COMP-352 Tutorial #2

May 17th, 2023

Algorithm Analysis: Time & Space

In algorithms, resource usage and complexity are used as the performance figures:

- **Time Complexity:** Time required to get the desired results from an algorithm.
- **Space Complexity:** memory space required by the algorithm during its operation. Stack calls usually depict space complexity of an Algorithm.

Exercises:

1. If an iteration takes 1 second, how long is the following for loops, `for(int i=0;i<352;i=i++)` and `for(int i=352;i>0;i=i/2` ?

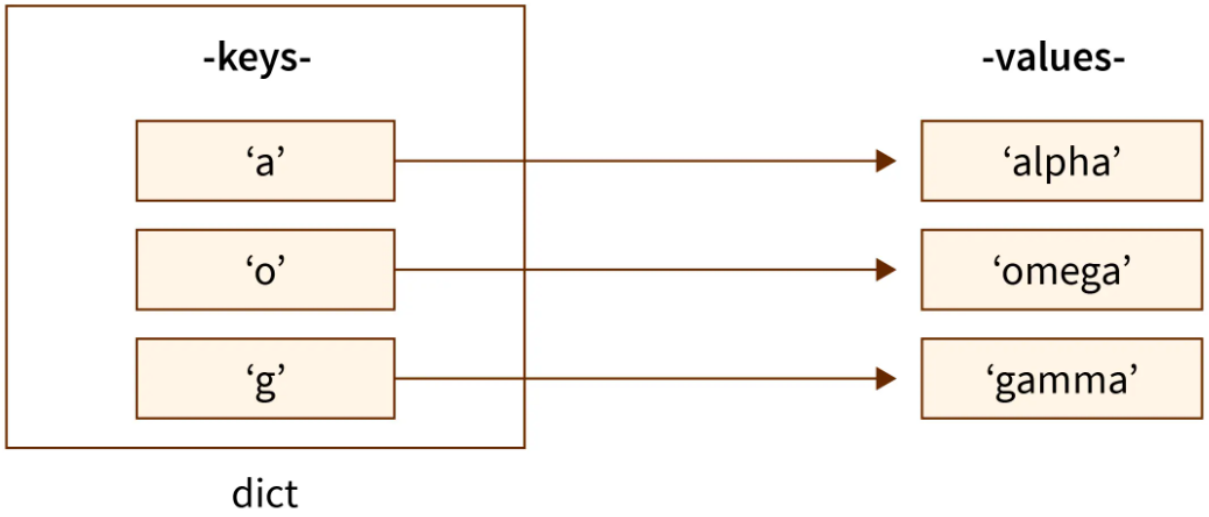
2. An algorithim creates a 24*24 2D array and assume a unit of space is 1 byte, how much space is used by the algorithm?

Tip: *to visualize time complexity, use a counter variable.*

Bad Dictionary: A simple array example

Dictionary: A data structure that has a key-value pair layout where each key is unique. Given a key, a value is returned.

- One can think of an array as a dictionary.



Exercise : Create the above dictionary using two arrays, include a get() and set() function?

Note: your functions shall contain an algorithm for searching

THANK YOU