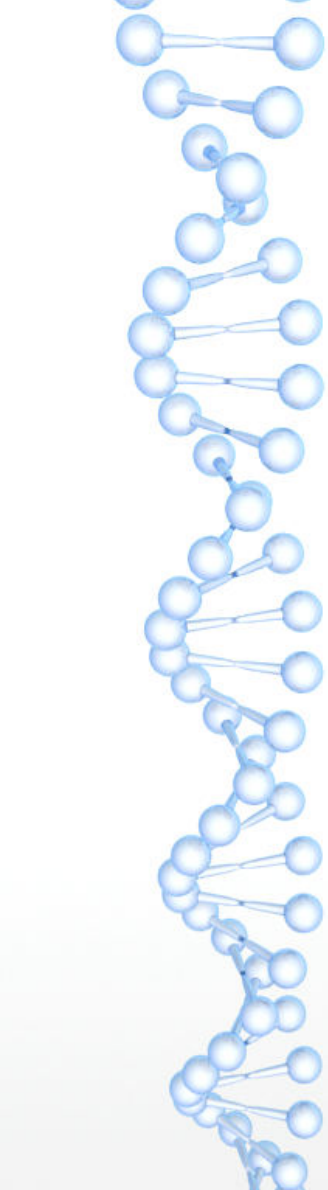


Raunak Narayan

Target Sum by 2

By

Sir Hitesh Choudhary

Video Link:https://www.youtube.com/watch?v=HJxQUDaNOgI

Problem Explanation

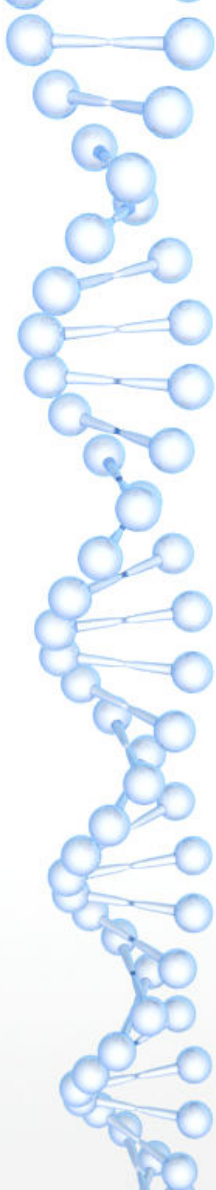
•There exists an array of integers(all distinct) '***A***' of length '***N***' and a special number '***K***'.
•Find two numbers who sum up to ***K***.

Input:
first line contains two numbers ***N*** and ***K***
second line contains array of integers of length ***N***

Output:
print two integers ***M*** and ***N*** from ***A*** so that ***M+N = K***

Example:
6 10
4 5 12 -2 8 9

12 -2



Another Example:

7 15

13 7 5 2 4 6 5

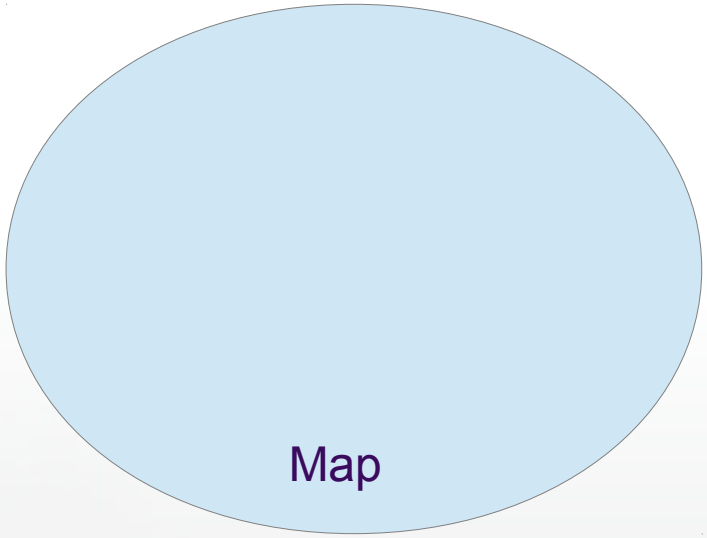
13 2

Approach

- Initialize a data structure that can '***add***' and '***retrieve***' data in O(1) or instantly (will be using HashMap)
- While taking input subtract that number by K i.e (K – input) say '***check***', this number will be checked whether it exists in the HashMap or not:
    - If it exists it means we already had a complement of input before
    - Else put the input in the map check for other elements

