Two Sum

[2,7,11,15], target 18 [1,2] ← indices

Given array of # and a target # ← sum of 2 unique nums from array

Approaches: Brute force — but not good — time space is too $O(n^2)$

```
for a in n: O(n)
  for b in n: O(n)        } O(n^2)
    if a=b:
      continue                    ← no space
    if a+b = target
      return (Ia, Ib)
    else:
      return []
```

Use data structure -- hashmap / dictionary — Solve in linear time

```
for n,i in nums
  values[n] = i
  if (values(target-n]) {        Time: O(n)
    return i2,i.                 Space: O(n) ← Space
  }
return ()
```