**CS2023 - Data Structures and Algorithms**

**In Class Lab Exercise**

Week 09

Index Number: 200105F

GitHub Link:

Section 1: Implementing basic Hash Table

2.

Text

Description automatically generated

3.

Text

Description automatically generated

4.

Text

Description automatically generated

5. This uses a fixed size array to store the passwords. This means that there is a limit on the number of passwords it can store. If the limit is reached, the program will not be able to store anymore passwords. Another issue is that the hash function used here may not distribute the passwords evenly across the array which can lead to collisions, where two different passwords end up being hashed to the same array index, where one password overwrites the other.

To address these issues, a more robust hash table implementation can be used that employs techniques such as dynamic resizing of the array and a more sophisticated hash function. For example, instead of using a fixed size array, a dynamically resizing hash table can be used that increases the size of the array when it starts to fill up.

Section 2 : Implementing Hash Table with chaining

2.

Text

Description automatically generated

3.

Text

Description automatically generated