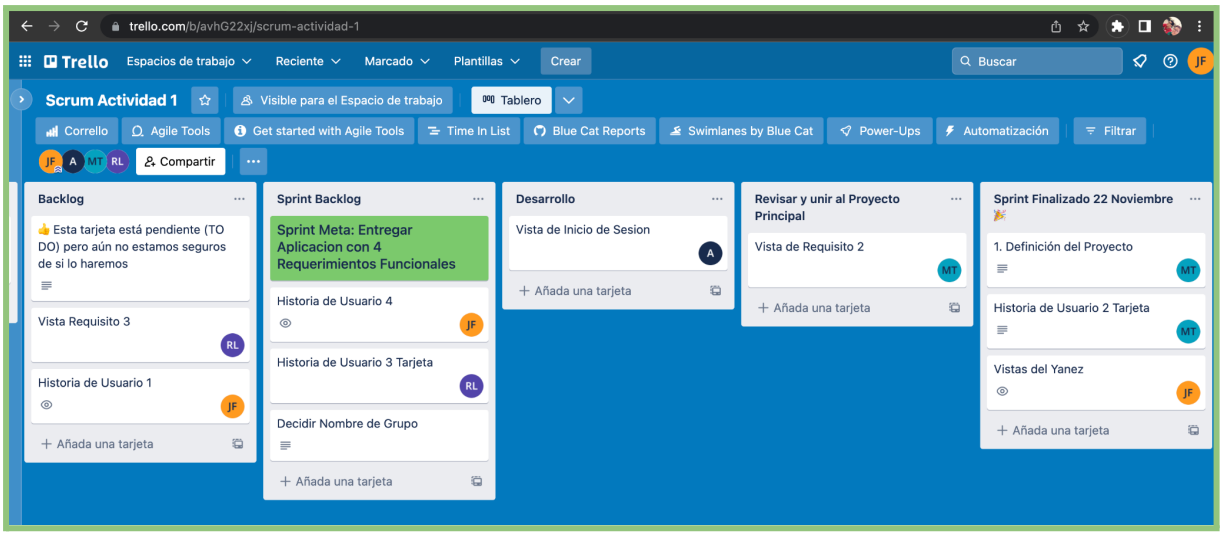
User Story 1
As the Restaurant Owner
I want to be able to create personal and secure users for the cashiers
So that they can register sales and give Invoices to the clients

User Story 2
As the Restaurant Owner
I want to be able to manage the restaurant menu
So that Invoices have the details of items that were bought

User Story 3
As the Cashier
I want to be able to create and search clients by their ID or RUC
So that I can associate them to the Invoice

User Story 4
As the Cashier
I want to be able to generate a detailed Invoice and send it by Email
So that the Client has the Invoice

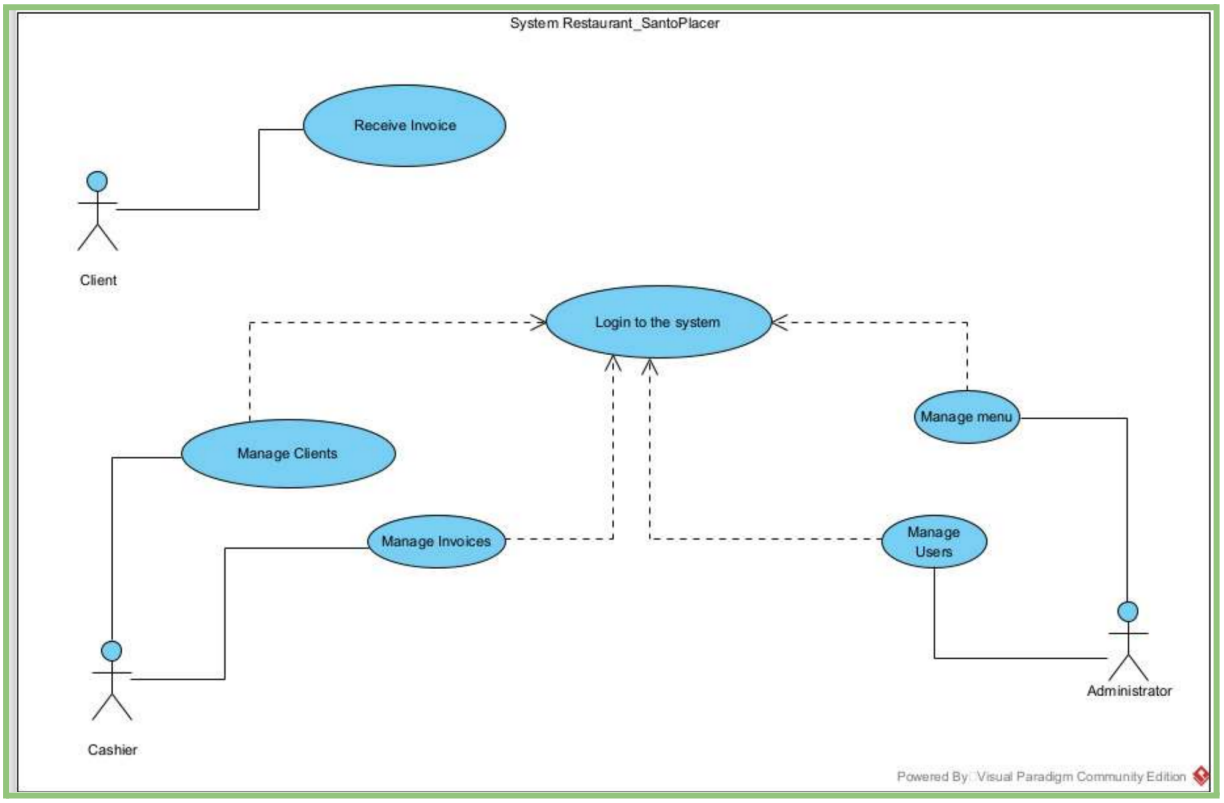
Then we divided the work into tasks based on the User Stories that were assigned to each one of us and started registering this on a Kanban Board using Trello.



