design\_patterns.md 2023-12-04

## **Observer Pattern**

• Found in many of the features nad files and is inherit in flutter. Items like the dropdown button and text field widgets observe interactions and trigger corresponding events to update the state.

## State Pattern

• The standard flutter app structure makes use of states as a way to display different screens and different application states. In the instances of this code the app's state changes to show the different screens, features, and for those features to display information to the user.

## Singleton

• The use of constants, espessially in the unit conversion feature are a non explicit use of the singleton patter. By utilizing the list of variables the user is able to access them throughout the entire app.

## Builder

• In flutter most widgets are created and displayed through the inherit use of the builder design patter. Similar to the state patter, this feature is built into flutter and is required for the applications running and displaying of UI elements.