



NORTHERN

NNMC Tree Mobile Application

Submitted by: **Krishia Artieda, Kasey Valdez, and David DeAgüero**

Mentor: **Sadia Ahmed, Ph.D**

Northern New Mexico College

Department of Engineering

Project Summary

- The team's goal is to build an Android and/or iPhone Operating System (iOS) application (app) for Northern New Mexico College (NNMC) Biology Department using the information from the database that was created by Mr. Ronnie Weese, Ms. Angelica Fernandez, and Ms. Rosa Martinez in Spring 2017.
- The web app they created for the Biology Department was developed with Microsoft SQL for the back-end.
- The front-end was developed with HTML, JavaScript, C#, and similar programming languages.
- The web app allows a user to input and retrieve data from the back-end via front end forms.
- The NNMC Biology Department wants the app on an iPad, therefore the team decided to continue with the previous group project from Spring 2017.
- The apps front-end will be based in Android Studio and/or XCode. The back-end will be based on SQLite which is the database.

Objectives

- The team's objective is to create a mobile app for the Biology Department using SQLite for the back-end database portion and Android Studio and/or iOS that will be the front-end for the app.
- The front-end will allow its user to easily input/retrieve tree data using forms and allow them to store it using the SQLite back-end.
- The team will research how to import the database into Android Studio and/or XCode.
- Having this information on a mobile app will be beneficial for the Biology Department because this information will be accessible for them while they are in the field.
- The team met with the Biology representative to show the app that was completed on the Android mobile phone.
- On November 21, 2017 at 9:00am, the group gave a demonstration of the app to the Biology representative for sample testing.
- After the meeting, they were satisfied with the app.
- The app can also be ran on an Android tablet.

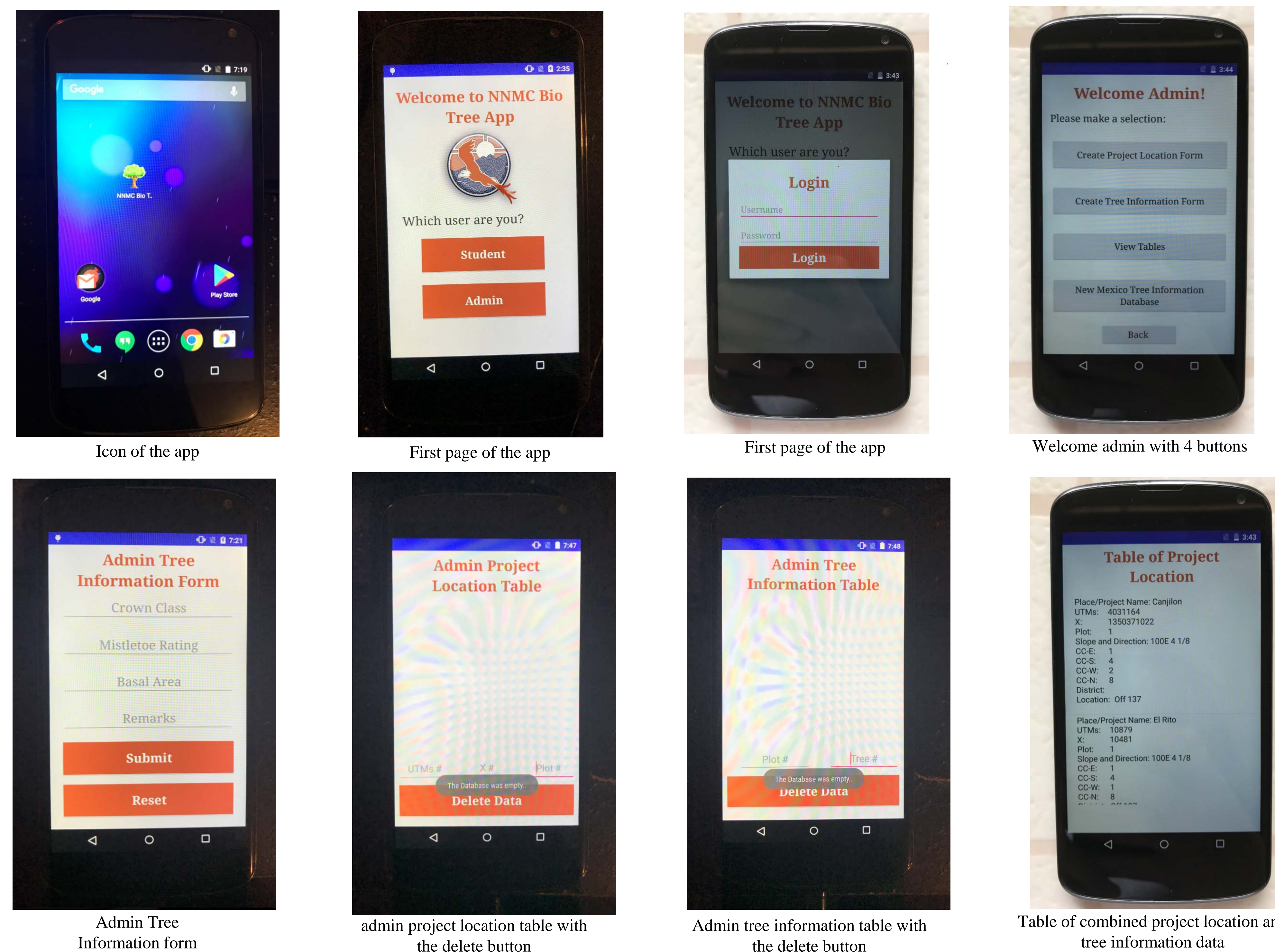
Proposed Mobile Application Diagram



Mobile Application Diagram for Android.