3. Diagrams (Classes, Use Cases, Architecture)

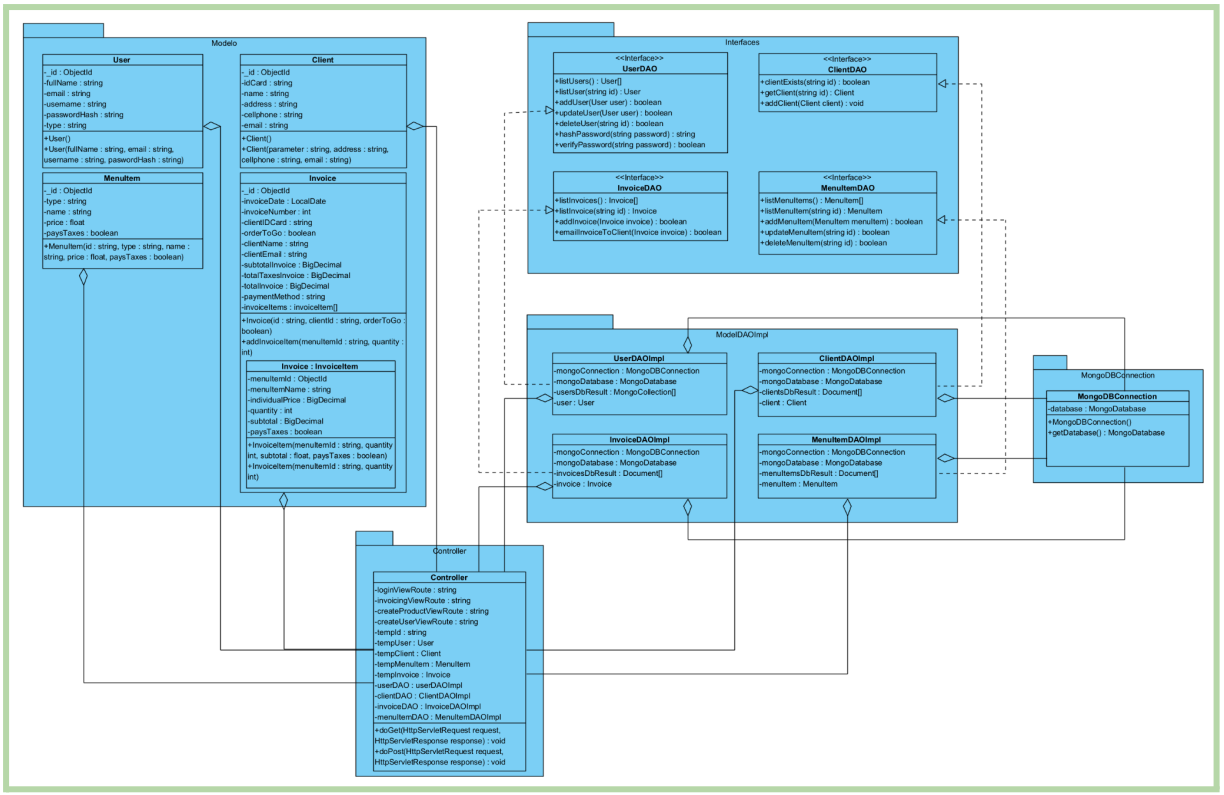
Through use cases we can describe the steps or activities to be carried out in each process.

