



Jogos Matemáticos

M2 presentation

Objectives/Goals



Development of chosen games engine



Web App/Mobile App



Play games remotely



Rank players based on their individual skill level at each game



Play/ Train without the need to find another person to play against



Easily set up and manage tournaments involving large groups of players

Functional Requirements

1. Play games with a friend in the same device
2. Play games with a friend in distinct devices
3. Play games against AI Bot
4. Allow change AI Bot difficulty
5. Play games against random people (with or without identical rank)
6. Allow communication via chat with pre-defined sentences
7. Create/Manage personal account
8. Manage friendships with other players. Invite them to play.



Functional Requirements

9. Create/Participate in public or private tournaments
10. Invite/Kick players from tournaments
11. Administrate tournaments (Change configurations).
12. Access previous games registers and statistics
13. Change/Customize avatar
14. Upgrade account privileges
15. Report/Ban users
16. Watch full statistics in admins side regarding all games/users



Non-Functional Requirements



Performance

- Each page must load within 3 seconds.



Security & Data Integrity

- User's information should be confidential
- Passwords shall never be viewable at the point of entry or at any other time.



Usability

- Application must be open access for different devices.
- The software should be portable. Moving from one OS to another should not create any problem.



Regulatory

- Application must follow GDPR guidelines



Availability

- Application must be available all the time, except when in maintenance service



Capacity

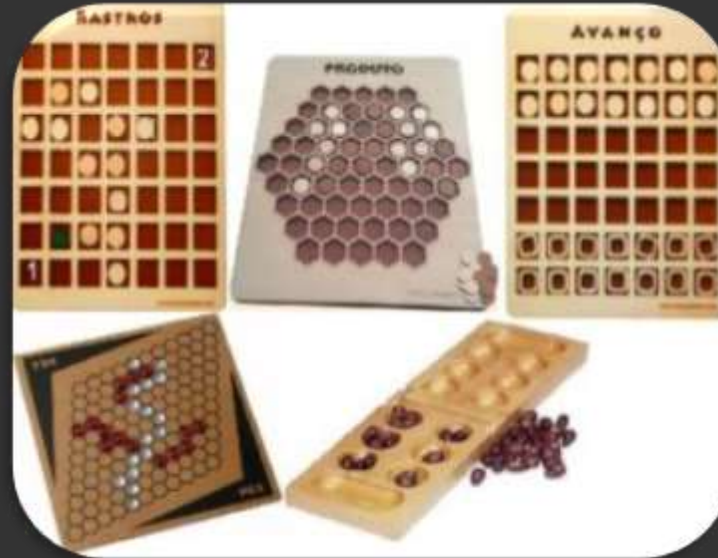
- The app should be able to handle a high amount of simultaneous users
- Should also be able to store the data related to those users.

