Inspira Crea Transforma

UNIVERSIDAD EAFIT®

Bees behaviors algorithm and probably technological replacement in the future.

Tomado de:
https://mx.blastingnews.com/ocio-cultura/2017/04/declaran-a-las-abejas-como-el-ser-vivo-mas-importante-del-planeta-001603273.html

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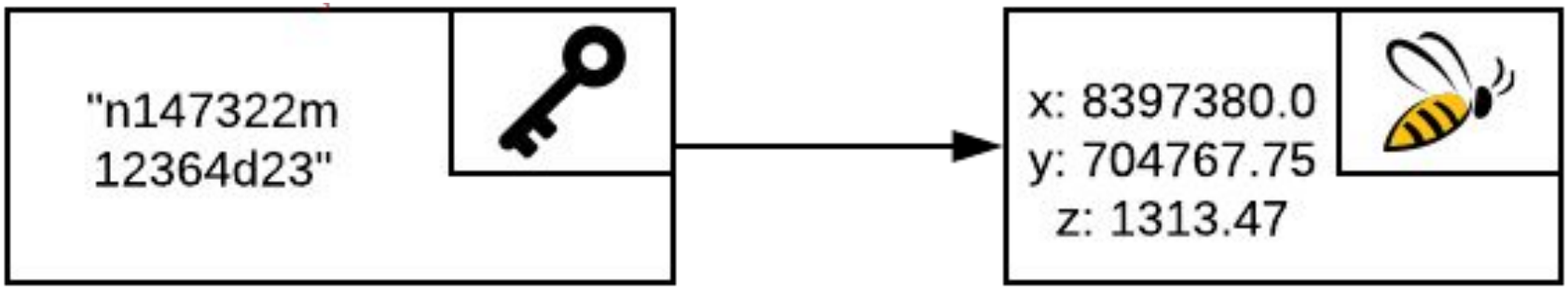
HashMap



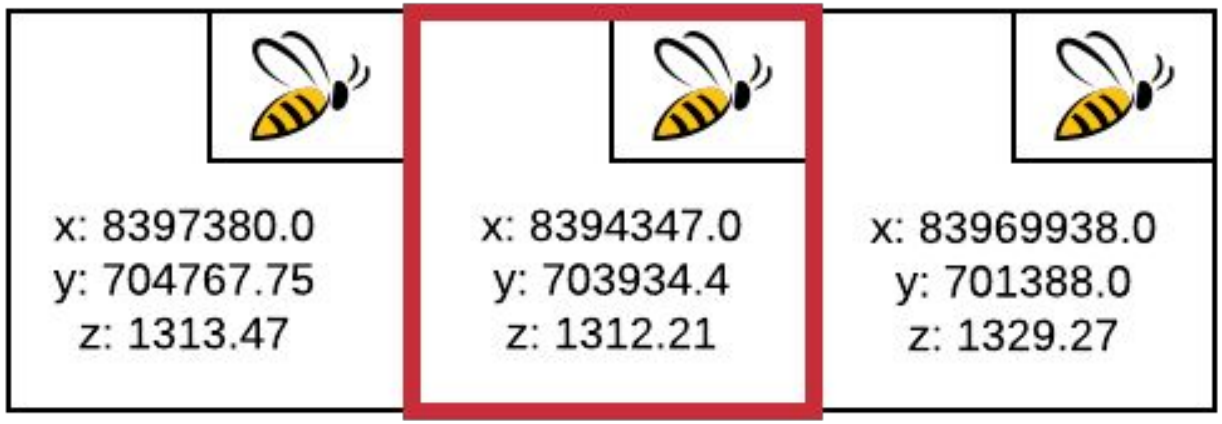
Key: String

Value: Bee

How it works?

