Team Pear Dashboard Project – Implementation in C++ Explanation

The code satisfies the design of the system for demo 2. The design was based off of the MVC design pattern, which was implemented in C++ through our classes. For the view there are the barplot, filterdialog, piechartwidget, piedialog, listview, and qcustomplot classes. For the control there is the controller class. For the model there are the createProfessor, errorHandling, granTree, modelExceptions, node, presTree, professor, professorMap, pubTree, statisticsTree, and teacTree classes.

The implementation of the code of the system satisfies the demo 2 requirements. The user is able to import data of four different CSV types and see the information summarized and displayed graphically.

The user is able to see the graphical user interface. The code in the mainwindow class establishes the gui and provides methods for the user to interact with the program (ie on\_action\_Import\_CSV\_triggered function gets the filename from the user upon the user clicking the Import CSV option in the menu).

The user is able to import a csv file and have it display in a summary form. The professorMap class has an importCSV function that takes the data from the csv and calls upon the createProfessor class to create a new professor of the proper type. In the code, the professor objects are put into a tree structure (different classes exist for different professor types: pubTree for professors from csv’s about publications), made from nodes made from the Node class. The listview class is able to use the information from the tree classes (ie pubTree, granTree) and display the information of the professors in an expandable/minimizable format.

The user is able to generate graphics. In the code, the bar graph is implemented through the BarPlot class. The class is based off of the QCustomPlot class. The barplot class draws the bars and creates labels in the plotBar function. The pie chart is implemented in the piechartwidget class. Using the paintEvent function, each individual slice is drawn and displayed. In the mainwindow class, code in functions such as on\_actionGenerate\_Bar\_Graph\_triggered creates an instance of the BarPlot class and sets it as the widget.