State of Art

Functionalities



Games



Technologies



Actors



**User without an
account**



User with an account



**User with
tournament
privileges**



Administrator

Use Cases

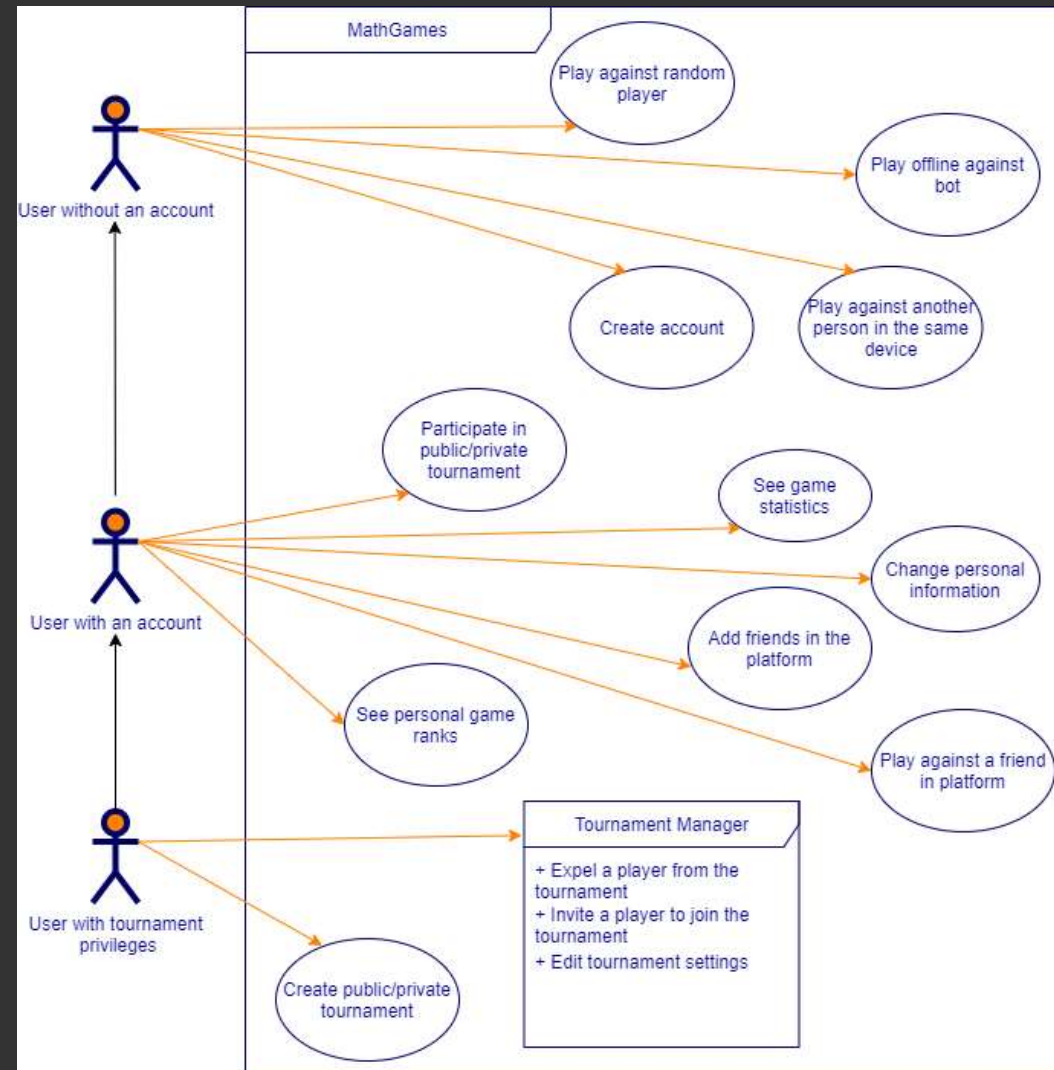


Fig. 1: Use Cases Diagram Part I

Use Cases

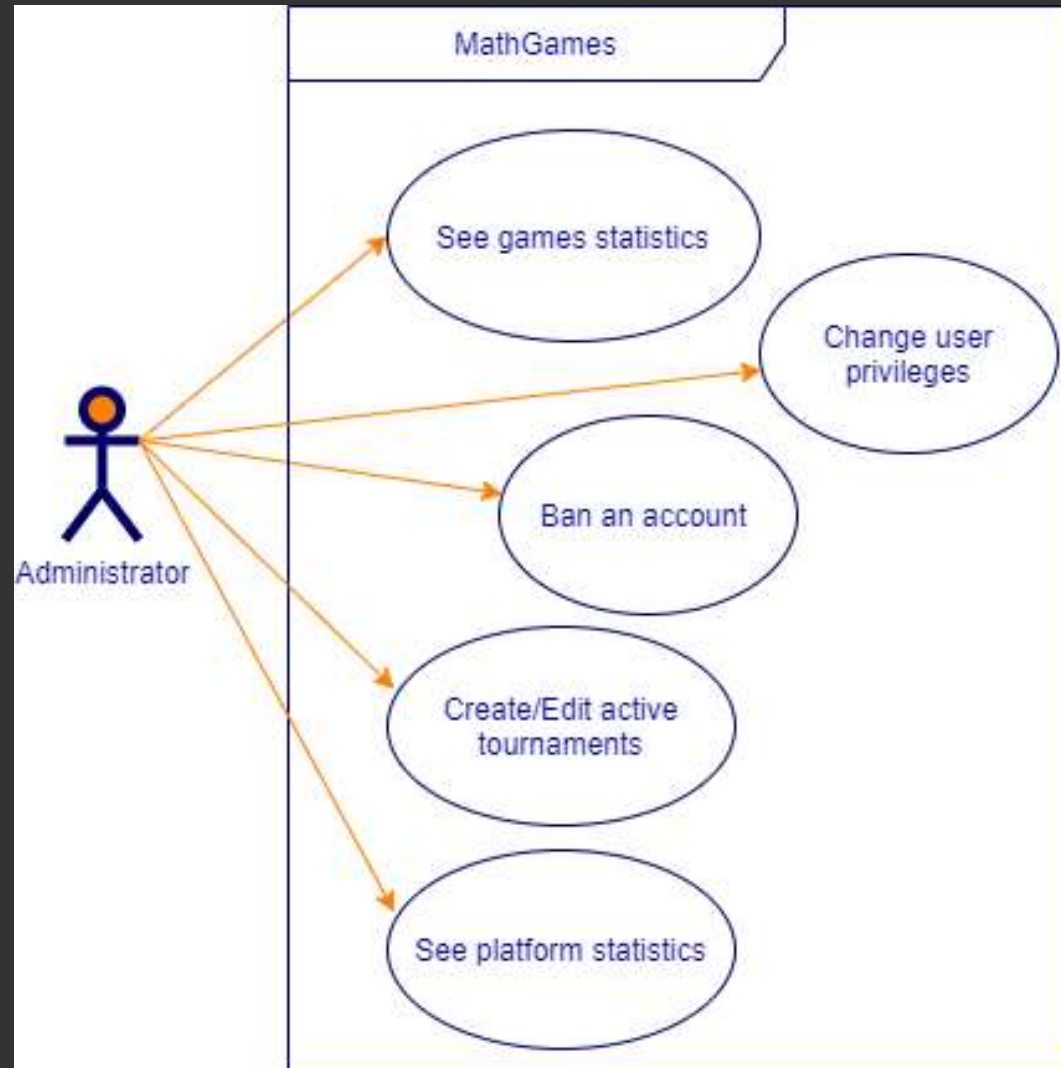


Fig. 2: Use Cases Diagram Part II

Website Mockup

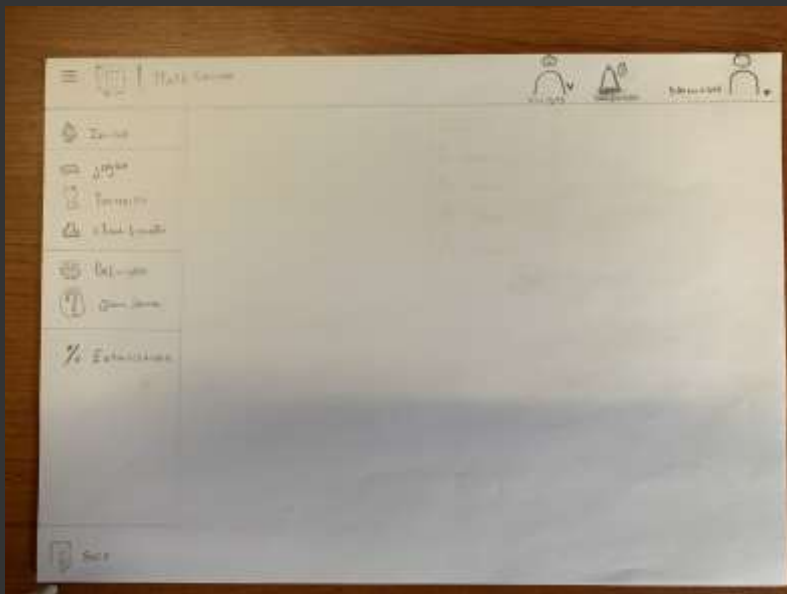


Fig. 3: Navbar and SideMenu

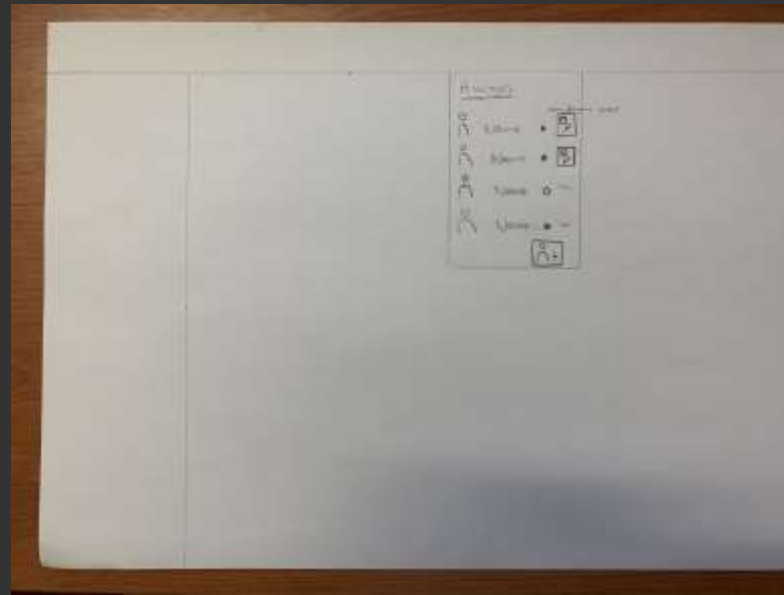


Fig. 4: FriendList Dropdown

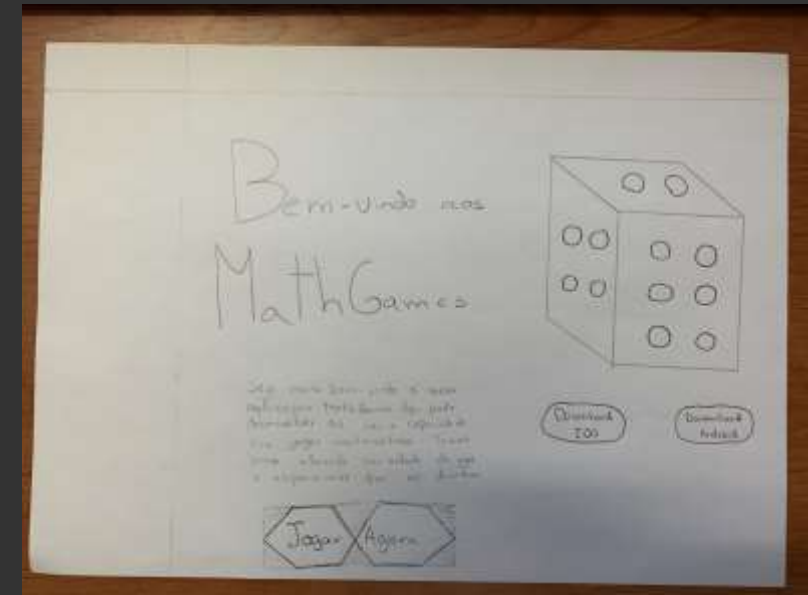


Fig. 5: Home Page

Website Mockup

