Two Sum

Given an array of integers nums and an integer target, return indices of the two numbers such that they add up to target.

You may assume that each input would have exactly one solution, and you may not use the same element twice.

You can return the answer in any order.

Input: nums = [2,7,11,15], target = 9
Output: [0,1]
Output: Because nums[0] + nums[1] == 9, we return [0, 1].

Input: nums = [3,2,4], target = 6
Output: [1,2]

Input: nums = [3,3], target = 6
Output: [0,1]

Isomorphic Strings

Given two strings s and t, determine if they are isomorphic.

Two strings s and t are isomorphic if the characters in s can be replaced to get t.

All occurrences of a character must be replaced with another character while preserving the order of characters. No two characters may map to the same character, but a character may map to itself.

Input: s = "egg", t = "add"
Output: true

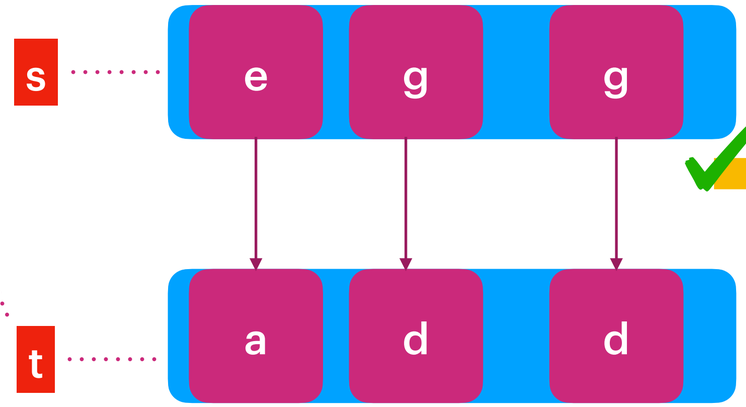
Input: s = "foo", t = "bar"
Output: false

Input: s = "paper", t = "title"
Output: true

Input: s = "egg", t = "add"
Output: true

Input: s = "foo", t = "bar"
Output: false

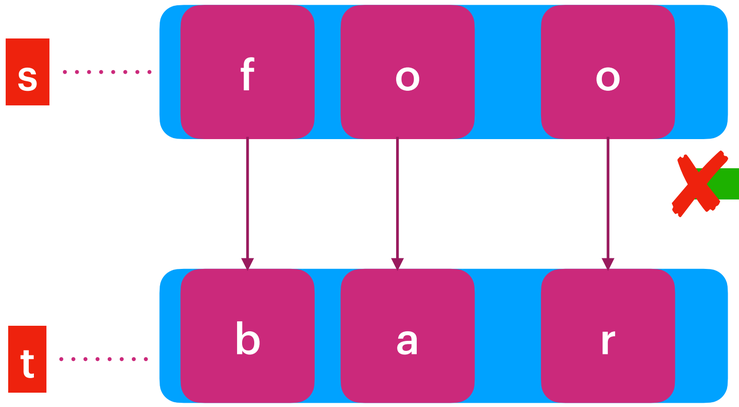
s & t are Isomorphic
If and Only If each character in s can map to each character in t uniquely
In simple single character in ’s’ can not be mapped to multiple character in ’t’ and also single character in ’t’ can not be mapped multiple characters in ’s’.



s & t are Isomorphic, because
Each character in ’s' is uniquely mapped to ’t’.

s	t
e	a
g	d
g	d

Advantage: if you replace each character of ’s’ with respective character in ’t’, you will get “add”



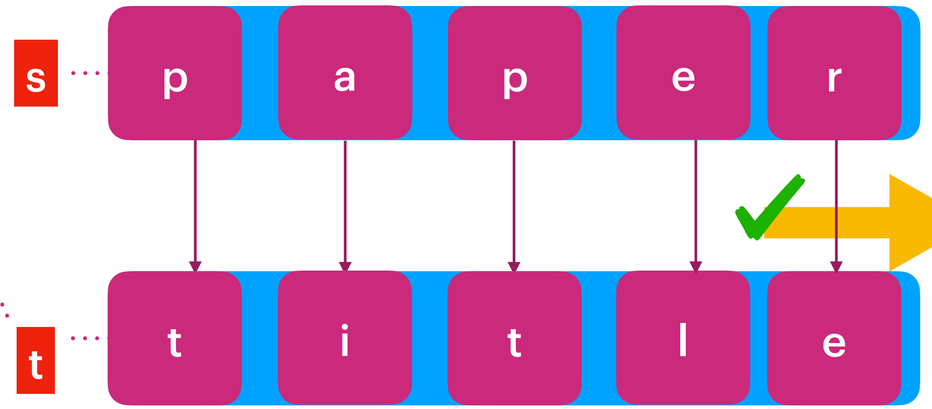
s & t are not Isomorphic, because
character ‘o’ in ’s' is mapped to multiple character in ’t’.

