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**UML**

**Graphical user interface

Description automatically generated with low confidence**

Junit Tests Screenshots

A screenshot of a computer

Description automatically generated with medium confidenceA screenshot of a computer

Description automatically generated with medium confidence

Graphical user interface, text

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application

Description automatically generated

**GUI Running**

Graphical user interface, text, application

Description automatically generated

**Github**

**A screenshot of a computer

Description automatically generated with medium confidence**

**Lessons Learned:**

**Throughout the course of Assignment 4, I have garnered a deep fundamental understanding of hash tables and also got more exposure using linked lists. I am now able to intuitively understand the advantages of using hash tables even more, and I think without using them this assignment would have been harder. Learning from Project 3, I also used the Eclipse debug feature quite a bit for this project and it may have saved me some time. Before this assignment, I had minimal experience with hash tables and hash codes and reading and writing files using FileChooser in Java but this assignment has allowed me to develop a good understanding.**

**There are still some improvements I can make in the future. For one, I should’ve probably planned out my code better before actually doing it. Given it had been quite some time from when I did my UML diagram, I should’ve planned out the logic for many of CourseDBManager and CourseDBStructure methods better beforehand. I found that I made lots of really small mistakes which wasted a lot of debugging time. I could have definitely prevented this.**

**In the future, I hope to spend more time planning out the logic behind each of the methods as well as any other classes I have to ensure I spend less debug time.**