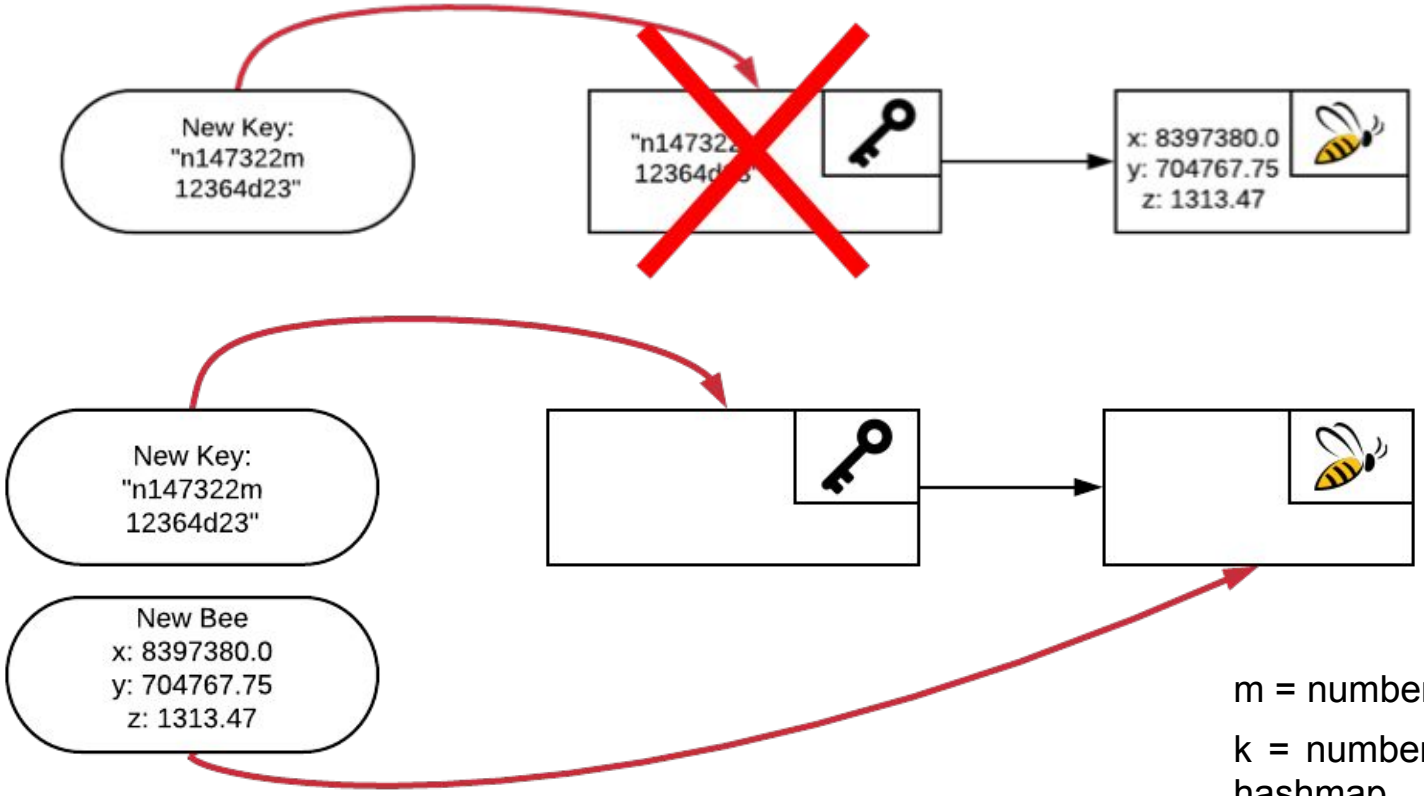
Read File: O(n)

n = number of bees in the file.
This function is in charge of reading the txt file and create, separating each line as a bee and then put them inside a Bee array, created at the start of the function.



How it works?

hashFunction(): O(m*k)
creates the hashmap from the bee array and check if they collision.



m = number of bees.

k = number of keys in the hashmap.

Why we choose it?

we think carefully about to use hashmap has our data structure was the complexity of the functions that a hashmap has, which is O(1) in the best cases and O(n) in the worst cases for Access, Insertion, Search and Deletion, these helps in the execution time.

taken from: freepik.com

Time and memory use:

Time:

Operations	10 bees	100 bees	1500 bees	100000 bees	1000000 bees	1500000 bees
readFile()	0ms	1ms	42ms	334 ms	805 ms	1055ms
hashFunction()	1ms	2ms	17ms	571ms	2427 ms	13076 ms

Memory:

Operations	100000 bees	1000000 bees	1500000 bees
readFile()	31 MB	232 MB	180 MB
hashFunction()	13MB	232 MB	371 MB

Thanks!