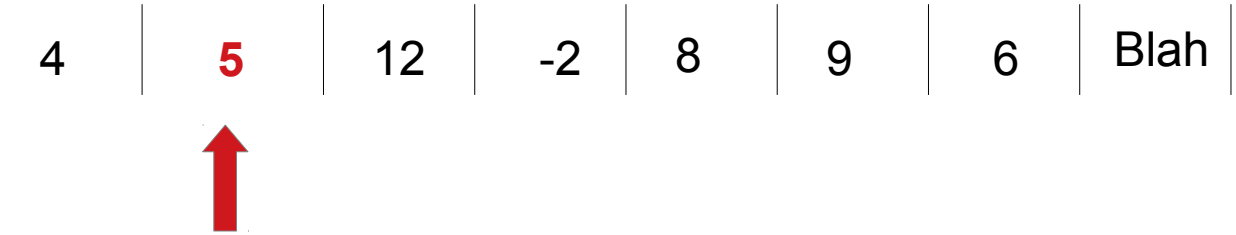
Illustration

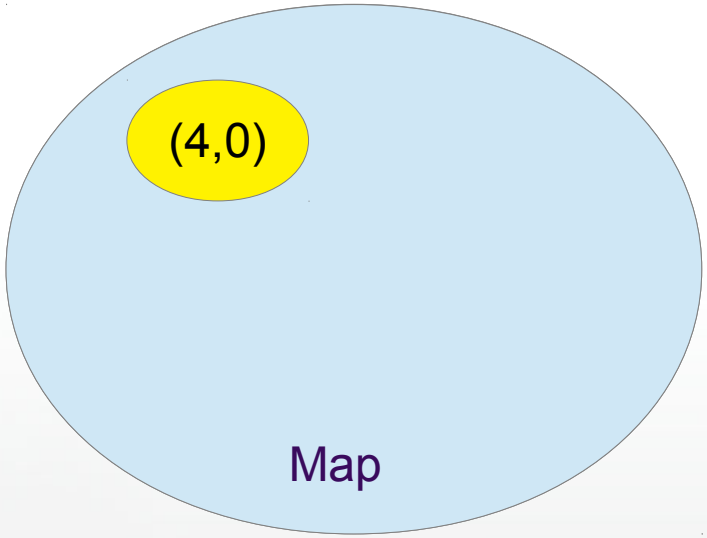
4	5	12	-2	8	9	6	Blah



Check = 10 – (4) = 6

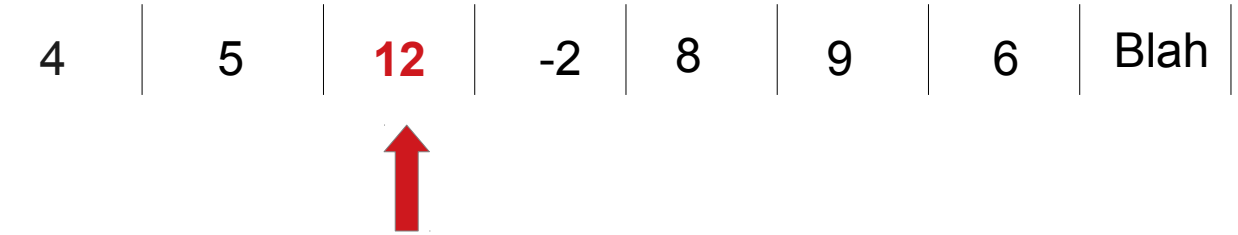
Map is empty so put 4 into map





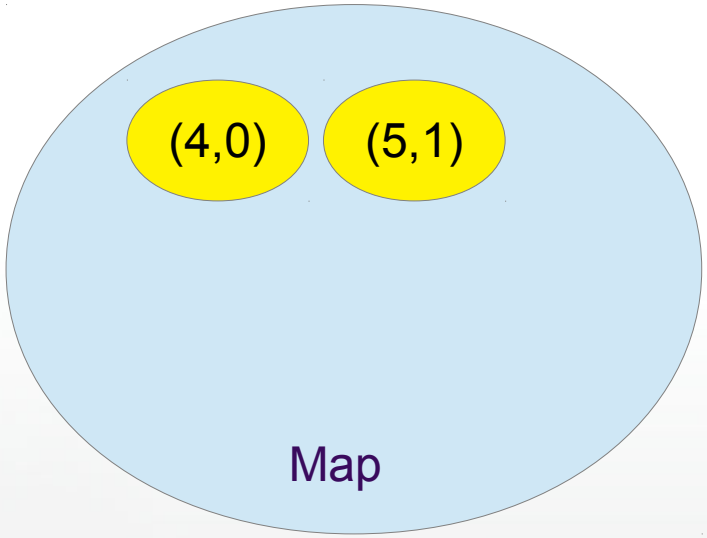
Check = 10 – (5) = 5

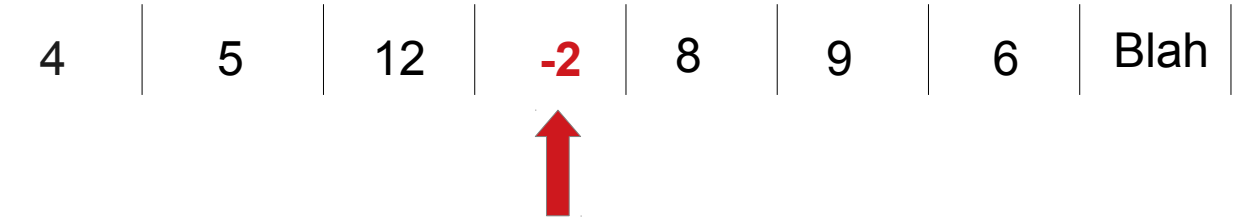
No such element put (5,1) in the map



Check = 10 – (12) = -2

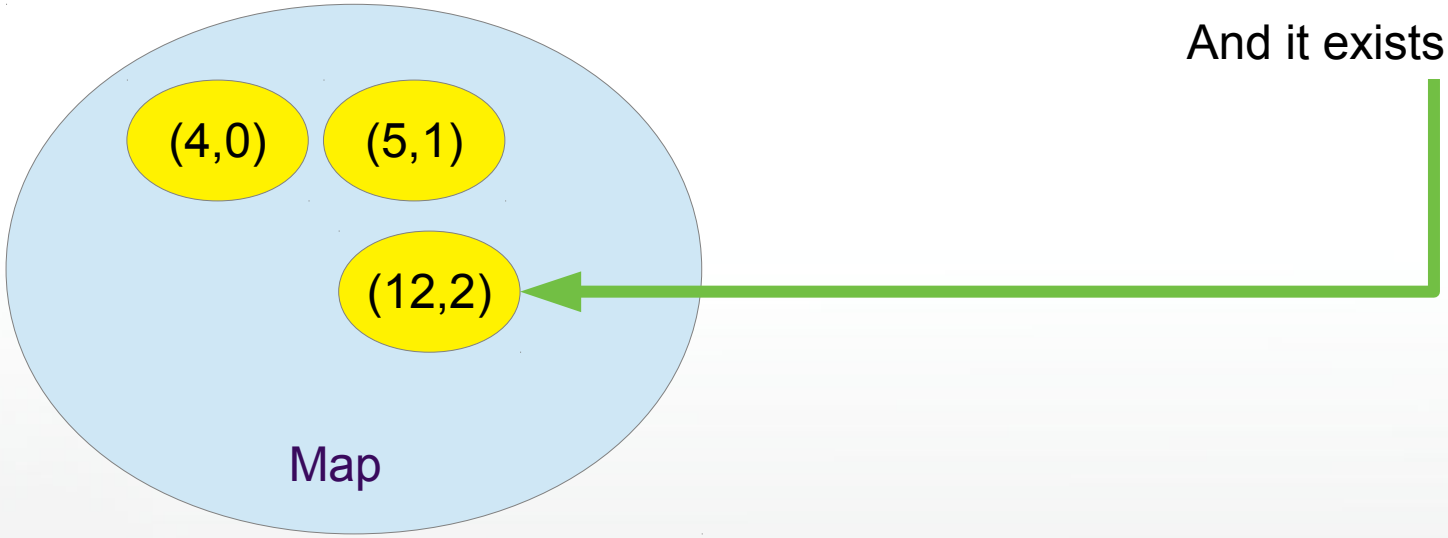
Again put (12,2) in map





Check = 10 – (-2) = 12

And it exists



Pseudo Code

- *A <-- array of integers*
- *map <-- hashing data structure(generally a hashmap)*
- *N <-- int for length of array*
- *K <-- the special number*
- *for i <-- 0 to (N-1):*
  - *A[i] <-- getinput just a single integer*
  - *check <-- (K – A[i])*
  - *if(number check exists in map):*
  - *you got it now just break out*
  - *map.put(A[i])*
-
- *Print “something wrong”*

Thanks for watching

- Special thanks to Hitesh sir
- https://github.com/akatski316/Advanced-Algorithms/tree/master/Saturday%20Coding%20Challenge/Target%20Sum%20of%202