

Patient Incentives Mobile App

An App to Increase Patient Engagement

Luke Irvine

ABSTRACT

This project consists of mobile and web applications working together to create a system that keeps track of points earned by medical patients completing various tasks. It then informs them what rewards are available with the points they've earned and how many points they still need to earn to win other rewards.

This is a full-stack project utilizing multiple frameworks and libraries to create a software product from scratch. It can be loaded natively onto a mobile device or accessed via a browser, all from the same source code.

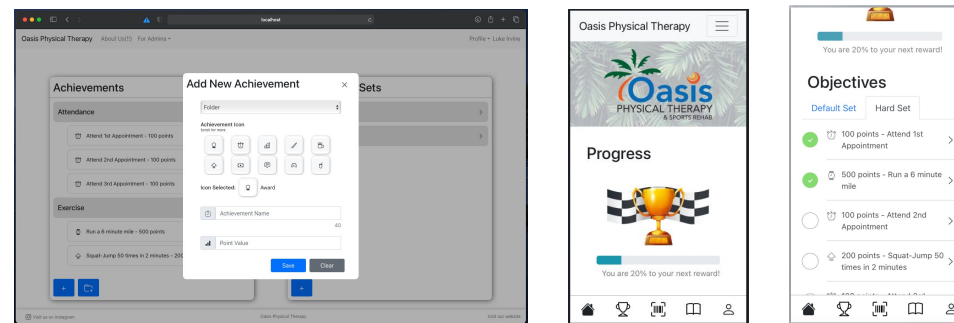
INTRODUCTION

Oasis Physical Therapy is a company with five locations in Tri-Cities and Walla Walla looking for creative solutions to increase patient retention and the average percent completion of their patients' plans of care. They believe they can increase this average completion rate through the implementation of a patient incentives mobile app that tracks patients' activities and accomplishments and rewards them with meaningful prizes, since a large portion of their patients are young people recovering from sports injuries.

To solve this problem, this project has a mobile app that patients can download on their mobile devices to track their progress and a web portal admins can use to edit available achievements and rewards. It also has a method for therapists to validate the completion of certain achievements.

IMPLEMENTATION

Both the web portal and native mobile application are written using React JS, and the mobile application is then compiled using Apache Cordova, translating the JavaScript into Swift inside an Xcode workspace. Some of the front-end styling came from Bootstrap and React Bootstrap and the backend database, authentication, and website hosting were all powered by Google's Firebase. Lastly, many other npm libraries were utilized including support for QR code generation and scanning, phone number and email validation, and string hashing.



The app begins by asking the user to log in or create an account where they enter their basic user information. The organization administrator then creates achievements, rewards, and achievement sets and assigns them to patients. When a patient has completed an achievement requiring a therapist's validation, the patient clicks on their completed achievement and a unique QR code is displayed on the patient's phone screen. The therapist then scans the code with a scanner in the app on their phone, and the achievement is marked as complete. Eventually, the patient is notified once they have achieved enough points for an award and instructed on how to claim their reward.

CONCLUSION

Most of the base functionality of this project was implemented, but the overall project was not able to be fully completed and integrated with the customer in the given time-frame since there are still usability and aesthetic concerns needing to be addressed. Designing an intuitive and satisfying workflow was harder than expected, but after graduation I plan to continue to enhance the project's usability and fully implement it with the customer.

SUMMARY

This project was quite a joy to work on because of its full-stack development. It was satisfying and empowering to learn different technologies and tools allowing me to build an application from the ground up while not having to learn the complicated specifics of technologies like QR code generation. Because of this project, I have been able to use these skills to easily write other web applications to enhance the operations of other organizations, such as a small group app for the WWU Chaplain's Office (wwugroups.com).

REFERENCES

Learn more about the tools used in this project:

- <https://reactjs.org>
- <https://firebase.google.com>
- <https://react-bootstrap.github.io>
- <https://cordova.apache.org>