**COM5003-Report**

The project for the COM5003 assessment was to develop a calculator system for students to calcuate their grades. The design was based on a pre-existing app and the task was to improve upon it using the programming language java.

The main way I developed the interface was by using JFrame. This made for effective positioning of elements without needing to manually code each one. It also provided the added bonus of being able to alter the source code of certain elements such as buttons to code in the functionality.

The project needed a total of four JFrames. One was the initial choice for the type of degree the student needs to calculate. The second JFrame presented the choice between two different calculators. One calculator for L5 and L6 modules. The second calculator for direct level 6 entry. Both calculators were created with two different JFrames.

The method used for changing between JFrames was to cause each navigation button to set the next JFrame to visible while closing the previous one. One flaw to this method was that it wouldn’t save any values input into the calculator.

The calculator for the L5 and L6 modules included several different JLabels contained in six different JPanels. Each one of these labels was made for a different value for the user to choose and would then be used in the calculation. There were a few different calculations involved to achive the same functionality as the already existing application. I had to compare the mark to the weight of the credits. The way this was done was to multiply each mark by its respective credit score, add all those values together and then divide them by the total amount of credits. The same calculations applied for both the L5 section of the calculator and the L6 section. The way the average was calculated was to add both values together and then divide by two. For the calculation involving L6 weighing be in favor over L5. The calculation was to add the L6 section twice instead and then divide the total value by three. For the values within the labels to be correctly in the calculations the string value needed to be converted into an integer value. When setting the text of the labels designed to receive the values the variables had to then be converted back into strings. I used java if statements to display the appropriate classification depending on the higher mark. The direct level 6 entry calculator functioned mostly the same, only with less calculations that needed to be done. Such as the weighing in favor of L6.

The software used to create the program was Netbeans. It offered a lot of functionality including the ability to quickly switch between the design and the source code of the JFrame. It also offered an easy way of organizing each java file and running them.

The pre-existing calculator updated the values and calculations as they were typed into the correct sections of the form. For my calculator I added a calculate button to the form which carries out all the necessary calculations after the user inputs a numerical value in each label. While this might not have been as effective as pre-existing calculator, due to all values needing to be filled before it worked, it did make coding easier as most of the code needed for it to work could be done in one section of the source code.

While my calculator differed from the original in certain ways its functionality remains the same. Able to tell a student what the average marks are based on the weight of the credits and depending on whether or not the mark favors L6. And able to tell a student what their overall classification is. Also providing the option for L5 and L6 modules or direct L6 entry.

<https://github.com/R-Jeffryes/COM5003_assessment.git>