s	t
f	b
o	a
o	r

Input: s = "egg", t = "add"
Output: true

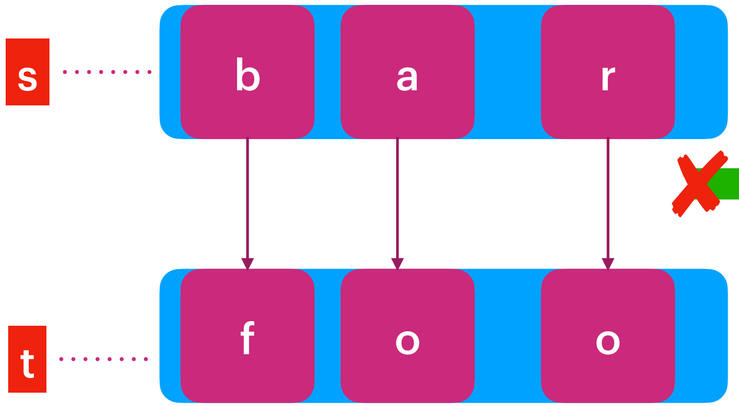
Input: s = "foo", t = "bar"
Output: false

s & t are Isomorphic
If and Only If each character in s can map to each character in t uniquely
In simple single character in 't' can not be mapped to multiple character in 's' and also single character in 't' can not be mapped multiple characters in 's'.



s & t are Isomorphic, because
Each character in 's' is uniquely mapped to 't'.

s	t
p	t
a	i
p	t
e	l
r	e



s & t are not Isomorphic, because
Characters 'o' in t is mapped to multiple character in 's'.

t	s
f	b
o	a
o	r

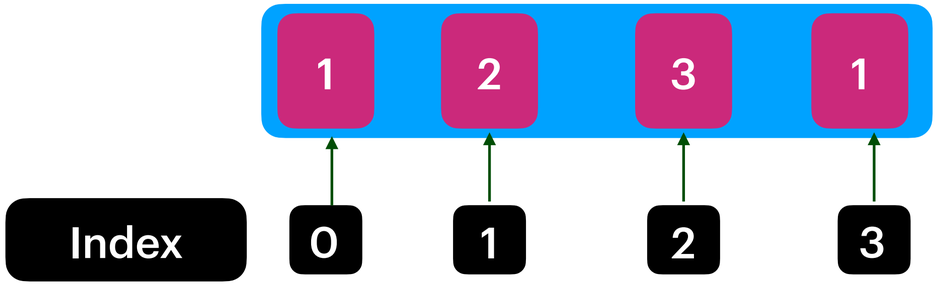
Contains Duplicate II

Given an integer array nums and an integer k, return true if there are two distinct indices i and j in the array such that nums[i] == nums[j] and abs(i - j) <= k.

Input: nums = [1,2,3,1], k = 3
Output: true

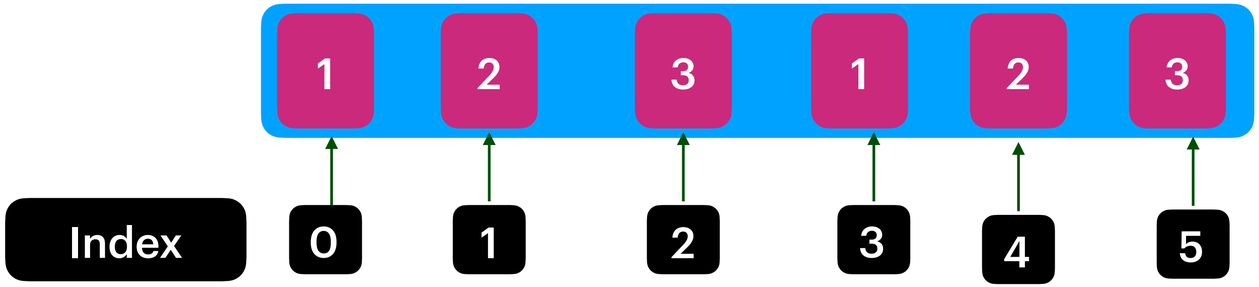
Input: nums = [1,0,1,1], k = 1
Output: true