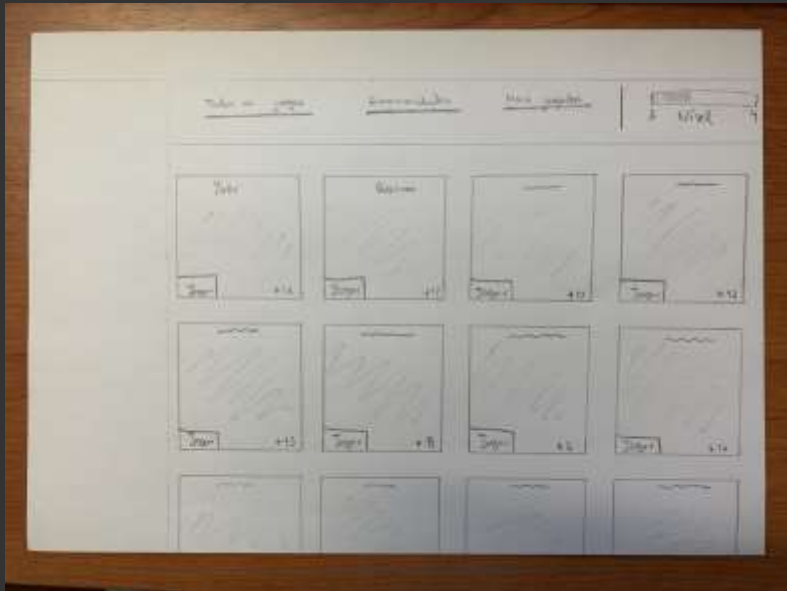


Fig. 6: Games Dashboard

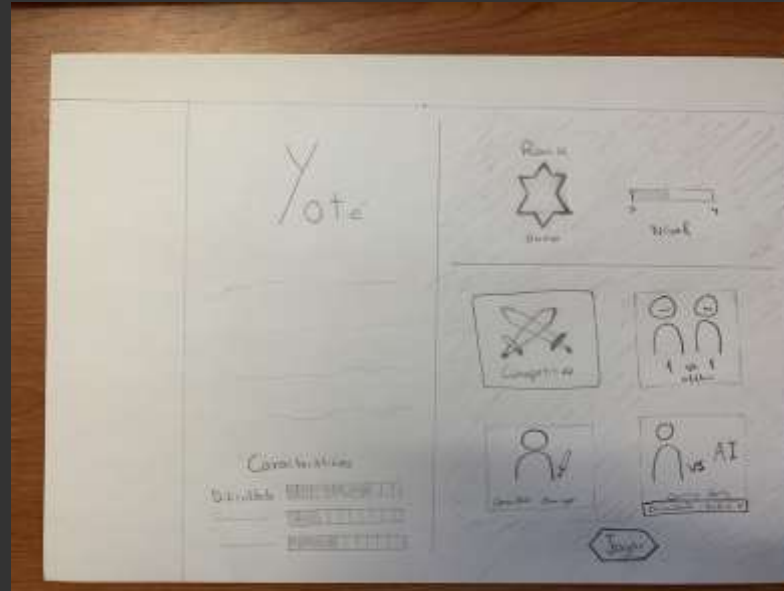


Fig. 7: Individual Game Page

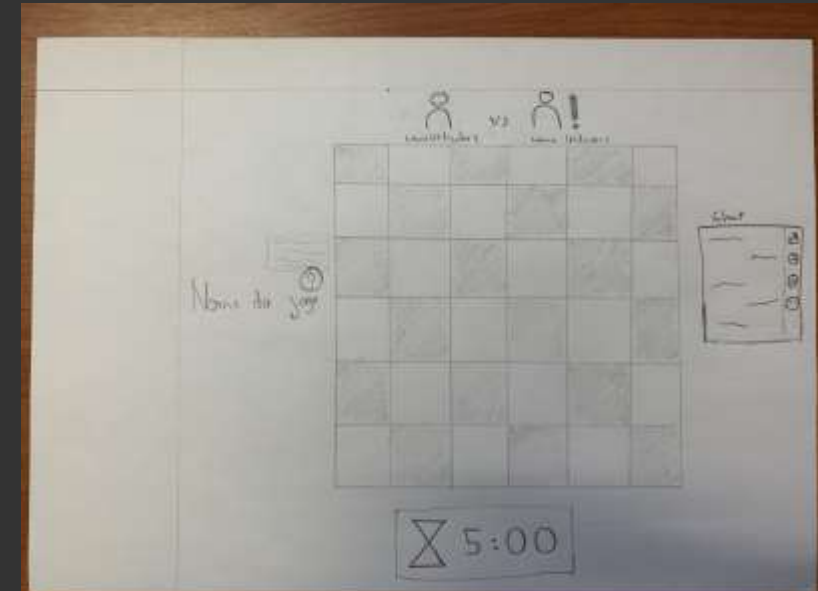


Fig. 8: Game Window

Website Mockup

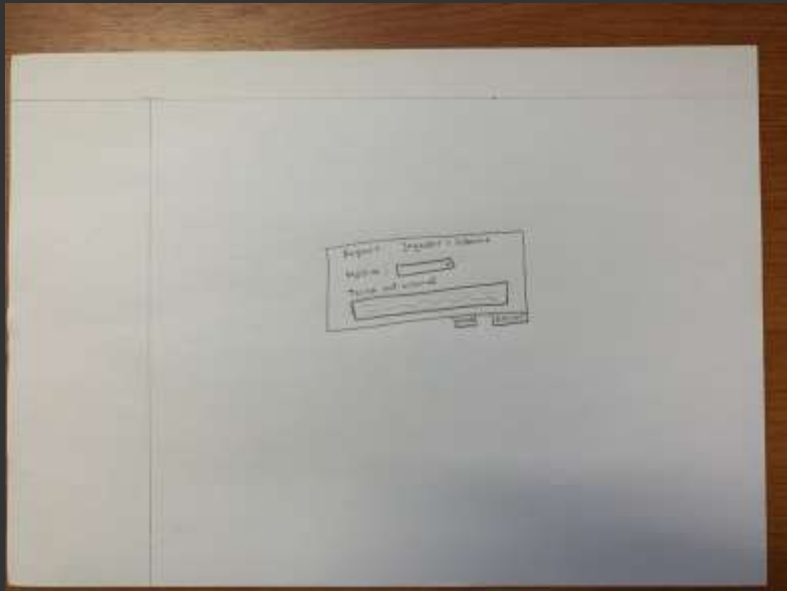


Fig. 9: Report Player Window



Fig. 10: Notifications List

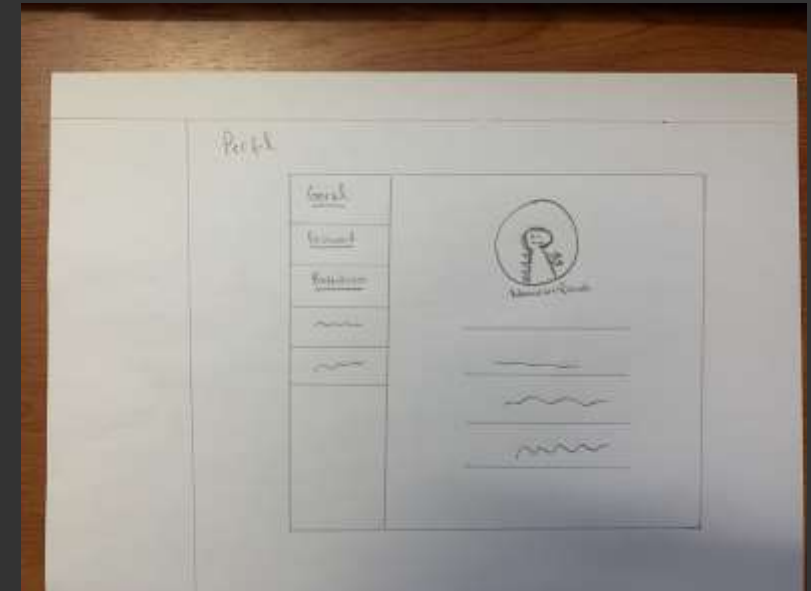


Fig. 11: Account Perfil

Website Mockup

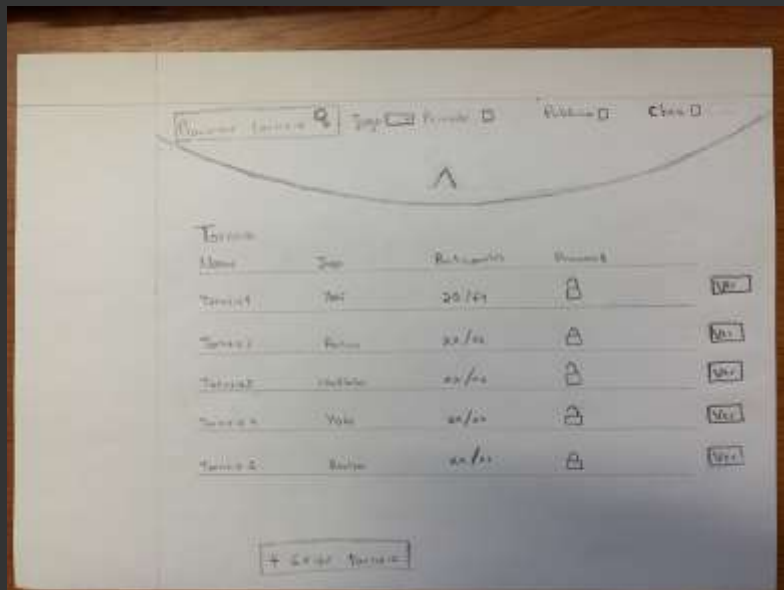


Fig. 12: Tournaments List Page

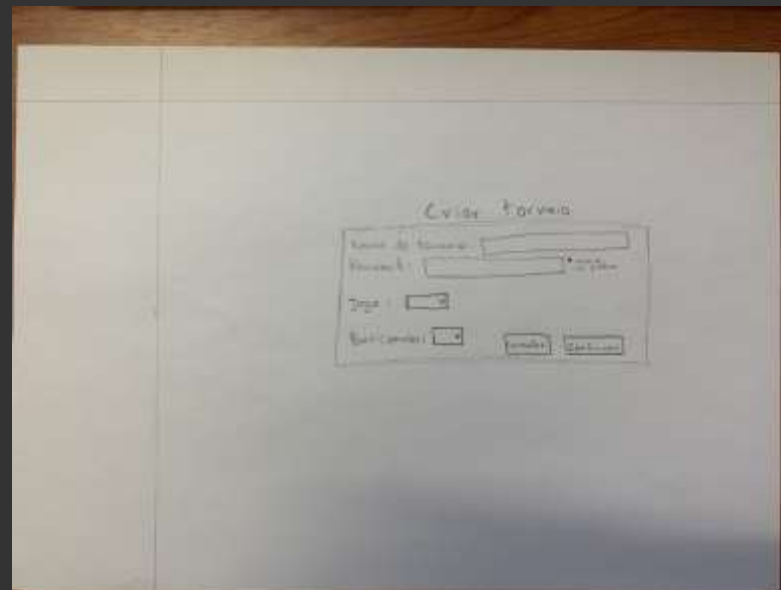


Fig. 13: Create Tournament Page

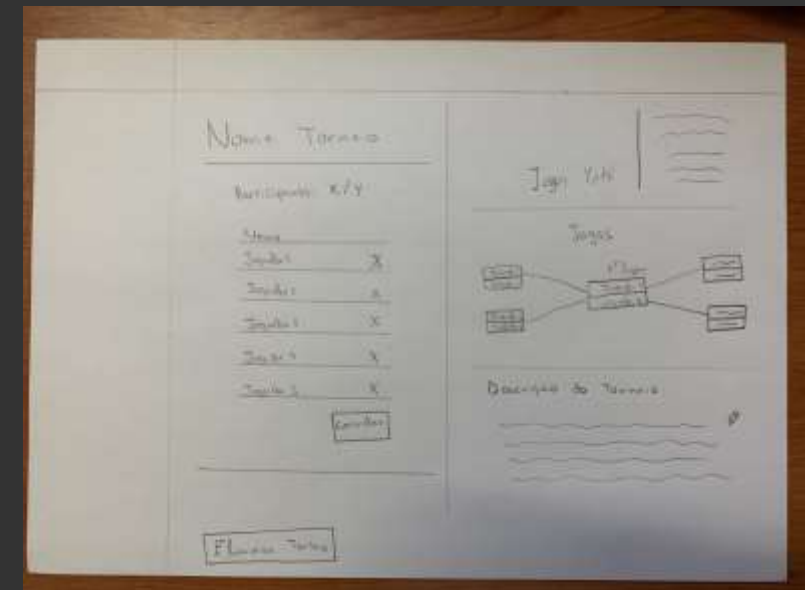