Use Cases Diagram

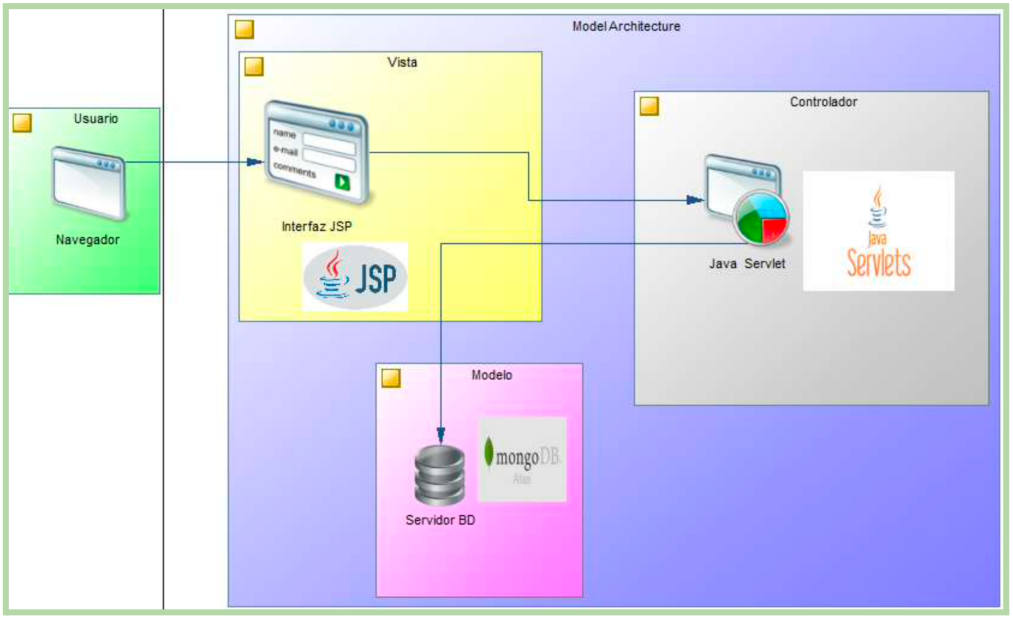


Class Diagram

The classes that make up the Web Application are described below, as well as its methods and attributes.

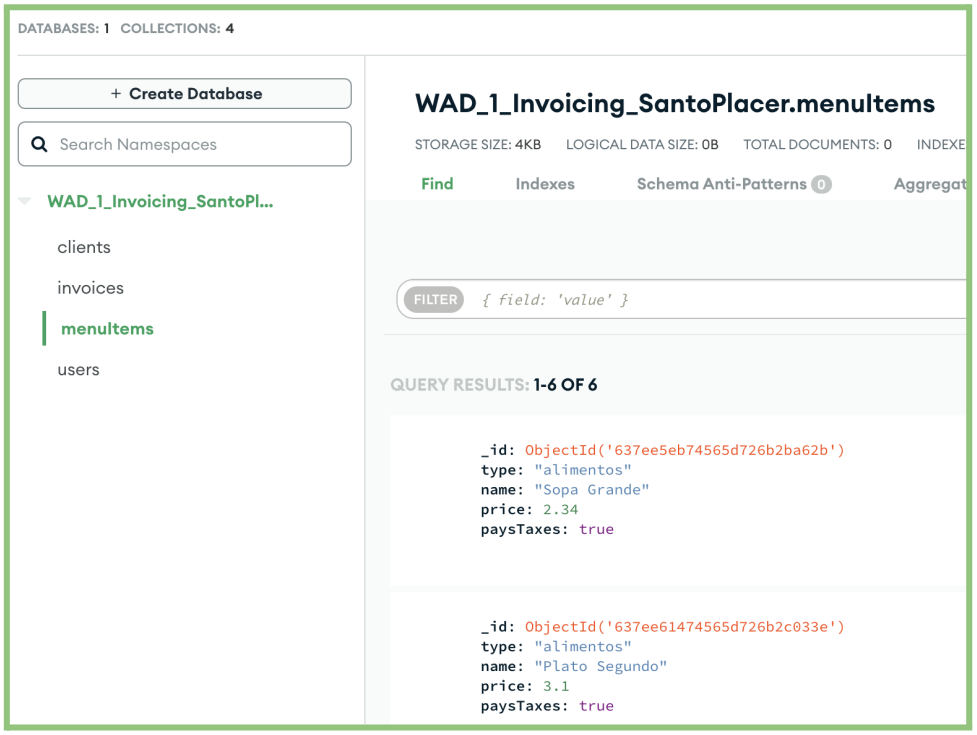


And this is the general **Architecture** we followed:



4. MongoDB Atlas Database (in the cloud)

We created the Mongo Database using Atlas. It has 4 Collections for the 4 Classes or web app uses.



