**Brandon Hobbs**

**CS-360**

**January 4, 2023**

**Week 1: App Analysis**

For this analysis I have chosen one of the most useful, yet boring, and often overlooked apps on everyone’s phone – the calculator.

The calculator app is used to perform any tedious or trying mathematical calculations. Typically. There are also some hidden features in many calculators, however. Often if you turn the phone to landscape trig functions become available. Still other variants have, within the overflow menu, tools to help convert units, currency, dates, and other measurements.

The calculator app is designed to help with the most common mathematical operations as a priority. This is made apparent by the default layout being the simpler multiplication, addition, subtraction, and division. This is in contrast to the other available tools; unit conversion and trig functions being hidden behind menus and lower priority orientations.

The three main user needs that are addressed in the default view are:

* Ability to enter and execute simple mathematical formulas
* Ability to recall previous executed computations, i.e., history
* Ability to clear any entered formulas or to edit any non-executed formulas

Again, because the default view contains the simpler addition, subtraction, multiplication, and division the main user profile is someone needing to perform these types of operations routinely. That is, the creators assumed most people need to multiply or add numbers together more often than finding the tangent of Pi radians or to find the cube-root of a number.

The business objective of the calculator app could be stated as, “An application that allows a user to solve simple mathematical formulas quickly and accurately.” There may be other objectives as well but they appear to be lower priority as they are accessed by way of additional user input, i.e., rotating the phone from the primary orientation or accessing an overflow menu.

One nice feature with the app is the use of iconography to signify the features and modes. For example, unit conversion is denoted with an icon of a ruler (a measurement device) and the advanced functions is a small icon containing higher-order mathematical symbols, e.g., Pi and the radical symbols. When reviewing the historical log of executed calculations, the simple icon changes to a clock.

One small point of contention is that within the unit converter function it is not obvious that users need to swipe to access more measurement types as there is nothing to indicate this.

As the calculator app was being designed the developer needed to know what the most common operations were. What measurement types and units were expected to be available for conversion. The developer also needed to have some specifications around accuracy and precision. Since the calculator app will likely deal with floating points the expectation of decimals and maximum float size needs to be known *a priori*.

Lastly, the developer would want to know if there are any expectation of security. For example, since there is a history pane should this be protected and if so how. Should anyone with access to the phone be able to view all users’ past computations? Should this be controlled or even segregated to different “user accounts”?