Problem Statement: Given an array of integers, return indices such that they add up to a specific sum.

Assume that each input has exactly one solution. You may not use the same element twice.

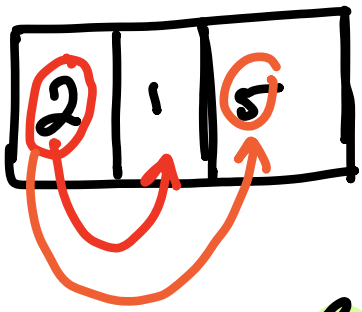
Objective:

- **given** arr [1, 2, ...]
  sum to find

- **return** indices

```
def find_indices(arr, n):
```

How to go about it: (brute force)



if n = 7

after getting first value, we would want to scan the array to find the corresponding value.

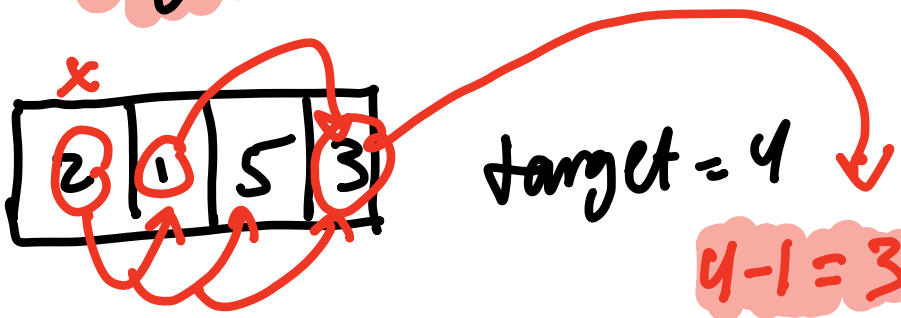
↓

if this does not work, simply increment the value and try again with the next one

cons: as it's brute-force, the runtime of this algorithm is not very efficient

$O(n^2)$

How to go about it: (one-pass)



For each number, the value we'd want is the difference between the target and the given value.

Instead of checking every number just see if the difference is present.

Most efficient way to do this is to make a hash-map of every value in our input array.