**Herman Mann**

**CMSC 204**

**Assignment 4**

**CourseDB Implementation**

**GUI SCREENSHOTS OF ASSIGNMENT 4 Execution (CourseDB)**

**Example of creating a Course database from an input file.**

**Graphical user interface, application

Description automatically generated**

**A picture containing text, monitor, computer, indoor

Description automatically generatedSelecting the input file button and navigate to the file.**

Using the ShowDB button to accurately display the CDE’s that were read from file.

A screenshot of a cell phone

Description automatically generated

**The example of creating a CDE from original text fields. Utilizing the “Add to DB” button**

**Graphical user interface, website

Description automatically generated**

**Graphical user interface, application

Description automatically generatedSelecting the Show DB button to see the resulting CDE’s**

**Graphical user interface, application

Description automatically generatedThe example of getting/retrieving a CDE by entering a specific CRN**

**Github Screenshot of Assignment 4 (CourseDB in directory)**

**Graphical user interface

Description automatically generated**

Table

Description automatically generated

Graphical user interface, table

Description automatically generated

Reflection Paragraphs

All through the completion of the Assignment 4 which was on CourseDB, I got to learn and experience a lot of different object-oriented programming skills such as using and utilizing HashTable(s), and buckets/chaining, Linked List(s), exception handling, read and write files using the key file reader of FileChooser and how to really use and utilize them in different methods of the assignment’s implementation. Using the Hashtable and Hashcode for going through a Course DataBase element of reading through an input file and also adding each individual course with their CRN and other information and throwing the IOException was successful after I tried to check if the add and get methods and if the showAll were following the hashtable and correct buckets/chaining procedures. I really enjoyed how the assignment is getting me introduced to the new and more new and unique data structures of object-oriented programming, and I am interested to look at these different data structure algorithms as the class keeps going on. Also, I got to experience more in-depth knowledge and reasoning in reading and writing files (different files of course), using Linked Lists, and using the concept of testing and planning using Junit tests and using Javadoc to make the appropriate commenting on each of the assignment’s implementation methods. The learning of HashTable, exception handling, linked lists, the hashcode served as a great learning experience for this assignment and for future assignments throughout the class on gaining more data structure knowledge.

In the completion of this assignment, I struggled with a couple of things towards the end of things. First, I struggled with showAll method which it was supposed to get each of the individual courses with their information and print them all out when it was time to show the current database course list using two for loops and also the readFile method representation of a course in the DataBase from an input file and successfully reading every course being added into from the system or through the fields. My program came to an error towards the center towards the end of the Junit test due to me not implementing the second for loop of the showAll method. I solved the issue by using the java buckets/chaining concept of hashcode symbolizing the direct solution to my issue(s) Another problem I struggled with were creating the student Junit tests, some methods towards the end of this assignment’s student tests had me thinking about how to approach it. So, my solution to the problem was looking at the other methods of the student test that I had done previously and from there I solved the issue successfully by changing things here and there to make the test work according to the certain test I was doing at the time by following the way the other tests were made and solved to be working successfully after the student test ran through.

When I had completed the entirety of this project, I found out a lot of things to be useful for me and would help me out for the completing of future assignments/projects. I learned and experienced that the use of Linked Lists and read/write files and in general and the hash code concept will serve me a big deal and help to know for the future and will be a great thing to be well-experienced in the concept of using try/catch for exception handling and the proper and correct use of different types of exceptions and things of this sort. Also, Javadoc will help me in the future not just for the upcoming assignments but also in my career of Computer Science, for accurate and important commenting of various programs that I will be coding for bigger and widespread company projects. Also, computer critical analysis especially learned from the completion of this project implementation will be so useful, significant, and demanding in the field for advancement to write larger scope programs with various object-oriented programming techniques. Most importantly, the importance of exception handling, HashTable, and the different linked list requirements served such an important purpose of furthering my knowledge on Java and its object-oriented principles/techniques. This assignment implementation of Course DB helped me in so many great ways its satisfying to know I chose a great career path majoring in Computer Science.