Fig. 14: Tournament Window

Website Mockup

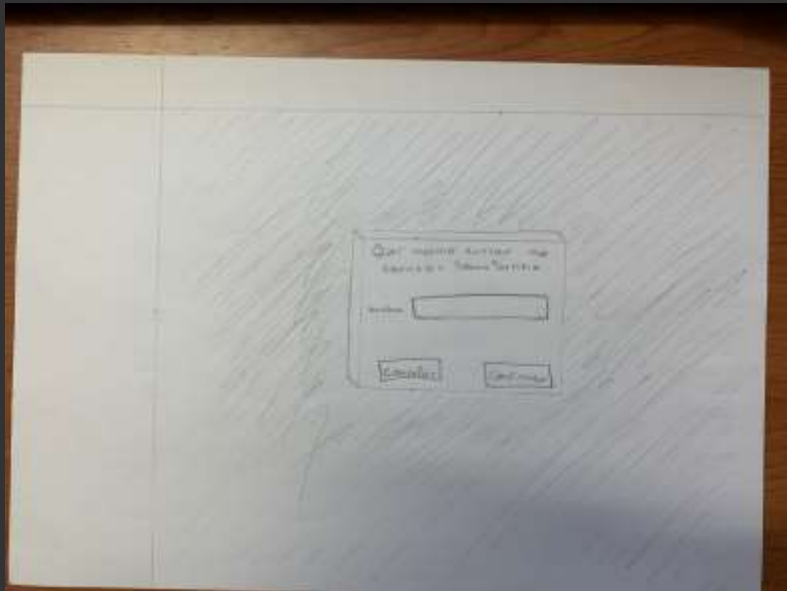


Fig. 15: Tournament Access Confirmation Window



Fig. 16: Game History Page

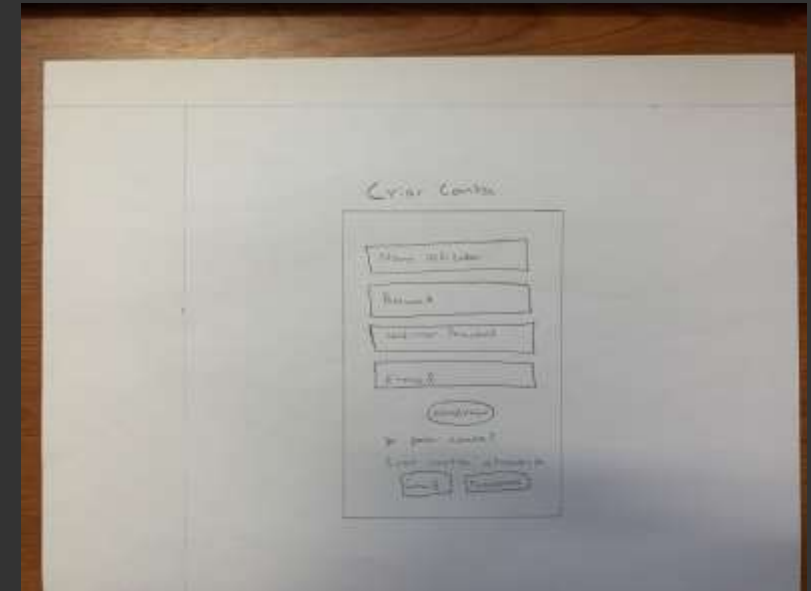


Fig. 17: Register Window

Website Mockup

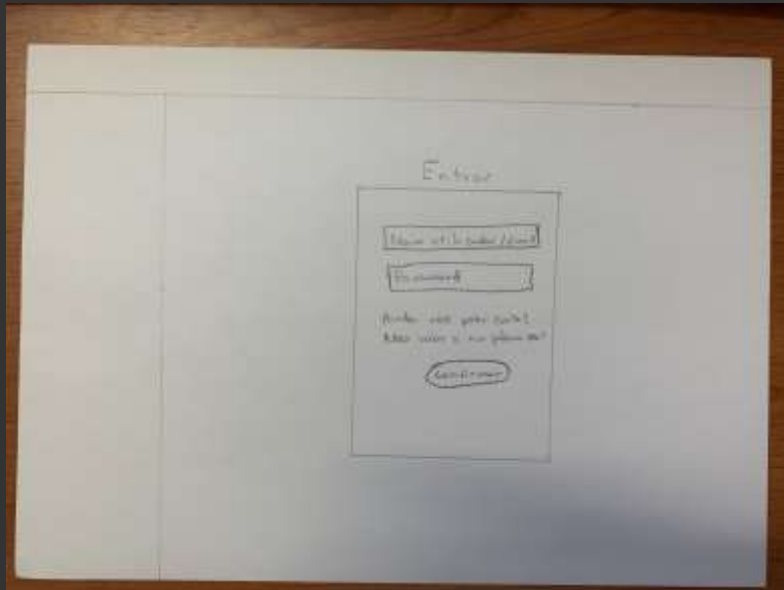


Fig. 18: Login Page

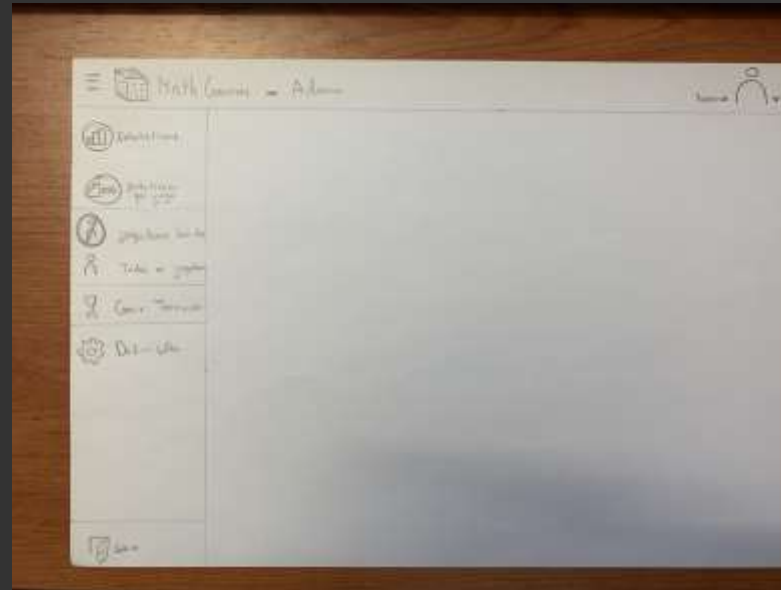


Fig. 19: Administrator Account SideMenu

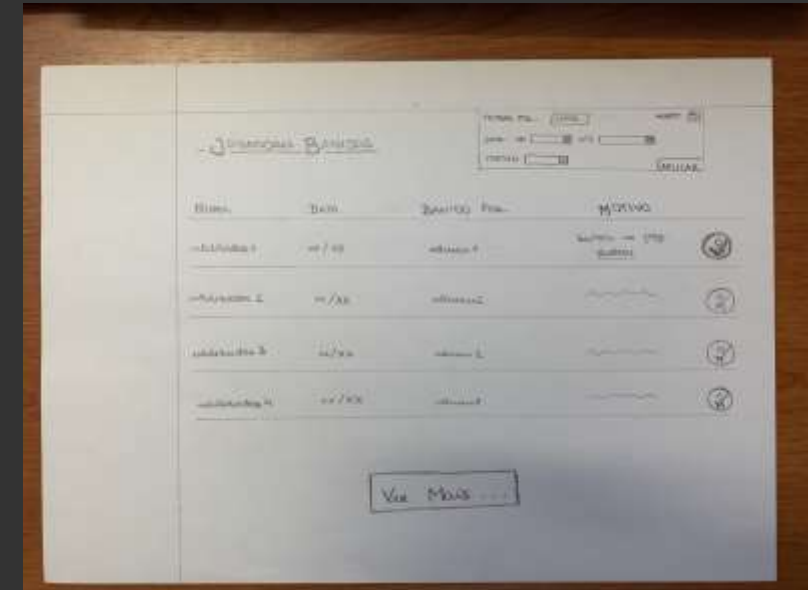


Fig. 20: Banned Players List

Website Mockup

Nome	Pontos	Jogos Jogados	Data
Atletico	19	Atletico	na/na
~	5	Yate	na/na
~	20	~	na/na
~	25	~	na/na

