**Project Phase 2: App Architecture**

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CPRG303 G

Mobile Application Development

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**# Development Framework: React Native**

**## Summary**

\* Issue

There are a lot of frame works to work with. Like Xamarin, Ionic, native script etc.

\* Decision

Decided on React

\* Status

As per course instruction class will be focusing on developing application using React Framework

**## Details**

\* Assumptions

We wanted to create a native application that is fast, reliable, and full of features with beautiful design.

The most popular framework to use for creating mobile application is React.

\* Constraints

If we choose other types of frameworks, we may not be able to follow school instructions that could lead to deployment failure or other issues with the application.

\* Positions

There may be other developers that have experience developing on other frame works and other programming languages but because the class will be using React Framework it is best for the team to follow class guidelines.

\* Argument

There are too many frames works to choose from React seems to be the best candidate for this project.

\* Implications

React is decidedly the best framework to choose for this project.

**## Related**

\* Related decisions

React framework may not contour to all devices.

\* Related requirements

We wanted to deploy this application directly to the app stores. With both iPhones and Android compatibilities.

\* Related artifacts

Unknown now

\* Related Principles

Irreversible for the duration of this project.

**## Notes**

n/a

**# Navigation strategy**

**## Summary**

\* Issue

Although the user interface for a calculator is straight forward, there are subtle navigation approach to account for various user roles and use-cases, ensuring its accessibility and usability.

\* Decision

The difference this calculator makes will adopt to a more user-centered role based on navigation strategy that puts efficiency and intuitiveness to contour to the user's preference.

\* Status

This architecture choice is currently under review and awaiting approval. This may go through additional iterations based on user feedback and testing.

**## Details**

\* Assumptions

The assumptions of this calculator will be used by users of various skill levels, and that giving them access to a variety of navigational options and shortcuts including customizations of different components of the calculator will improve their user skills and experience.

\* Constraints

Due to technological and resource constraints, we must carefully balance the navigation designs, and the user capabilities on how far they could change the components of this calculator.

\* Positions

There will be two positions on this interface, the one who wanted to make the interface feature rich for a more productive function and the one who wanted the minimalist approach.

\* Argument

The calculator will be accessible and effective for all users thanks to a role-based navigation strategy that considers the unique needs of different users.

\* Implications

This decision will ensure that the navigation method is implemented and validated by users and request feedback for improvements.

**## Related**

\* Related decisions

This will heavily impact ux/ui design for future feature implementations, and accessibility compliance.

\* Related requirements

To guarantee inclusive user design, user responsibilities must be clearly defined and understood. UI must be intuitive for different users.

\* Related artifacts

User personas will vary from user to user.

\* Related Principles

By following the guidelines of user-centered design, our navigation strategy makes sure that the solution is customized to match the various demands and preferences of individual users while retaining simplicity and usefulness.

**## Notes**

As the application is being built the navigation strategy will go through iterative design changes, testing and rigorous feedback and implementation loops. This document will have to be revised to accommodate such changes.

**# Hardware**

**## Summary**

\* Issue

Determining should the app respond to changes in device orientation on devices with rotating screens.

Developing a calculator app is both resource-efficient and capable of utilizing most modern hardware devices. The challenge is where users could potentially add complexities when customizing their app. This would present hardware incompatibilities and might utilize heavier resources.

\* Decision

The app will change it orientation with the device

Our calculator will utilize as little resources as possible from the hardware to perform efficiently and improve stability. More resources will be utilized as user preference grows.

\* Status

Accepted

This decision will be revisited once the initial app deployment has occurred, and feedback has been gathered where to utilize more resources for certain features.

**## Details**

\* Assumptions

Devices have different screen orientations: portrait and landscape.

Our assumptions are that users will use our application on a mobile device.

\* Constraints

Some screens may not transition smoothly between orientations

The system must function seamlessly regardless of how the user customizes their calculator. This will put heavy strain on hardware.

\* Positions

Favor maintaining a consistent user interface and user experience across different orientations

It is important to find a balance when utilizing system resources. This is to accommodate users with both high- and low-end devices capabilities.

\* Argument

User Expectations: Users expect the app to behave naturally and adapt to the orientation of their device.

Making an app that takes hardware considerations should reach larger user base.

\* Implications

Enhanced User Experience: Proper orientation handling improves user satisfaction and usability

Due to the commitment to this choice, continual hardware profiling and testing is integral for both optimization and developmental process.

**## Related**

\* Related decisions

Some hardware configurations may affect orientation handling

UI/UX are all strongly influenced by hardware considerations.

\* Related requirements

The app to change orientation even with restriction

To guarantee consistency, and sustainability, the system must comply to predefined performance criteria across a wide range of hardware profiles.

\* Related artifacts

Unknown.

Development and improvements will be heavily influenced by hardware profiles and feedback from users.

\* Related Principles

Irreversible due to time constraint.

The application must be reliable and powerful to ensure user experience in uncompromised regardless of the hardware limitations.

**## Notes**

Hardware considerations must always be flexible. There must be a minimum hardware requirement threshold to have a sustainable application across the board.

**# Database Storage:**

**## Summary**

\* Issue

There are many types of databases that we can use such as MongoDB, My SQL, Oracle, MariaDB, etc.

\* Decision

Decided on using Oracle

\* Status

Final Decision Oracle, as it is what we are using for our database PRGM class.

**## Details**

\* Assumptions

We cannot our app to store vast amount of data storage and we must be able to easily access that database with little to no trouble.

\* Constraints

If we choose different database, we must re-lean how to use that new database.

\* Positions

It is possible that we would not need to have database for our calculator app, although to be safe we decided on using oracle as it is what is being used in other database class and it is what we know how to use.

\* Argument

With many diverse types of databases, and with our previous knowledge with oracle. Oracle db. is the safest and easiest option from all the diverse types of databases.

\* Implications

Easiest option is oracle DB.

**## Related**

\* Related decisions

We may not need a database

\* Related requirements

Deploy App directly to app store (Can Oracle DB be integrated properly with no issues)

\* Related artifacts

Unknown

\* Related Principles

Decision Irreversible.

**## Notes**