Alyssa Hoshor

CS 215

Assignment 5.1

September 30, 2023

1. Explain how a hash function is used

A hash function converts a string, int, char, byte, etc. ( a key) into an index number (hash value) of an array.

1. How might a string hash function be written?

There is division: H(k) = k(mod m)

Mid square: H(k) = ℓ,

Where ℓ equals k^2 with two digits deleted, one from the end and one from the beginning

Folding H(k) = H₁ + H₂ + H₃ + …. + Hₙ

1. Explain why we might choose to use a hash function rather than a search key.

By converting our search key using a hash function to a hash value, we eliminate the need to search (other than in the case of collisions).

1. What hash function does the Java Util HashMap use for hashing strings?

The hashCode() method:

s[0]\*31^(n-1) + s[1]\*31^(n-2) + ... + s[n-1]