Hashing Functions

How Hash Function Work?

⇨ Should always map a large key to same small key

⇨ Should generate values from 0 to m-1

⇨ Should be fast, O(1) for integer and O(len) for string of length 'len'

⇨ Should uniformly distribute large keys into Hash Table slots

Example Hash Functions

1. h(large-key) = large-key % m
2. For strings, weighted sum
   str[] = "abcd"
   $(str[0] * x^0 + str[1] * x^1 + str[2] * x^2 + str[3] * x^4)$ % m
3. Universal Hashing