Fig. 21: All Players Filtered List

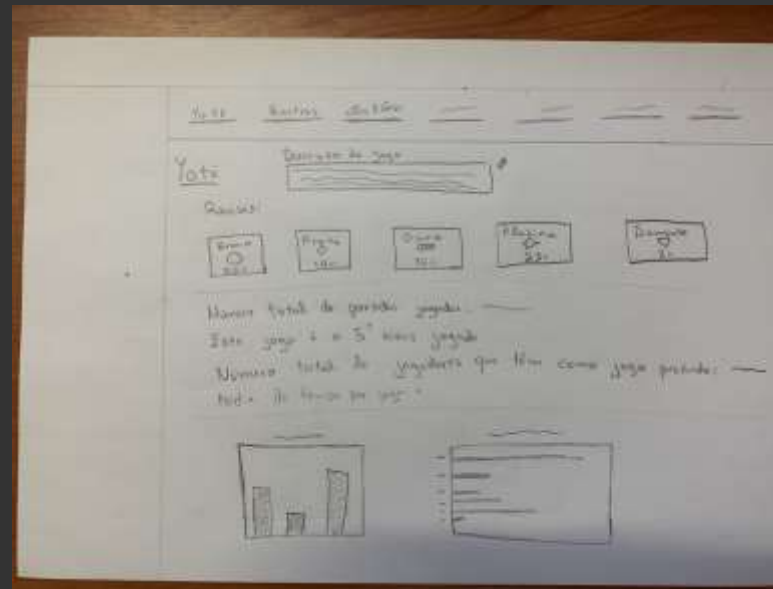


Fig. 22: Individual Game Statistics

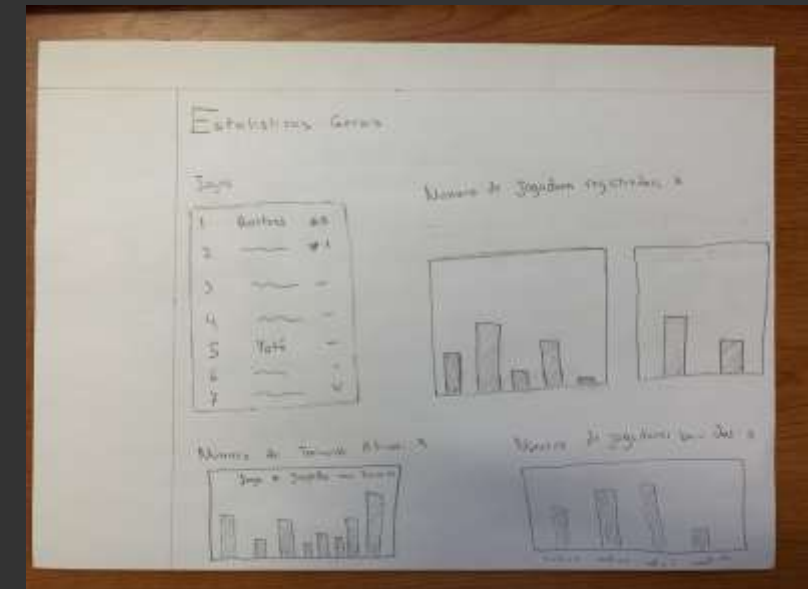


Fig. 23: General App Statistics

Mobile Mockup

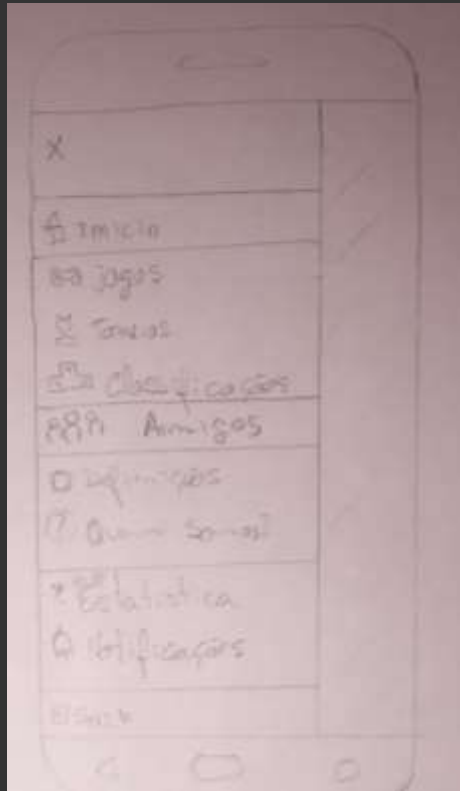


Fig. 24: SideMenu

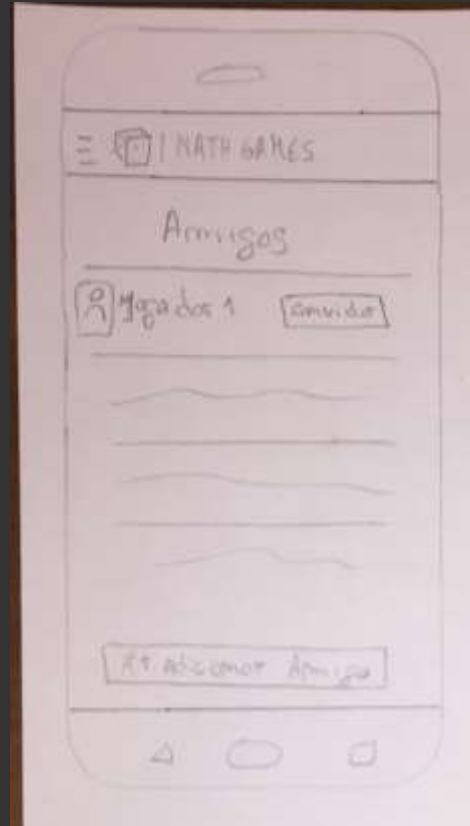


Fig. 25: FriendList Page

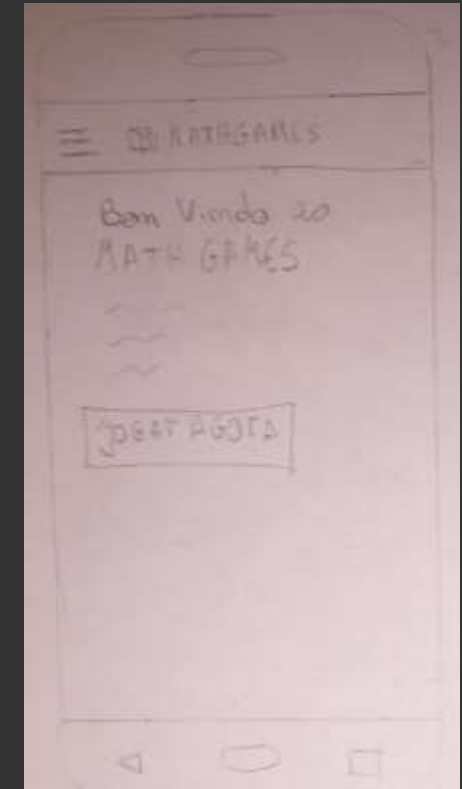


Fig. 26: Home Page

Mobile Mockup



Fig. 27: Games Dashboard

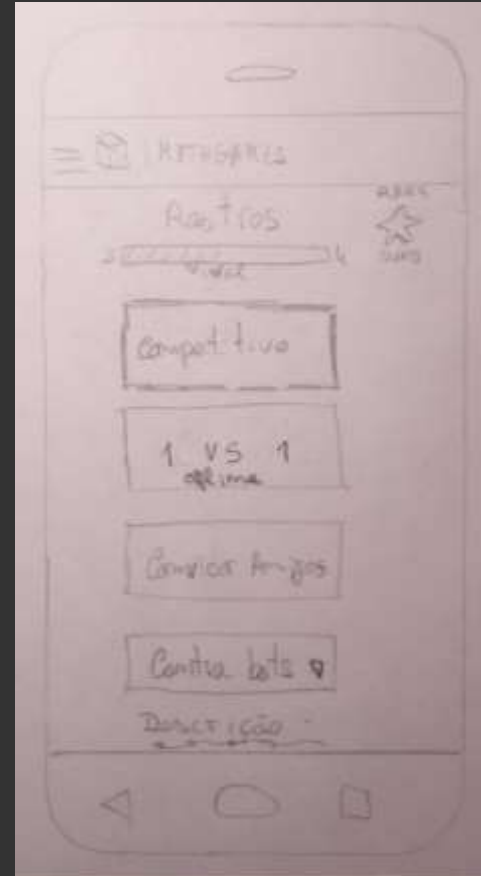


Fig. 28: Individual Game Page

