

Florida International University

Fall 2023 Capstone 2 Project

SkillCourt

Students: Johnny Casares

Mentor: Gummi Oxndal, Product Owner

Instructor/Faculty: Masoud Sadjadi,, Florida International University

PROBLEM

The SkillCourt mobile application faced challenges due to incomplete development and UI implementation errors, characterized by redundant code and unexpected behavior. Notably, the UI element code required abstraction for enhanced codebase usability. Addressing navigation methods was crucial to enhance both user experience and performance. Noteworthy features that needed implementation included Play Set Up, enabling players to customize game settings, and Timer Page, where players could test their skills against time.

CURRENT SYSTEM

The app is made in Dart using Flutter, leveraging its capability to facilitate the development of a unified codebase targeting multiple platforms, ensuring a consistent UI across them all. This approach not only streamlines development but also offers significant time savings for developers. Substantial progress has been made, bringing the app closer to its final product.

VERIFICATION

To verify the process, we made sure the new features closely resembled the vision established in the Figma designed provided. I successfully implemented the UI for the Play Set Up and each of its parameters, including the new and saved game sections; and the Play Timer page. Additionally, I created a provisional database helper that allows the user to save the games that are created.

SUMMARY

In this project, I played a key role in the initial research and decision-making process for the chosen communication protocol, which resulted in the adoption of WebSockets. I contributed to code optimization by reducing boilerplate and implementing design patterns such as singletons and fragments, thereby enhancing code readability and maintainability. A significant focus was placed on navigation improvements, where I utilized my expertise in Java Android development to engineer an efficient bottom navigation bar, minimizing unnecessary UI reloads for smoother transitions between pages. Additionally, I created a route generator class to streamline route management and parameter handling, reducing redundancy in the main function. In the context of Play Set Up, I developed a comprehensive feature allowing users to configure game settings and save setups for future use. Although the Play Timer implementation is in progress, foundational work has been laid out, with basic UI elements in place and plans for further method implementation.

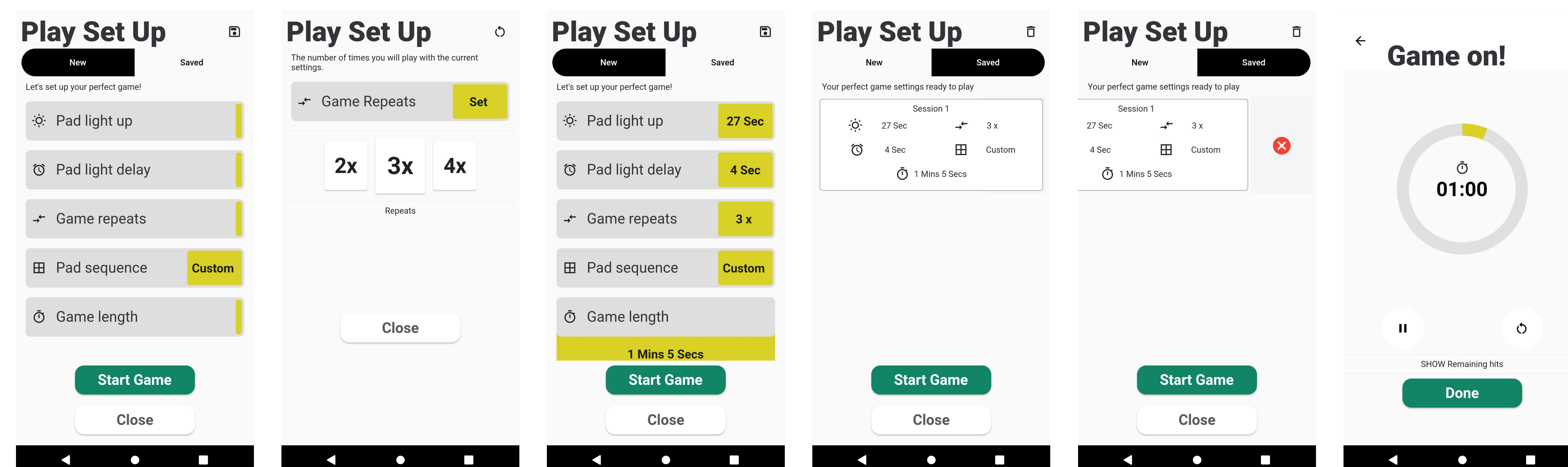
IMPLEMENTATION

The process was relatively smooth since we already counted with a Figma design which we could follow. The adversities I faced in the implementation face involved researching and understanding the Flutter widgets needed to bring to life the vision of the app.

REFERENCES

Flutter:

- <https://docs.flutter.dev/cookbook>
- Bailey, T., & Biessek, A. (2023). Flutter for beginners (3rd ed.). Packt Publishing.
- <https://en.wikipedia.org/wiki/WebSocket>
- https://pub.dev/packages/web_socket_channel
- <https://networkinterview.com/what-is-mdns-multicast-dns/>.
- <https://medium.com/mqtt-buddy/mqtt-vs-http-which-one-is-the-best-for-iot-c868169b3105>
- <https://nitin-sharma.medium.com/getting-started-with-mqtt-part-1-a3c365e3a488>



REQUIREMENTS

Flutter
Dart
GitHub
Android Studio
Android VM
Android Tool Chain



ACKNOWLEDGEMENT

The material presented in this poster is based upon the work supported by Gummi Oxndal. We/I thank Gummi Traustason and students from previous semesters for their assistance and mentorship that we received throughout the senior design project.

FLORIDA INTERNATIONAL UNIVERSITY