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CS 499 Milestone Three

The artifact I have chosen to enhance for the Algorithms and Data Structure category of the e-portfolio is my final project for CS 210 Programming Languages. The project is an application that takes in data from a CSV file to analyze grocery item data. It provides a menu for the user to allow them to search for an item, print item frequency list and print frequency histogram. I chose to include this artifact in my ePortfolio because it demonstrates my skills in algorithms and data structures, specifically in improving efficiency by choosing the proper data structure. To enhance the artifact, I implemented a hash table instead of a map to store and search through the grocery items. Thus improve efficiency by improving time complexity of operations from O(logn) to 𝑂(1). I also implemented separate chaining to address hash collisions to improve the application's performance. I met course outcomes with this enhancement because I designed a solution which is to create a hash table to solve the given problem which is to design an efficient application to analyze grocery item data. While enhancing the artifact, I learned more about hash tables and the importance of distributing data and balancing loads to prevent clustering. I also learned more about separate chaining and how they are used to handle collisions. Overall, this enhancement showcases my skills in solving problems by using data structures and algorithms.