Mobile Application Diagram for iOS.

Final Forms of the App



Icon of the app

First page of the app

First page of the app

Welcome admin with 4 buttons

Admin Tree Information form

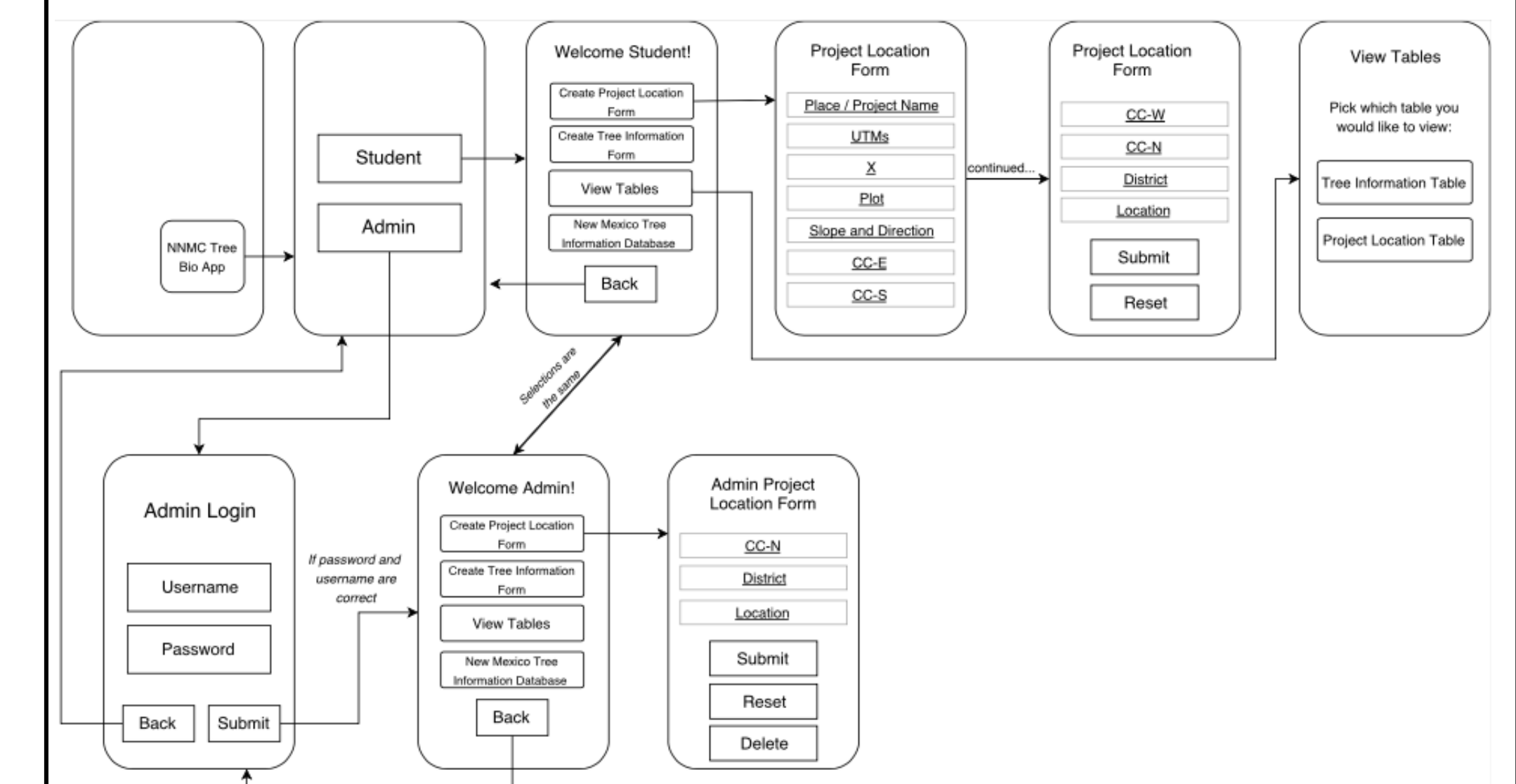
admin project location table with the delete button

Admin tree information table with the delete button

Table of combined project location and tree information data

Flow Chart of The App

The team brainstormed and came up with a flow that the app should follow. The flowchart demonstrates the flow going from form to form as well as where or what each button will do once pressed. The difference between admin and student user is that the admin user has the option to delete data in the database.



Back-end of The NNMC Tree Mobile App

The Biology Department provided all of the variable names that are used in the back-end of the database and gave a brief explanation of what each field contains and what it is used for.

Project Location		Tree Information	
PK	UTMs	PK	Tree_Plot
PK	X	FK	UTMs
PK	Y	FK	X
PK	Plot	FK	Plot
	Place_Project_Name		Tree_Stat
	Slope_and_Direction		Species
	CC_E		Stem_from_DRC
	CC_S		DBH_DRC
	CC_W		Total_Height
	CC_N		Tally
	District		Crown_Ratio
	Location		Crown_Base_Height
			Crown_Class
			Mistletoe_Rating
			Basal_Area
			Remarks

Acknowledgements

Thank you to the team's mentor, Dr. Sadia Ahmed, for guiding and supporting the team. Thank you to the Biology Department for letting the team get information on how they collect data. Thank you to Dr. Jorge Crichigno, Capstone professor.

For additional information, please contact:
 Dr. Sadia Ahmed
 Department of Engineering
 Northern New Mexico College
 sadia.ahmed@nnmc.edu