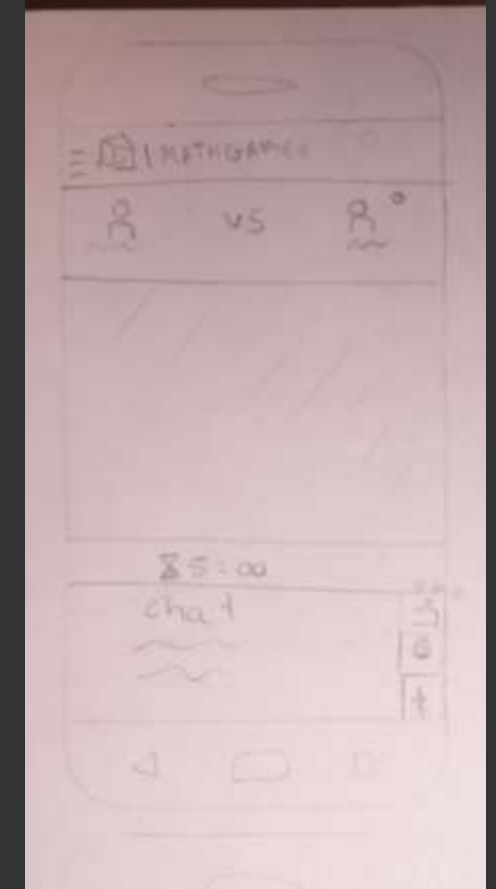


Fig. 29: Game Window

Mobile Mockup

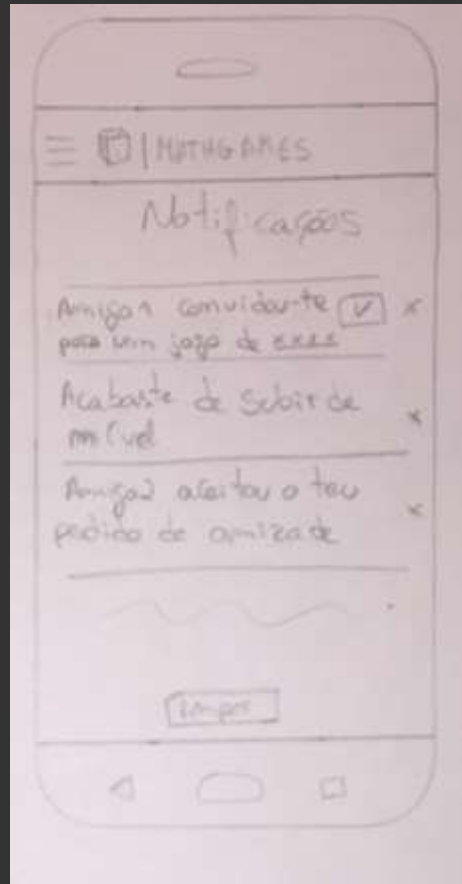


Fig. 30: Notifications List



Fig. 31: Account Perfil

Mobile Mockup

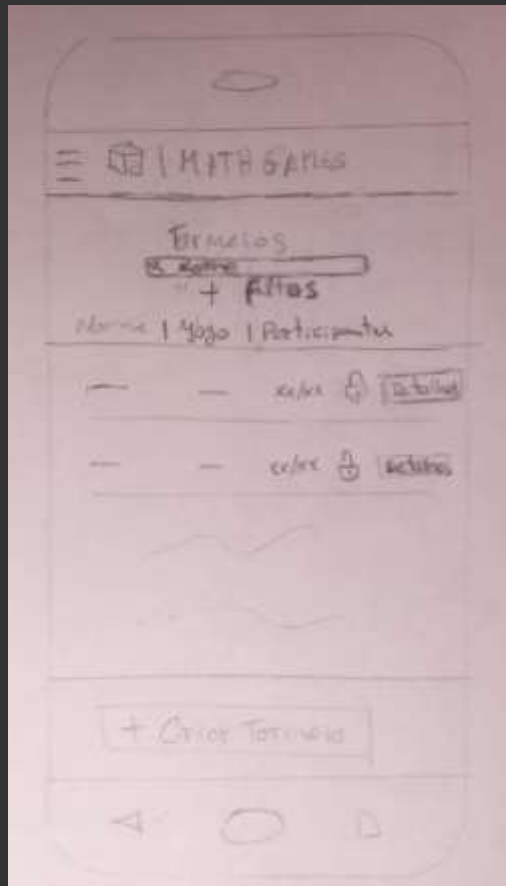


Fig. 32: Tournaments List Page

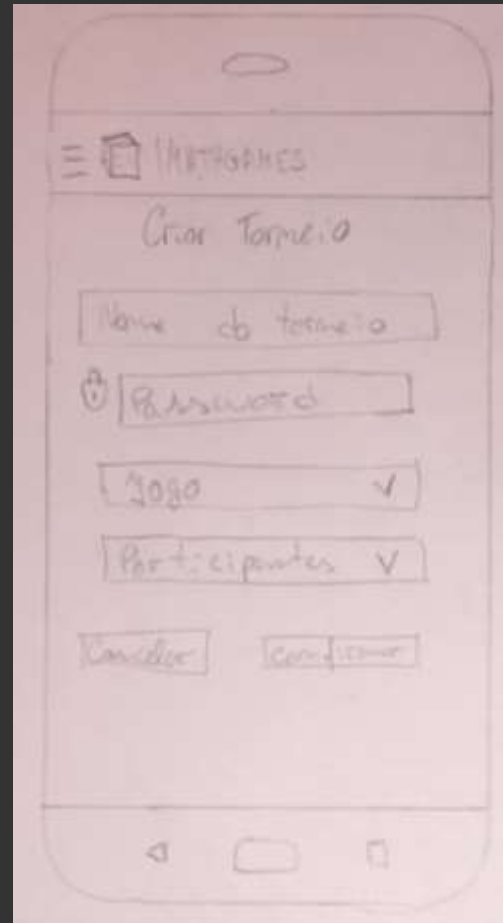


Fig. 33: Create Tournament Page

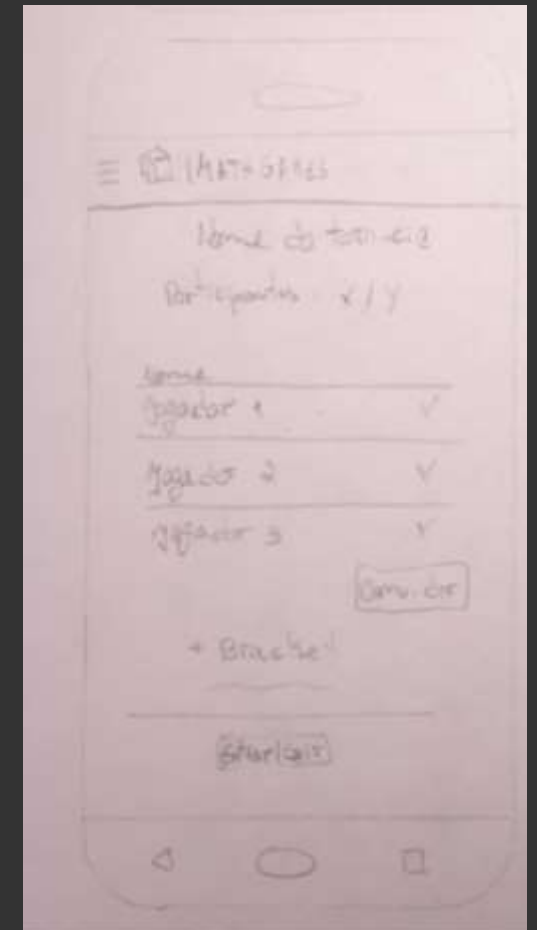


Fig. 34: Tournament Window

Mobile Mockup

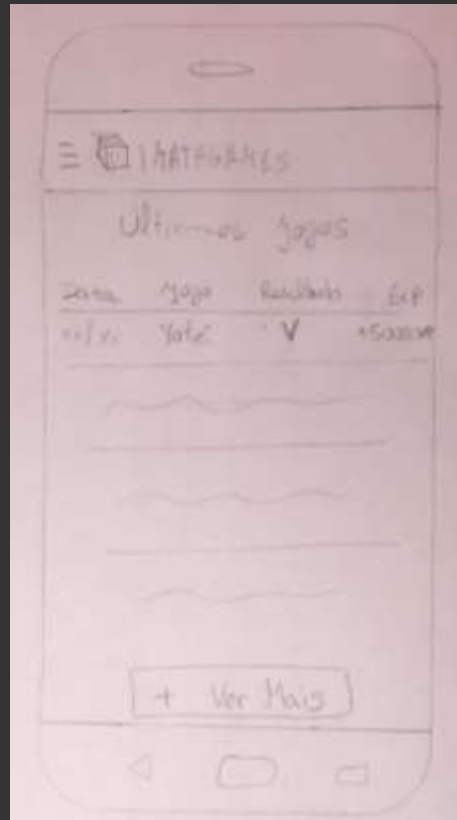


Fig. 35: Game History Page

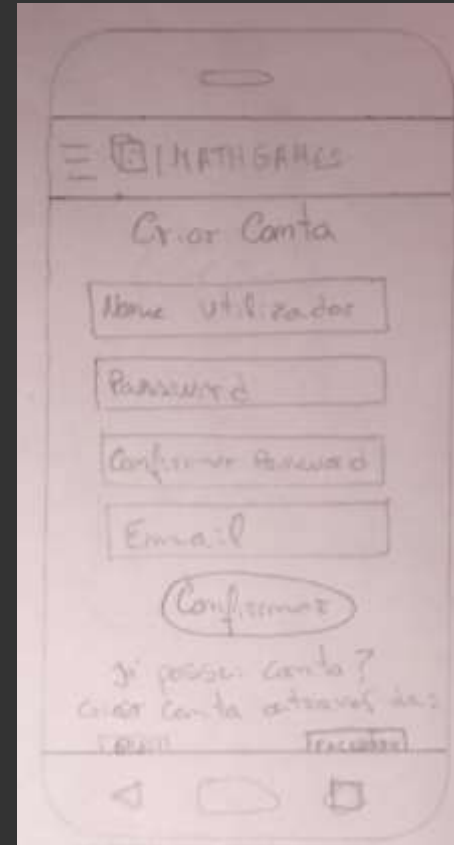