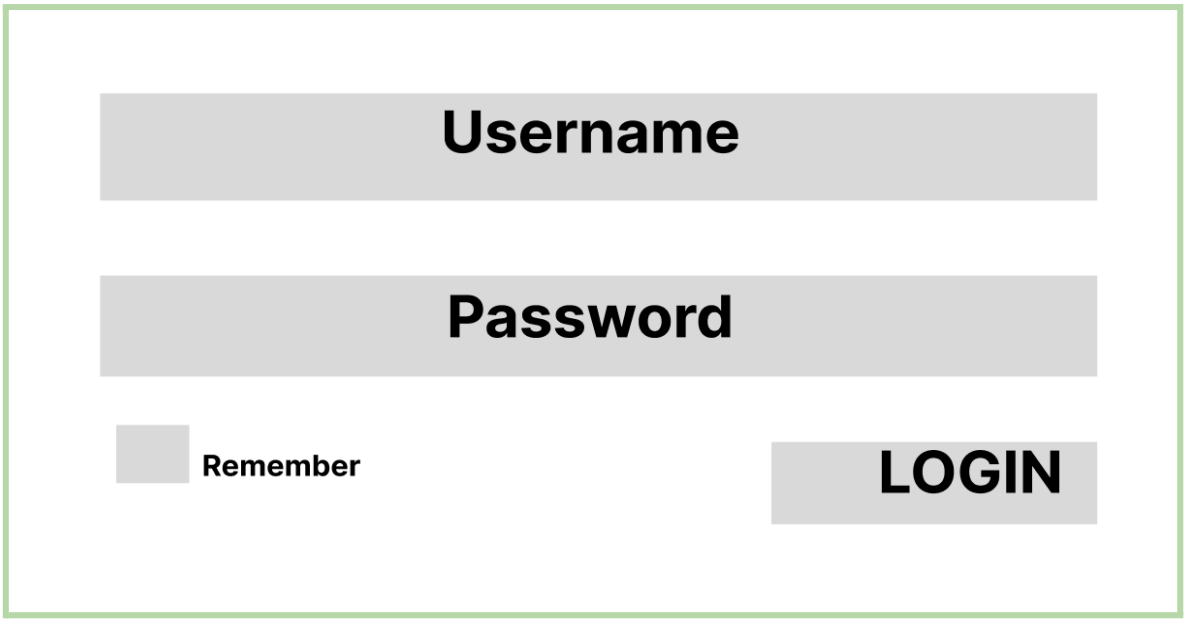
While researching about MongoDB, we read about how it allows us to have the data we use at the same time, all in one place. So that's why we made the Class Invoice and it includes fields for details of the Client and the MenuItems. First, we don't have to make many queries, just one to generate all the Invoice. And second, Invoices shouldn't be able to update or change, just archived, so this duplication of data is not that important.

We also made a nested class InvoiceItem so we can have the details for each “row” of the invoice and even have products that pay taxes or not, and all being counted.

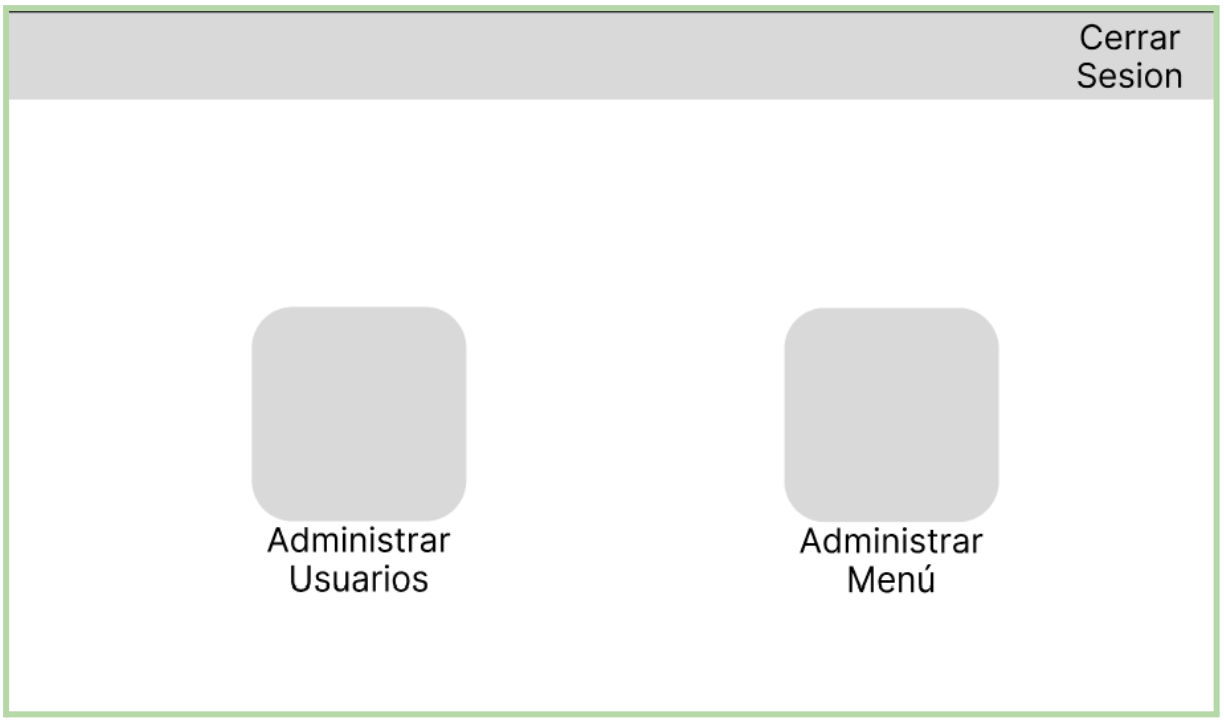
5. Design of the client and at least four business rules