Input: nums = [1,2,3,1,2,3], k = 2
Output: false



K = 3

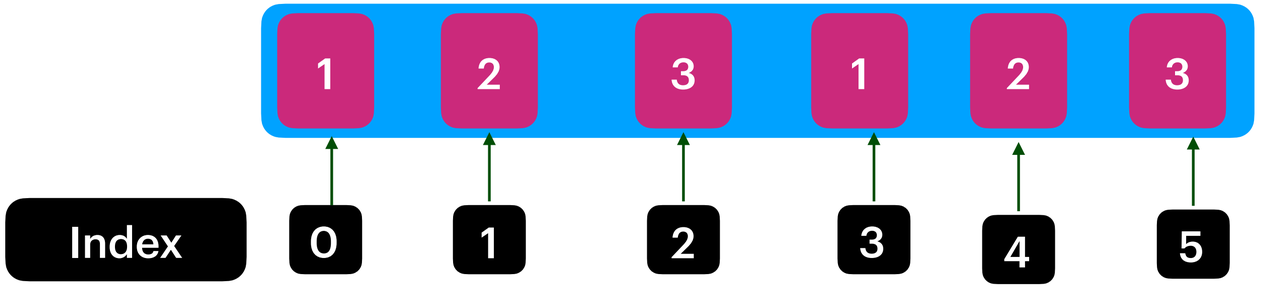
1 is repeated with index
0,3 = diff between indexes = 3 <= K return true



K = 2

1 repeated at index(0,3) diff is 3 : 3 > 2
2 repeated at index(1,4) diff is 3 : 3 > 2
3 repeated at index(2,5) diff is 3 : 3 > 2

