Lab 7: Hashing

UWYO COSC 2030

1 Introduction to Hashing

This lab will give you a chance to develop your own hashing function. The purpose of a good hashing function is to minimize collisions, such that no two objects hash to the same values, and to perform the hashing operation efficiently. Hash tables follow a "key, value" format. The hash is the key and the hashed object is the value. Hash tables allow you to locate an object based on the hash. In this case the hash will provide the array index of where an item is stored, eliminating the need to iterate through the array to find it. From the first link below:

> `Hashing is implemented in two steps:`
>
> `An element is converted into an integer by using a hash function. This element can be used as an index to store the original element, which falls into the hash table.`
>
> `The element is stored in the hash table where it can be quickly retrieved using hashed key.`

```
hash = hashfunc(key)
index = hash % array_size
```

- `https://www.hackerearth.com/practice/data-structures/hash-tables/basics-of-hash-tables/tutorial/`
- `https://en.wikipedia.org/wiki/Hash_table`

2 Assignment

Accept the assignment here: `https://classroom.github.com/a/MxgiPSJD`. Improve the hash function to minimize collisions. You can use any strategy to do so. Run your hash function several times to observe performance on different data.

3 Submission

Submit on Github Classroom. Remember to include a README.md file with your name and any assistance received.

Edited by Milan Wolff (based on labs by Danny Radosevich, Justin Wang for UWYO COSC 2030)