For the structure of the views of the Web Application, a sketch was made of each one on Figma.

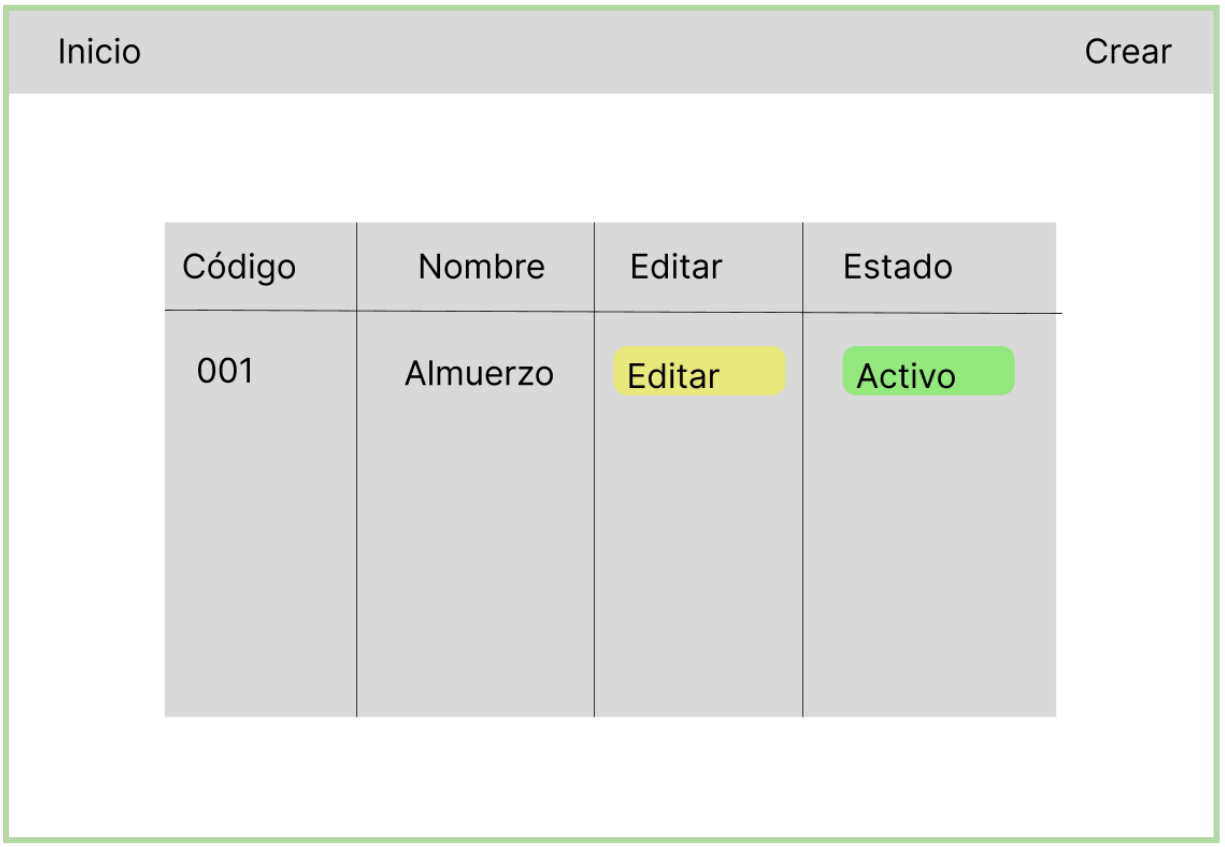
Login view



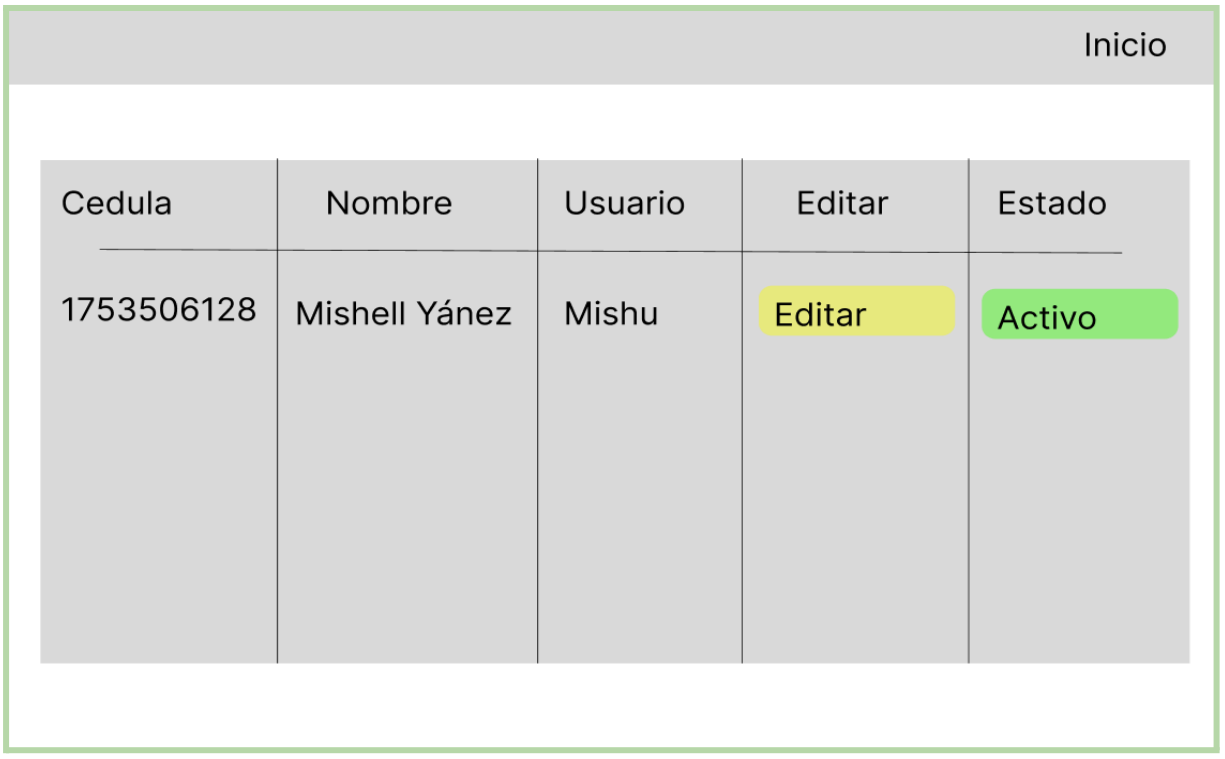
Home view



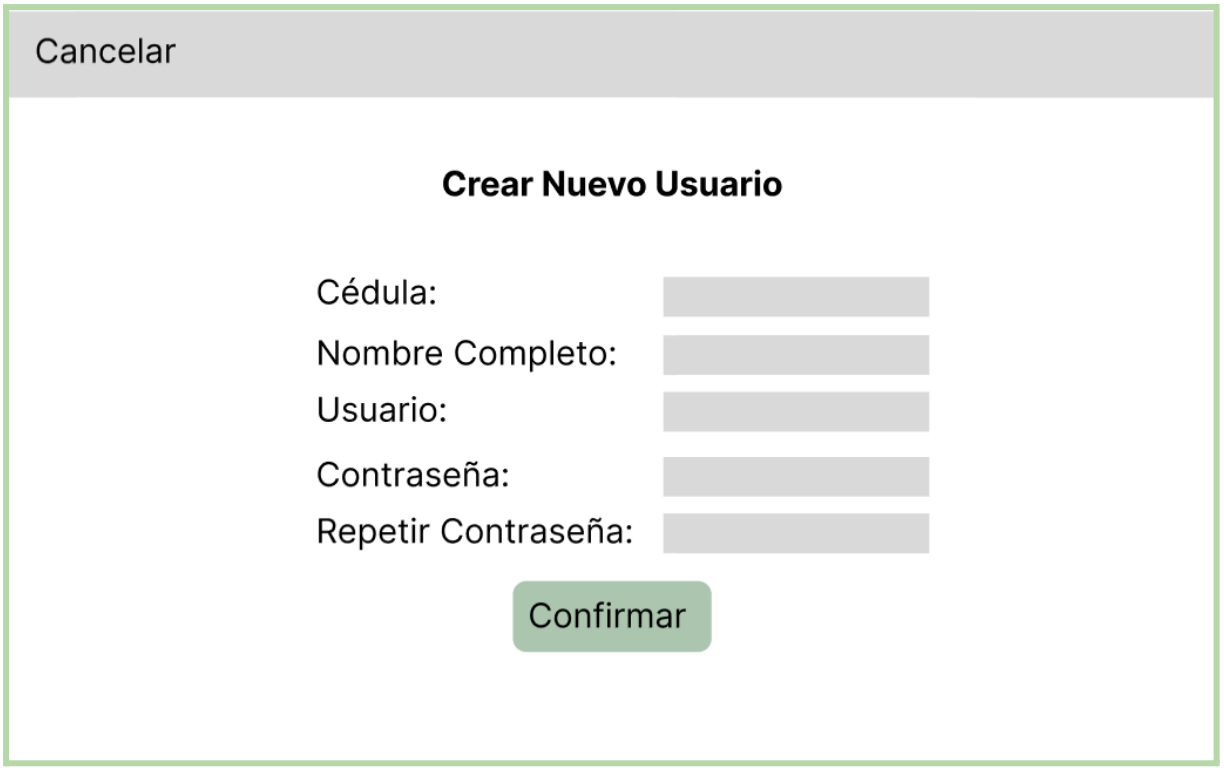
Menu view



Users view



Product creation view


Cancelar
Crear Nuevo Usuario
Cédula:
Nombre Completo:
Usuario:
Contraseña:
Repetir Contraseña:
