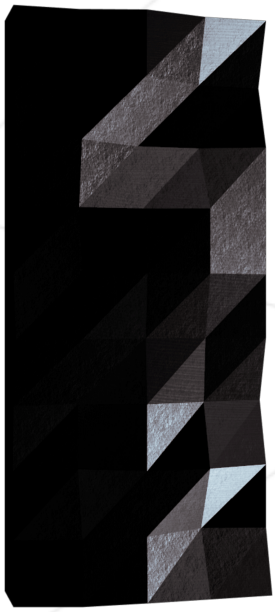


ft_transcendence

Soon, you will realize that you already know things that you thought you didn't

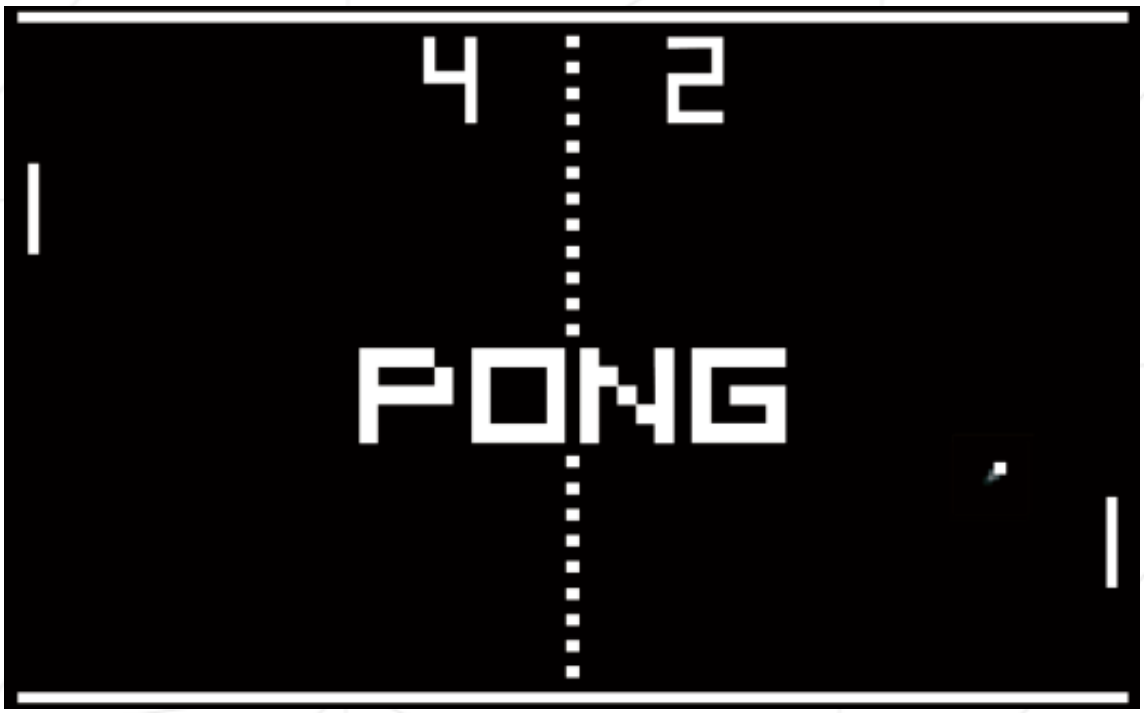
Summary:
No more C! No more C++!
This project is about doing something you've never done before.
Remind yourself the beginning of your journey in computer science.
Look at you now. Time to shine!

Version: 12.1

Contents

Chapter I

Preamble



Chapter II

Mandatory part

This project is about creating a website for the mighty **Pong** contest!

II.1 Overview

Thanks to your website, users will play Pong with others. You will provide a nice user interface, a chat, and real-time multiplayer online games!

Your work has to comply with the following rules:

- Your website backend must be written in `NestJS`.
- The frontend must be written with a `TypeScript` framework of your choice.
- You are free to use any library you want to in this context. However, you must use the **latest stable version** of every library or framework used in your project.
- You must use a `PostgreSQL` database. That's it, no other database.
- Your website must be a single-page application. The user should be able to use the `Back` and `Forward` buttons of the browser.
- Your website must be compatible with the **latest stable up-to-date version** of *Google Chrome* and one additional web browser of your choice.
- The user should encounter no unhandled errors and no warnings when browsing the website.
- Everything has to be launch by a single call to: `docker-compose up --build`

When your computers in clusters run under Linux, you will use Docker in rootless mode for security reasons. This comes with 2 sideways: 1) your Docker runtime files must be located in /goinfre or /sgoinfre. 2) you can't use so called "bind-mount volumes" between the host and the container if non-root UIDs are used in the container. Depending on the project, your situation and the context, several fallbacks exist: Docker in a VM, rebuild you container after your changes, craft your own docker image with root as unique UID.

II.2 Security concerns

In order to create a fully functional website, here are a few security concerns that you have to tackle:

- Any password stored in your database must be **hashed**.
- Your website must be protected against `SQL injections`.
- You must implement some kind of server-side validation for forms and any user input.

`Please make sure you use a strong password hashing algorithm`

`For obvious security reasons, any credentials, API keys, env variables etc... must be saved locally in a .env file and ignored by git. Publicly stored credentials will lead you directly to a failure of the project.`

II.3 User Account

- The user must login using the `OAuth` system of 42 intranet.
- The user should be able to choose a unique name that will be displayed on the website.
- The user should be able to upload an avatar. If the user doesn't upload an avatar, a default one must be set.
- The user should be able to enable **two-factor authentication**. For instance, *Google Authenticator* or sending a text message to their phone.
- The user should be able to add other users as friends and see their current status (online, offline, in a game, and so forth).
- Stats (such as: wins and losses, ladder level, achievements, and so forth) have to be displayed on the user profile.
- Each user should have a **Match History** including 1v1 games, ladder, and anything else useful. Anyone who is logged in should be able to consult it.

II.4 Chat

You also have to create a chat for your users:

- The user should be able to create **channels** (chat rooms) that can be either public, or private, or protected by a password.
- The user should be able to send **direct messages** to other users.
- The user should be able to block other users. This way, they will see no more messages from the account they blocked.
- The user who has created a new channel is automatically set as the **channel owner** until they leave it.
  - The channel owner can set a password required to access the channel, change it, and also remove it.
  - The channel owner is a channel **administrator**. They can set other users as administrators.
  - A user who is an administrator of a channel can kick, ban or mute (for a limited time) other users, but not the channel owners.
- The user should be able to invite other users to play a Pong game through the chat interface.
- The user should be able to access other players profiles through the chat interface.

II.5 Game

The main purpose of this website is to play Pong versus other players.

- Therefore, users should be able to play a live Pong game versus another player directly on the website.
- There must be a **matchmaking system**: the user can join a queue until they get automatically matched with someone else.
- It can be a canvas game, or it can be a game rendered in 3D, it can also be ugly, but in any case, it must be faithful to the **original Pong** (1972).
- You must offer some **customization options** (for example, power-ups or different maps). However, the user should be able to select a default version of the game without any extra features if they want to.
- The game must be **responsive**!

Think about network issues, like unexpected disconnection or lag.
You have to offer the best user experience possible.

Chapter III

Submission and peer-evaluation

Turn in your assignment in your `Git` repository as usual. Only the work inside your repository will be evaluated during the defense. Don't hesitate to double check the names of your files to ensure they are correct.