A hash function is a function $f(k)$ that maps a key, $k$, to a value, $f(k)$, within a prescribed range.

A hash is deterministic. (For a given key, $k$, $f(k)$ will always be the same).
Choosing a Good Hash Function

A good hash for a given population, $P$, of keys, $k \in P$, will distribute $f(k)$ evenly within the prescribed range for the hash.

A *perfect hash* will give a unique $f(k)$ for each $k \in P$. 