Confirmar


Cancelar
Modificar Usuario
Cédula:
Nombre Completo:
Usuario:
Contraseña:
Repetir Contraseña:
Confirmar

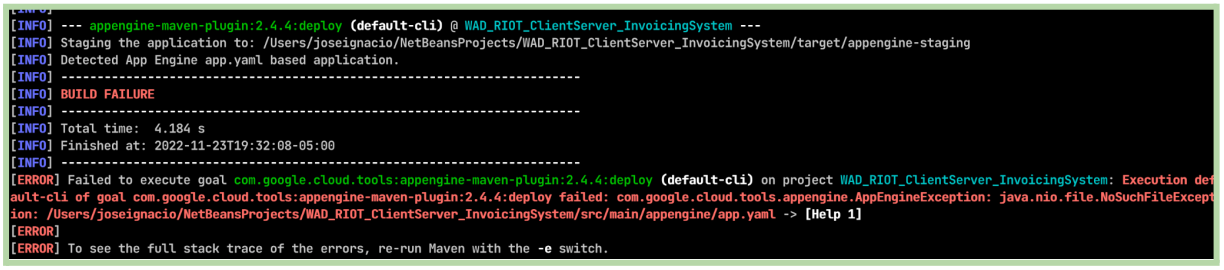
And finally we designed the HTML and Styles of the Views using Bootstrap.

Business rules

- Password encryption.
- Send invoices by mail.
- Sales report.
- Report of invoices pending payment.
- Generate prepaid invoices.