Fig. 36: Register Window

Mobile Mockup

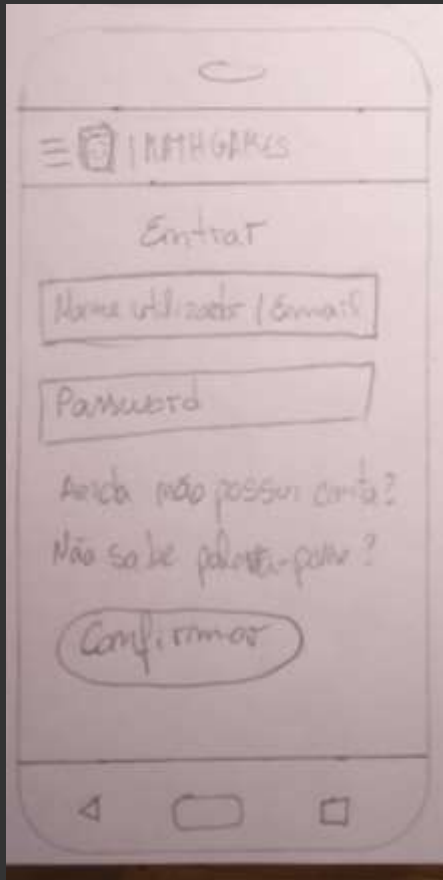


Fig. 37: Login Page

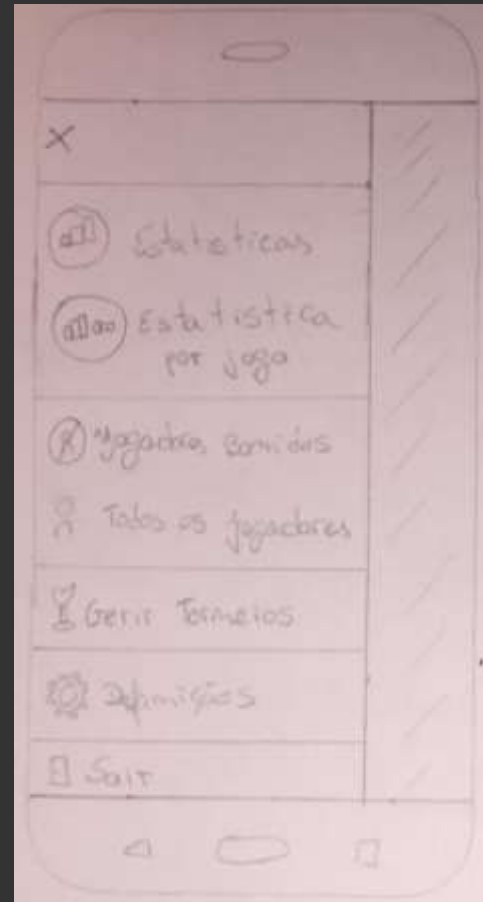


Fig. 38: Administrator Account SideMenu

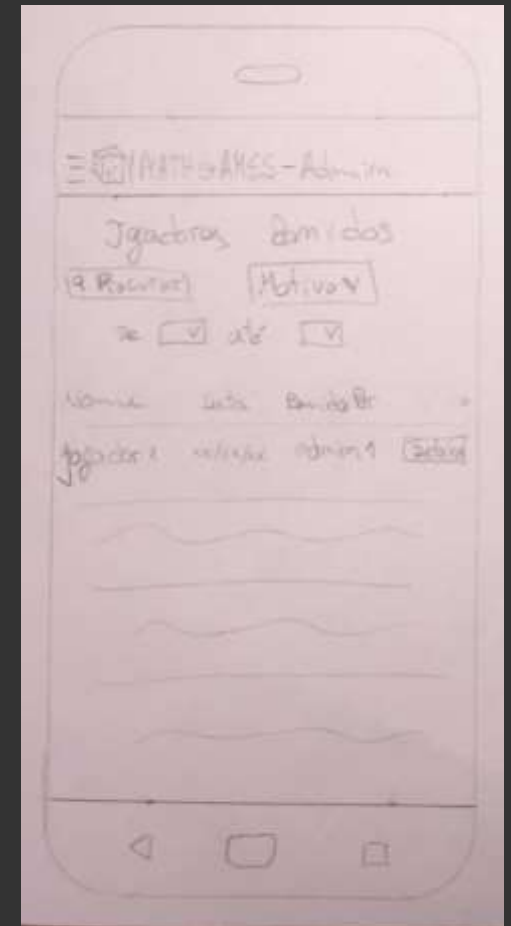


Fig. 39: Banned Players List

Mobile Mockup

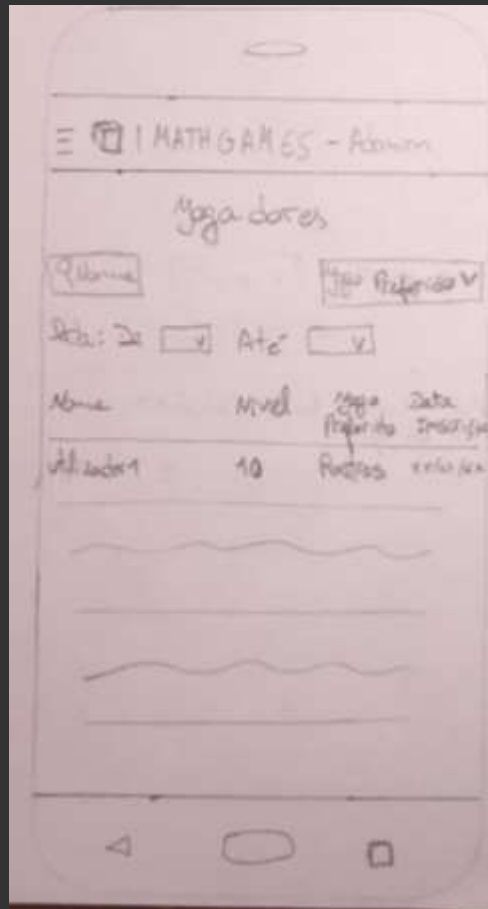


Fig. 40: All Players Filtered List

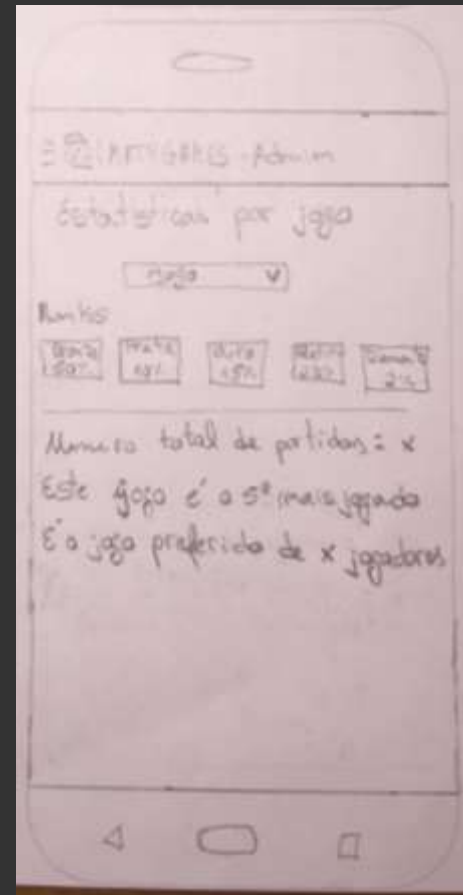


Fig. 41: Individual Game Statistics



Fig. 42: General App Statistics

Architecture

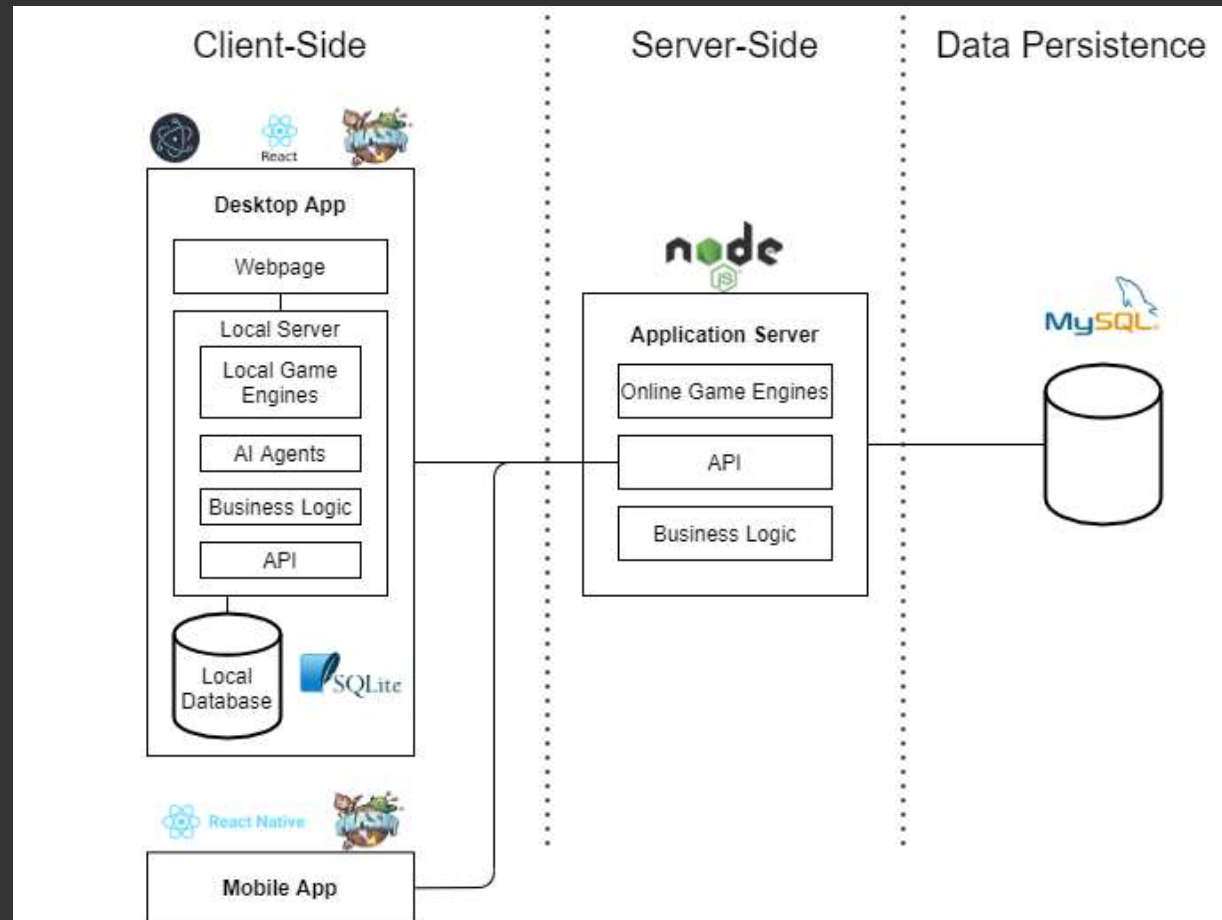