Return false

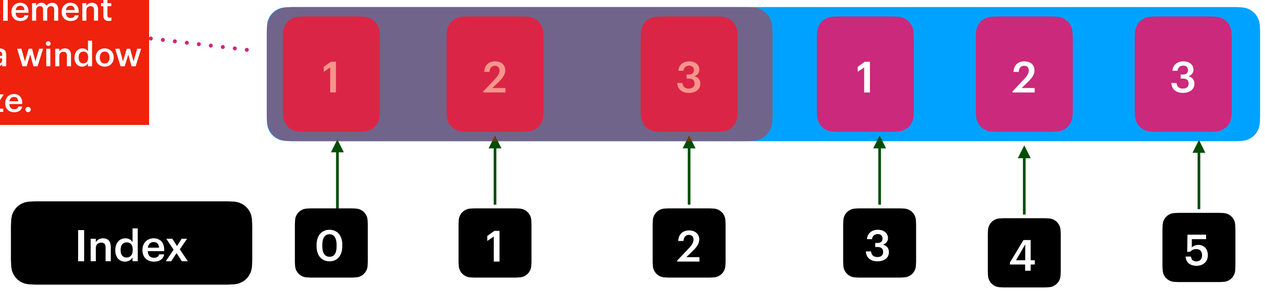


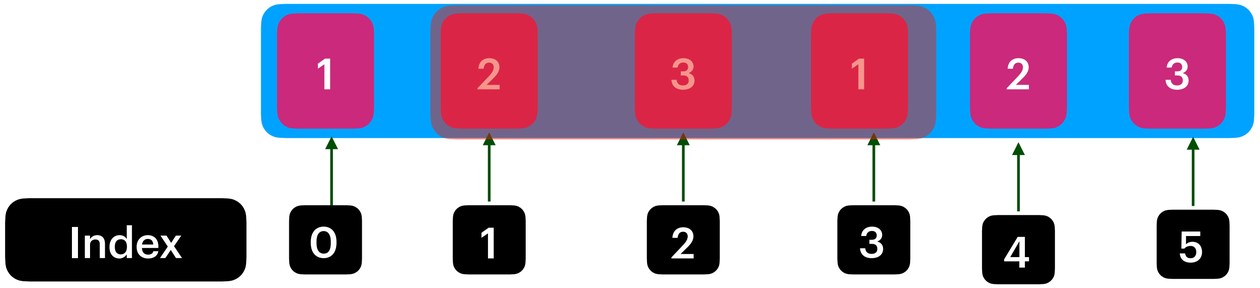
K = 2

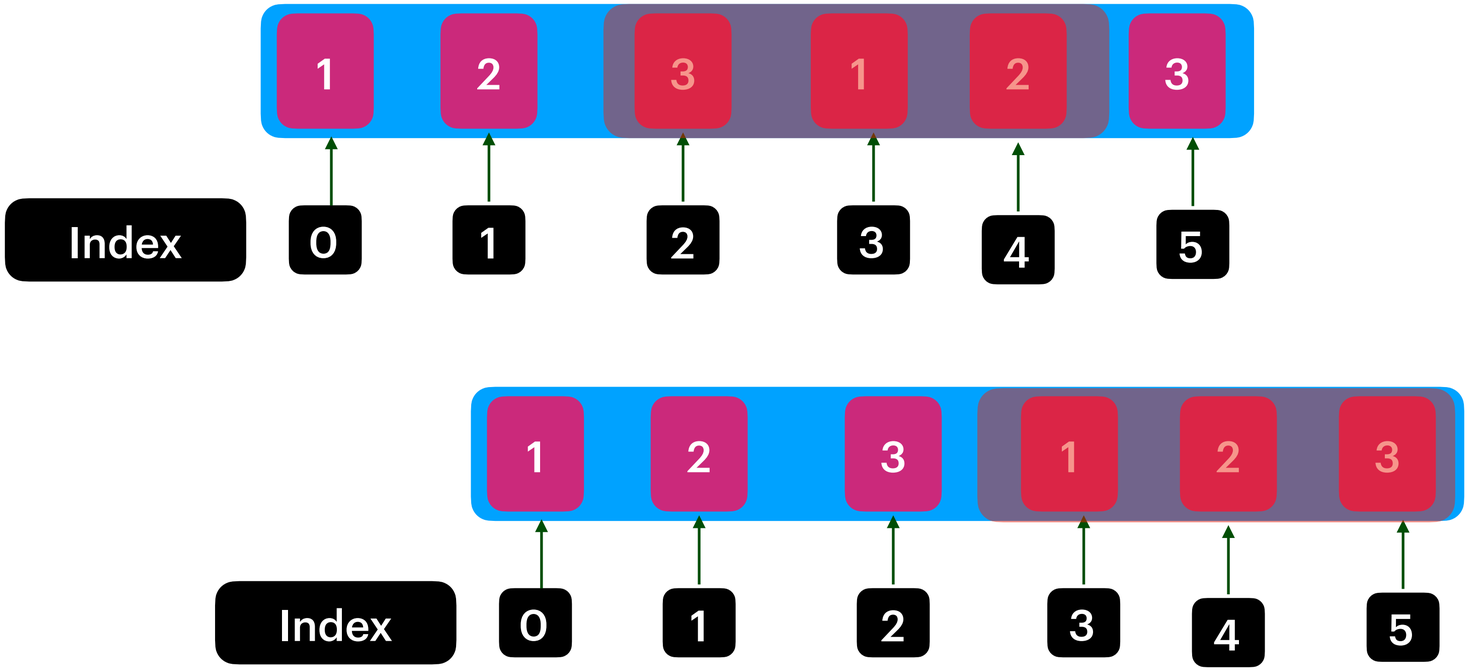
1 repeated at index(0,3) diff is 3 : 3 > 2
2 repeated at index(1,4) diff is 3 : 3 > 2
3 repeated at index(2,5) diff is 3 : 3 > 2

Return false

Probability of success rate for a given element Is within a window Size.






1
2
3
1
2
3
Index
0
1
2
3
4
5

1
2
3
1
2
3
Index
0
1
2
3
4
5