

Udacity Android Developer NanoDegree

Grow With Google Scholarship Program
Capstone Project Proposal - Steven Drake



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PARX

Description

Explore the beauty of Kentucky's State Parks, Historic, and Recreation Areas!

Collect Badges as you visit each location!

If you are planning a trip to any of Kentucky's many outdoor recreation or historic sites, why not collect badges along the way? It's a fun way to learn more about where you're visiting and an incentive to go a little farther, a little more often and learn a little more about Kentucky.

Have Fun!

Intended User

This app is intended for students, families, or anyone really.

The app will support English primarily as it's aimed at students within the state of Kentucky.

Features

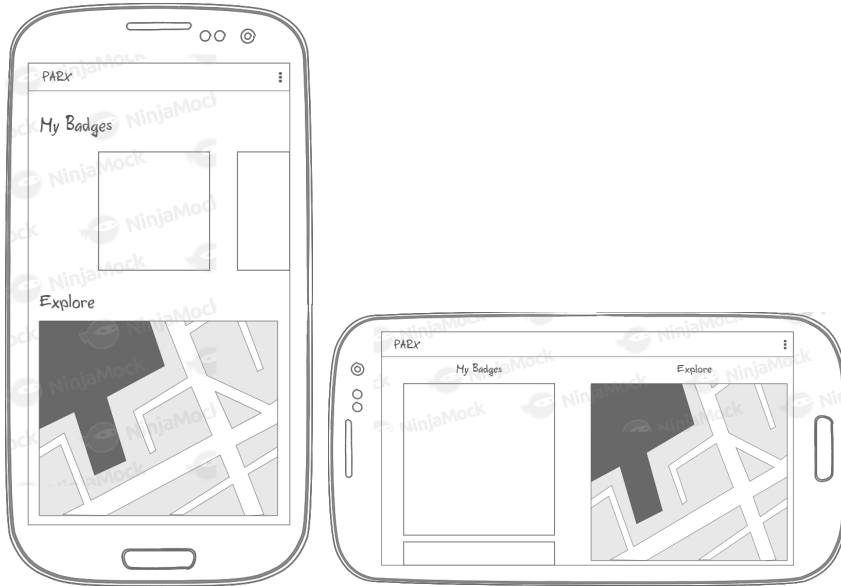
This app will use:

- Saves progress toward achievements using the Google Play Games Infrastructure
- Uses Google Maps and location data to trigger events
- Store game data on Google Cloud Infrastructure
- Uses the Java language exclusively
- Uses AsyncTask to update data from http:
- Uses Room, ViewModel and LiveData to store persistent data
- Uses the most recent stable versions of:
 - Android Studio – 3.2
 - Gradle – 4.6-all
 - And all libraries:
 - com.google.android.gms:play-services-auth:16.0.1
 - com.google.android.gms:play-services-identity:16.0.0
 - com.google.android.gms:play-services-location:16.0.0
 - com.google.android.gms:play-services-maps:16.0.0
 - com.google.android.gms:play-services-games:16.0.0
 - android.arch.lifecycle:extensions:1.1.1
 - android.arch.persistence.room:runtime:1.1.1
- Uses content descriptions for accessibility
 - google maps includes built-in support for accessibility
- Images, strings, colors, dimensions, and themes will be managed as follows:
 - Image will be managed with Picasso
 - strings, colors, dimensions and themes will be extended for necessary versions within the res folder

User Interface Mocks

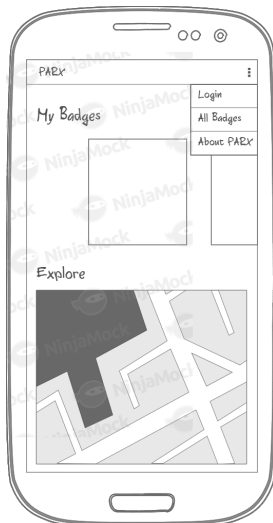
These can be created by hand (take a photo of your drawings and insert them in this flow), or using a program like Google Drawings, www.ninjamock.com, Paper by 53, Photoshop or Balsamiq.

Screen 1



Main Activity screen in portrait and landscape views. The left badge on the portrait view didn't export, but was included in the mock. I will use fragments to allow a responsive display when the user changes orientation.