6. Execution of the application in the cloud or hosting

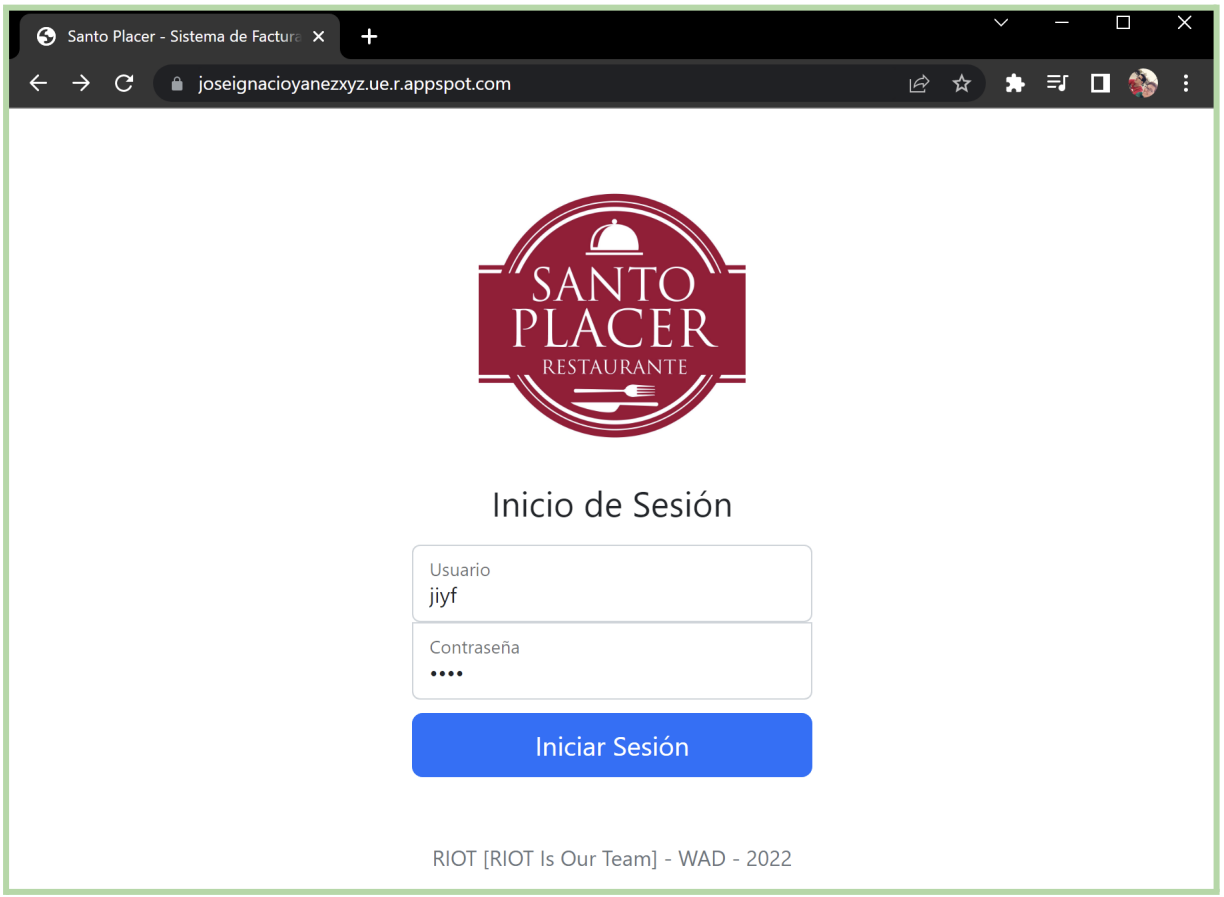
For deployment we didn't have too much experience so we spent many hours researching, solving problems with environment variables of Maven and Java, installing plugins for Java packaging, trying to understand the purpose and syntax of app.yaml and appengine-web.xml, deciding if using AppEngine or a VM of Compute Engine and run manually the app, and so on.



```
:( 1 WAD_RIOT_ClientServer_InvoicingSystem ♫ gcloud app deploy
Services to deploy:

descriptor:                  [/Users/joseignacio/NetBeansProjects/WAD_RIOT_ClientServer_InvoicingSystem/pom.xml]
source:                      [/Users/joseignacio/NetBeansProjects/WAD_RIOT_ClientServer_InvoicingSystem]
target project:              [joseignacioyanezxyz]
target service:              [default]
target version:              [20221123t200529]
target url:                  [https://joseignacioyanezxyz.ue.r.appspot.com]
target service account:      [App Engine default service account]


Do you want to continue (Y/n)?  y

Beginning deployment of service [default]...
╔═══════════════════════════════════════════════════════════════╗
╠═ Uploading 5 files to Google Cloud Storage                    ═╣
╚═══════════════════════════════════════════════════════════════╝
File upload done.
Updating service [default]...failed.
ERROR: (gcloud.app.deploy) Error Response: [9] Cloud build 19568d26-3bb9-4b1a-bd0d-4707fbdf5a18 status: FAILURE
did not find any jar files with a Main-Class manifest entry
