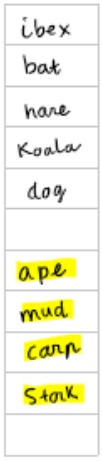
Exercise 1


ibex
Koala
hare
ape
carp
stork
bat
dog
mud


ibex
bat
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Stork


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Stork

Exercise 2

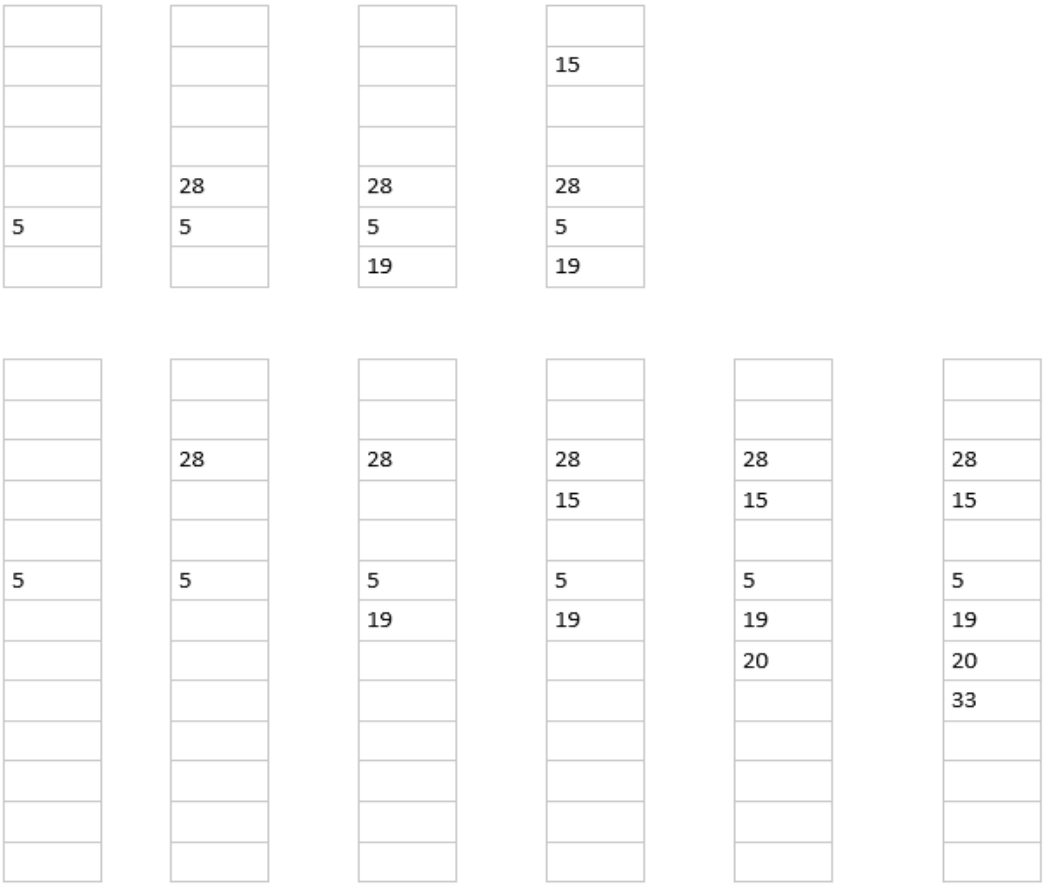
a) Worst case: h(k) give same result for all keys, as a result, they are stores as an unsorted linked list

Search time 0(n)

Example: table size 10, key = {2,22,32,42,62}

b) Because in worst case scenario, search time is O(n), much higher than O(1), this hash table is not suitable for a time-critical application

Exercise 3



Exercise 4

	Insert	Retrieve	Delete	
Array	n	1	n	Slow to insert and delete, very fast to retrieve
Linked List	n	n	n	Slowest algorithm
Balanced Binary tree	Height of tree	Height of tree	Height of tree	Time complexity reduce as we have more variables to track
Hash Table	1 – n (depend on hash function and collision handling)	1 – n (depend on hash function and collision handling)	1 – n (depend on hash function and collision handling)	Fastest algorithm Can become slower depend on hash function, table size, collision handling