Screen 2



Main Activity screen with menu pressed. Shows a login screen (if necessary), All Badges screen, and an About PARX screen where I can include a descriptive disclaimer noting that this app is not official, nor endorsed in any way by the Kentucky Parks Department.

Screen 3



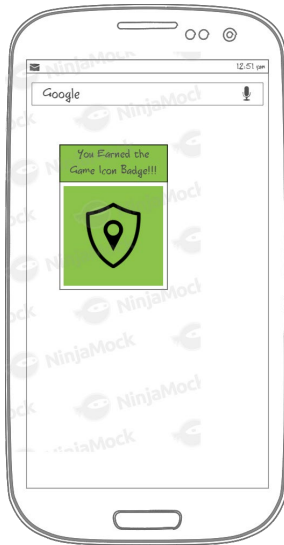
Maps Screen with navigation back to the main screen. This screen will have custom markers for all State Parks, State Historic Sites, and State Resort Parks

Screen 4



All Badges Screen with navigation back to the main screen, showing all available badges with the earned badges being displayed first, in progress next, and not started badges last.

Screen 5



Widget on the home screen.

Will show the most recently earned badge by default.

If possible I will make it so clicking on the widget cycles through all the earned badges.

Add as many screens as you need to portray your app's UI flow.

Key Considerations

How will your app handle data persistence?

Game progress will be saved to a google cloud server using google play games service.

Room database will be used for Lat-Long data and Site names.

Login profiles will be saved in SharedPreferences if necessary.

Earned badges will be saved in SharedPreferences if necessary

Describe any edge or corner cases in the UX.

I don't foresee any edge or corner cases with the UX. It is a simple UX that doesn't include intents to any other applications. I can see a user closing the app from the maps or badges screen, so I will need to maintain the activity/fragment state when the app is closed, but that's all I can think of.

Describe any libraries you'll be using and share your reasoning for including them.

I will be using Picasso to cache and display the badge images.

A Room database for Lat-Long data and Site names.

Describe how you will implement Google Play Services or other external services.

I will be using Google Play Services for:

- Maps – to show markers for the Park/Historic Sites
- Login – to authenticate users automatically
- Location – to allow the users location to trigger achievements
- Achievements – to store badges and maintain progress across devices

Next Steps: Required Tasks

This is the section where you can take the main features of your app (declared above) and break them down into tangible technical tasks that you can complete one at a time until you have a finished app.

Task 1: Project Setup

- Configure data used by app:
 - Add Lat-Long point data for all sites to Room database
 - Add names for all sites to Room database
 - Add images for badges to Google Play Games account (in app if necessary)
 - Add data to strings.xml file
- Create color theme for app
 - Setup theme and style according to material design guidelines
- Configure build.gradle implementation for all libraries

Task 2: Implement UI for Each Activity and Fragment

Build UX framework activities and fragments:

- Build UI for Main Screen activity
 - build layout for portrait view
 - build layout for landscape view
- Build UI for Explore Kentucky Screen
 - build full map screen layout
- Build UI for All Badges Screen
 - build all badges recycler view screen layout
- Build UI for About PARX Screen
 - build disclaimer/description layout
- Build UI for Login Screen (if necessary)
 - build login layout (if necessary)

Task 3: Your Next Task

- Configure manifest.xml
 - Add all activities and permissions
- Configure developer accounts within app

Task 4: Your Next Task

- Build networking class(es) so AsyncTask can get http: data
- Build recyclerview adapters to display badges
- Build map view to center on user location
- Build links for map view using Lat-Long from Room database

Task 5: Your Next Task

- Build the widget for the home screen
 - Add a java class that will use the most recently earned badge for the image view
 - If possible
 - Create a click listener that will scroll through the earned badges when the user clicks on the icon

Task 6: Your Next Task

- Setup testing account to check badges functionality in app
- Test app using test Lat-Long coordinates (or by going to some parks) ☺
- Submit working app ☺

- No changes will be made to core Android functions
 - ie. the back button will not be overridden

Add as many tasks as you need to complete your app.

Submission Instructions

- After you've completed all the sections, download this document as a PDF [File → Download as PDF]
 - Make sure the PDF is named "**Capstone_Stage1.pdf**"
- Submit the PDF as a zip or in a GitHub project repo using the project submission portal

If using GitHub:

- Create a new GitHub repo for the capstone. Name it "**Capstone Project**"
- Add this document to your repo. Make sure it's named "**Capstone_Stage1.pdf**"