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CS-215-ON

Due October 2, 2023

Assignment 5.1

Hash Maps Part 1

1. A hash function uses a formula to change a key into a hash code, which is then used to link to the value. Hash functions allow data to be retrieved quickly and avoid collisions. The key is turned into an integer, no matter the original type.
2. A string hash function can be written by manipulating the Unicode value of each character and then adding the resulting values together. For example, that character value may be multiplied or exponentiated first.
3. A hash function would be used in situations where collisions might occur (for example, where multiple keys map to the same value).
4. Java uses u0gn-1 + u1gn-2 + … + un-2g + un-1 to computer the hash code for string, where u is the uth character, g is 31, and n is the string length. This can also be written as s[0]\*31^(n-1) + s[1]\*31^(n-2) + ... + s[n-1], as it is in Eclipse.