Map-based Mobile Apps for iOS and Android (Cross Platform Development)

Student: Hemil Desai\(^1\) | Mentor: Larry Theller\(^2\) | Purdue University

\(^1\)Department of Computer Science, \(^2\)Department of Agricultural and Biological Engineering

Special thanks to DURI program for providing me with this amazing opportunity and Lisa Kirkham for being my DURI mentor.

### Problem Statement

**iOS Application**
- The aim is to provide a list of available maps using UITableView. The user has the option to select a tableViewController and that leads to a webview displaying the specific map using action segues.
- Technologies used: Swift, iOS SDK, UIKit, xcode

**Android Application**
- The aim is to provide similar functionalities and replicate the iOS app.
- Technologies used: Java, Android SDK, XML, Android Studio
- The constraints include programming for completely different platforms, learning iOS app development from scratch and a single person for both platforms
- Solution must be Low-Maintenance in the long term and provide similar functionality on both platforms.

### Background

The maps on the fertilizer application area advisor are designed to advise you regarding the possible location of features such as property lines or surface waters, which may require you to avoid or set-back your application or staging area. Each category of manure staging or application has its own map with appropriate map layers.

Website Prototyping:
Redesign the Manure and Fertilizer Application Area advisor website so that the website is more user-friendly and responsive. The website has to provide better user experience on all mobile devices and desktops.

The purpose of the mobile application is to provide a convenient way for the user to access the map based tools on a mobile device.

The prototype was created by me as well using the following technologies:
- HTML, CSS, Bootstrap

### Design Steps

- **The solution is to create an app with a table view as its root view.** A navigation controller must handle the navigation for each cell of the table. Each cell provides a different option for the user and selecting the cell leads the user to the appropriate web view containing the
- **The app has to be responsive and auto layout issues need to be addressed so that it can provide better user experience on both mobile phones and tablets.**

### Future Concerns and Possibilities

- The code needs to be well documented and low maintenance so that future issues can be solved easily. One possible issue that might occur is that in the future, both the apps maybe difficult to maintain at once since they use completely different SDKs.

Future Possibilities:
For future projects that require cross platform application development, learning the Apache Cordoba or the Ionic framework can be helpful as multiple platform apps can be developed using a single easy-to-use framework.

### Conclusion

Conclusion: given a complete server-side HTML 5 content package created by a different team, the website prototype and the mobile applications had to be created with no prior knowledge in certain areas.

Responsive web site design – the left is on a mobile device and the right is on a desktop.