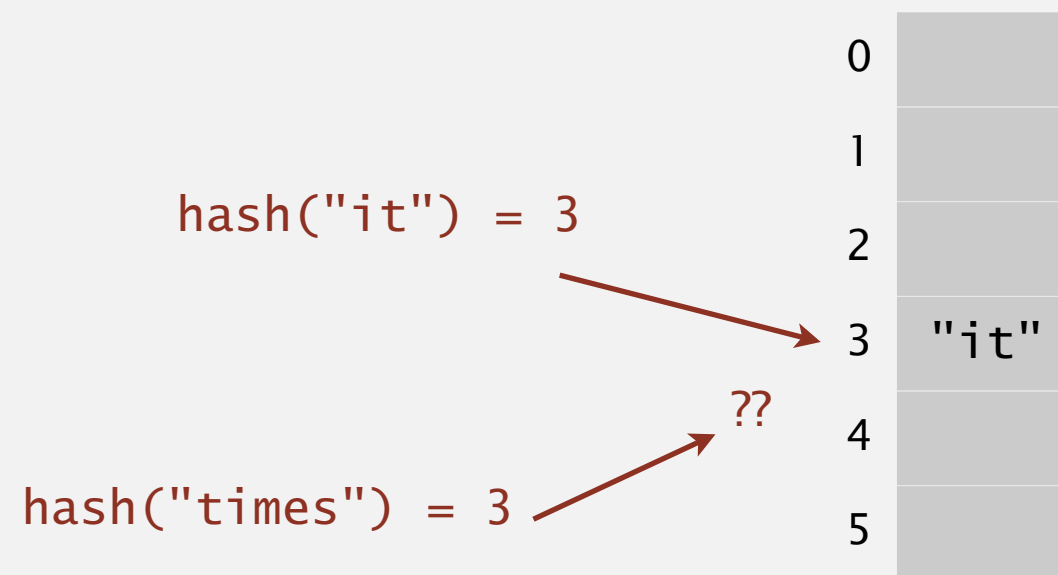


# Collisions

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**Collision.** Two distinct keys hashing to same index.

- Birthday problem  $\Rightarrow$  can't avoid collisions unless you have a ridiculous (quadratic) amount of memory.
- Coupon collector + load balancing  $\Rightarrow$  collisions are evenly distributed.



**Challenge.** Deal with collisions efficiently.