Given an array of integers ① nums and an integer 2 target

Return indices of the two numbers s.t they add up to target

ex)

Input : nums = [2, 7, 11, 15], target = 9

Output : [0,1]

Input : nums = [3, 2, 4], target = 6

Output : [1, 2]

① Simpliest Solution

```
for i in range(0, len(nums)):
    for j in range(i+1, len(nums)):
        if nums[i] + nums[j] == target:
            return [i, j]
```

Time Complexity : $O(n^2)$

Space Complexity : $O(1)$

② Using Hash table

☆ A hash table supports fast lookup in near constant time. Lookup in hash table should be amortized O(1) time.

1	2	3	4

① nums into hash table : hashmap[$\overset{key}{nums[i]}$] = $\overset{value}{i}$ Memory usage : O(n)

② Check complement (target - nums[i]) is in hashmap and check that complement is itself.

Time Complexity : O(2n) → O(n)

Space Complexity : O(n) : hash table stores n elements