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CS3330 Final Project Documentation

UI:

The UI was made using JavaFX and SceneBuilder. All .fxml files in the application were made this way, some of which include About.fxml, DensityConverter.fxml, and Menu.fxml.

Architecture:

Each component is made in MVC fashion, meaning there is one .fxml file, one controller, and one model for each unique converter. The .fxml file is shown to the user, the controller receives the input data, sends it to the model, in which the model does the calculations and responds appropriately. Easiest example to look at are the files Density.fxml (View), DensityController.java (Controller), and Density.java (Model). The naming convention follows for all other converters made.

Required Elements:

> **Classes** – There are plenty of classes to look at. In fact, there are 21 classes total between all controllers and models. Just look at anything with the .java ending, except Convert.java (It is an interface).

> **Subclasses** – Each controller subclasses Switchable so that it can switch between scenes. That is look at any class that ends with "…ConverterController.java". Just look at the class declaration and you will see the "extends" keyword on any controller.

> **Abstract Class** – Switchable.java is the abstract class. Again in the class declaration (line 26) you will see the "abstract" keyword.

> **Interface** – Convert.java is the interface. It is declared an interface on line 12 and has one function so that each model is required to make a convert button.

Collection Class – Switchable.java has a controller class on line 30. It is a HashMap and is used to contain each controller it switches between.

Exception Handling – In the file AboutController.java there is exception handling between lines 63 and 76. It is used to handle the save functionality also required by the final project.

Model – As specified before in the Architecture section of this document, there are many models to choose from. Go to anything that ends in "…Converter.java" (an example would be DensityConveter.java) and you will find an example of a model.

Scene Switching – To see the implementation of scene switching you can either look at the Switchable.java superclass or one of the subclasses like MenuController.java. If you go to Switchable the entire class is designed to implement scene switching. If you go to MenuController.java, any method (lines 45, 49, 53, etc.) besides initialize would give an example of scene switching.

About – The about page is located on About.fxml and AboutController.java. It is accessed from the menu by clicking the button that says "About". The information included basically describes why I came up with the idea to create a unit converter.

Save/Load Data – On the about page there is a way to save and load a comment in a text field. Just navigate via the menu to the about page and then click the "Save" button to save and "Open" button to open the comment back up. The serialization is located in the code on the AboutController.java in the methods on starting on lines 57 and 87. They are titled handleSaveAction and handleOpen respectively.