Full build logs: https://console.cloud.google.com/cloud-build/builds;region=us-east1/19568d26-3bb9-4b1a-bd0d-4707fb
:( 1 WAD_RIOT_ClientServer_InvoicingSystem ♫ mvn package appengine:deploy -Dapp.deploy.projectId=josignacioyanezxyz
```

After too many errors, one time, the app finally deployed to Google Cloud AppEngine an it can be accessed here:

https://joseignacioyanezxyz.ue.r.appspot.com/



The thing is that it does not have all the functionality of the app running on a local machine. It has some errors that we couldn't easily debug because of it being in the cloud, and that the time was running out. We hope to be able to fix this.

Video of the Web App Functioning and Deployed in the Web

https://youtu.be/XrfRwmEvP7A

Some References we read when trying to deploy to the Cloud

- https://cloud.google.com/appengine/docs/standard/testing-and-deploying-your-app?tab=java
- https://github.com/GoogleCloudPlatform/app-maven-plugin
- https://www.baeldung.com/executable-jar-with-maven
- https://stackoverflow.com/questions/55065465/using-google-app-engine-with-java-gives-url-was-not-found-on-this-server-but-w
- https://medium.com/oracledevs/run-java-ee-8-apps-on-oracle-cloud-with-payara-micro-d9b527adaac9
- https://codelabs.developers.google.com/codelabs/cloud-app-engine-springboot#7
- https://cloud.google.com/appengine/docs/legacy/standard/java/using-maven
- Deploying a Java Application to Google App Engine (GCP) | Complete Tutorial …
- Deploying Java Web App to App Engine Standard