Fig. 43: Architecture Diagram

Deployment Diagram

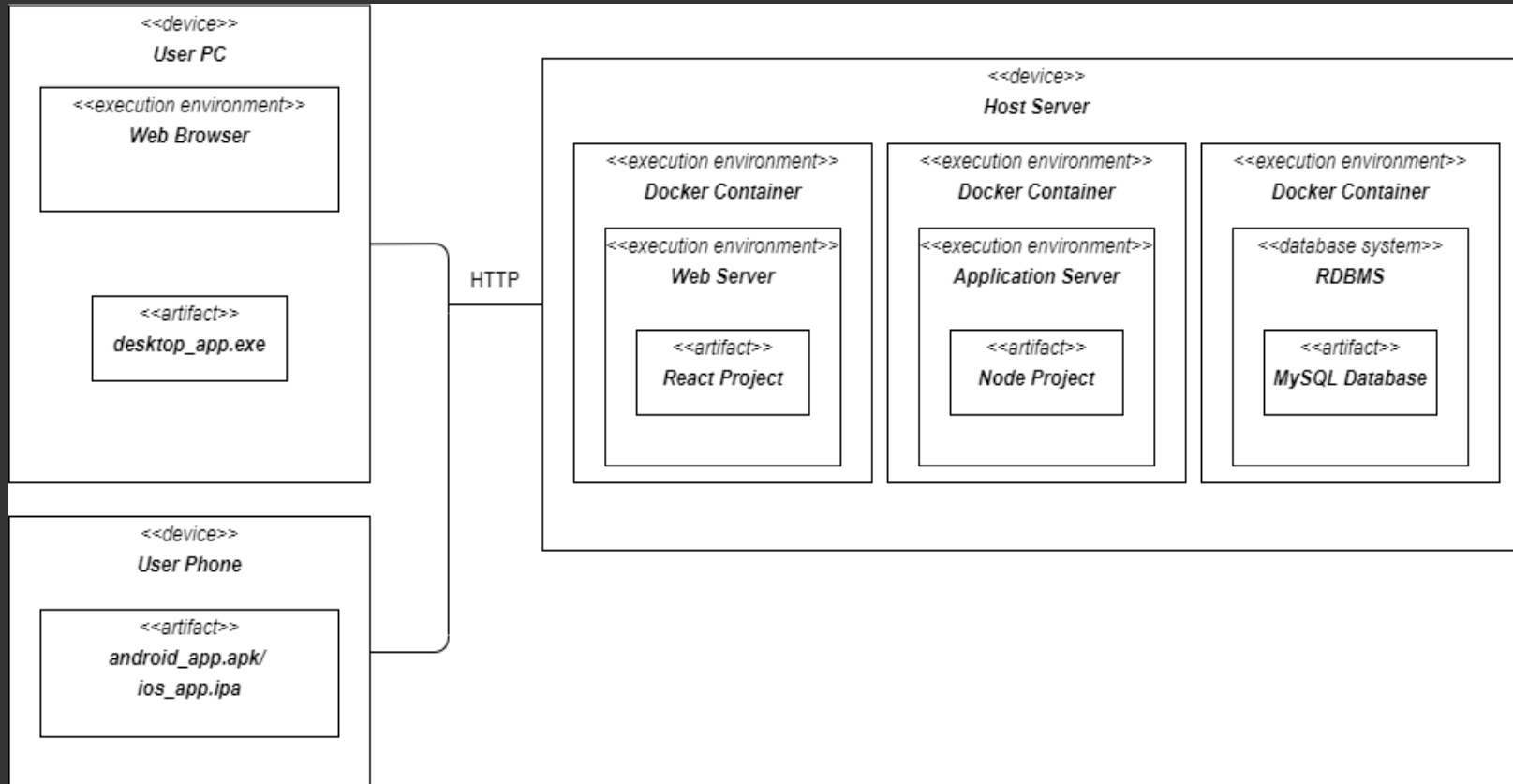


Fig. 44: Deployment Diagram

Risks

- ❖ Number of new technologies to be learned in a short time.
- ❖ Scalability risks regarding large tournaments with huge number of players simultaneously.
- ❖ Bot's/Cheats control.
- ❖ Security of sensitive children's information
- ❖ Report/Ban system. Fake reports might lead into wrong bans.
- ❖ Reduced number of users can lead to increased waiting time and level difference between players