No Kill Louisville Phone Android Phone App

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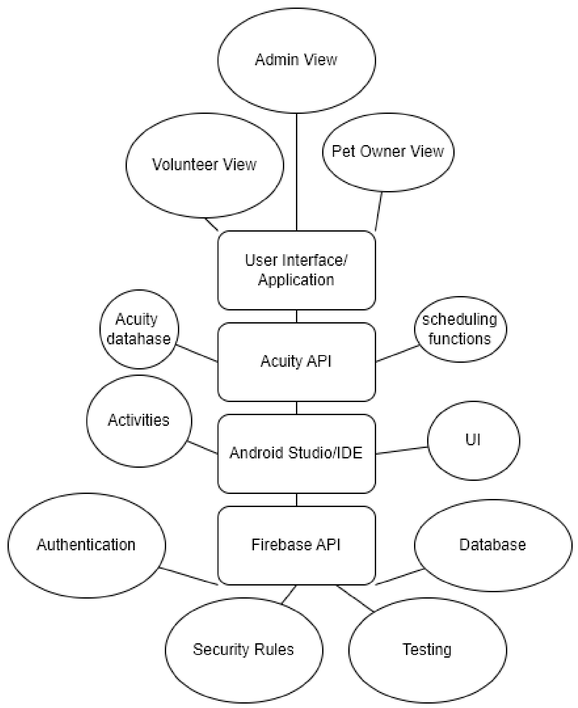
Abstract

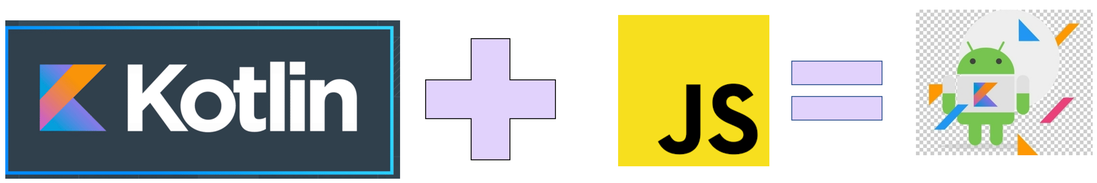
The No Kill Louisville Pet Food Bank Mobile App is designed to help the No Kill Louisville Pet Food bank on operations day. Operations day is usually the first Saturday of every month. A few willing volunteers welcome pet owners and load their cars with pet food depending on their needs. This is usually a very busy day with few hands to help.

System Structure



Languages

Kotlin allows for common error manipulation and is an easy-to-use language when it comes to building applications. JavaScript is a great support language in combination with kotlin for app efficiency. It allows for faster apps, better startups, and less memory footprint. Most testing for this app is done with JavaScript.

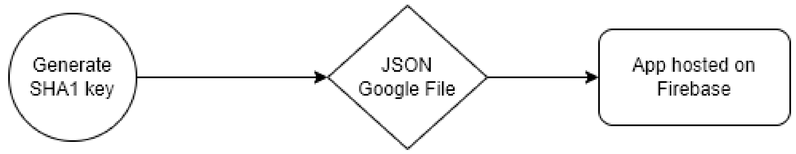


Methodology

Language & IDE- The development of this application is done in Android Studio IDE. The main programming language used is Kotlin.

API- The application uses Acuity. Acuity is a scheduling platform used by the organization to schedule pick up. It uses Acuity API to access the list of appointments for any given day.

Host- Firebase is used as the host and API for this application. It is used to provide authentication for the clients and the volunteers. It also provides a way for clients to send additional information to No Kill Louisville.



Features

Google Authentication

Login Activity: Confirm appointment time

Acuity Activity:

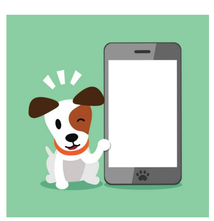
Make appointments on Acuity
Volunteers get a list of appointment

Information (name of pet owner, and other necessary appoint information)

Individual can confirm that appointment has been submitted to database

Upload Activity:

Pet owners can upload required files and volunteers can download or print files



Firebase Security

Most testing is Security testing since that is the biggest concern for this app. People's confidential information goes into the database and app security testing is a top priority.

Testing is conducted in JavaScript using security functions provided by Firebase. Firebase also provides a simple online UI to mock the database. This is cushion for the actual database as it would be risky to test the actual database.

Firebase security rules are written following the principles of least coverage. Admins get admin privileges, volunteers have volunteer privileges, and pet owners get pet owner privileges.

Discussion

Using Kotlin and Firebase were excellent choices for languages due to the conciseness and speed provided. The project went through several prototypes as the team learned the basics of an application's structure, and database management. Finding an API was no little discussion as funding is limited and API can be very useful for not reinventing the wheel. The first idea was to use the pay as you go low-cost Blaze Firebase plan. Firebase can support both iOS and Android operating system apps which would have made this an easy project for further iOS development. Using Acuity is a fast but expensive solution.

Performance and Future Work

- NKL App is nearing publishing phase. However, publishing phase does not mean that updates are not viable. More security testing should be performed due to the sensitive of the data entered.

Things the app needs to be published:

- Very many and strongly tested security rules
- A clearer admin view
- A clearer volunteer view
- A clearer pet owner view

References

https://firebase.google.com/
https://acuityscheduling.com/