

Contains duplicates

Part 1 using Brute Force

from typing import List

class Solution:

```
def contains_duplicates(self, nums: List[int]) -> bool:
    for i in range(len(nums)):
        for j in range(i+1, len(nums)):
            if nums[i] == nums[j]:
                return True
    return False
```

print(Solution().contains_duplicates(nums=[1,2,3,4,1]))

- Step 1:

self → solution instance
nums →

0	1	2	3	4
1	2	3	4	1

- Step 2 (for i in range(len(nums)):

$i \rightarrow 0$

- Step 3 (for j in range($i+1$, $\text{len}(\text{nums})$):
 $j \rightarrow 1$

- Step 4 (if $\text{nums}[i] == \text{nums}[j]$):
this won't be True, as $\text{nums}[0]^i = 1$ and
 $\text{nums}[1]^j = 2 \Rightarrow 1 == 2$ False

- Step 5 (for j in range($i+1$, $\text{len}(\text{nums})$):
we go again in the loop and increase
 $j \rightarrow 2$

- Step 6 (if $\text{nums}[i] == \text{nums}[j]$):
again, not True: $\text{nums}[0] = 1$ and $\text{nums}[2] = 3 \Rightarrow 1 == 3$ False

- Step 7 (for j in range($i+1$, $\text{len}(\text{nums})$):
we go again in the loop and increase
 $j \rightarrow 3$

- Step 8 (if $\text{nums}[i] == \text{nums}[j]$):

$\text{nums}[i] \Rightarrow \text{nums}[0] = 1 \quad \text{nums}[j] \Rightarrow \text{nums}[3] = 4 \Rightarrow \text{False as } \text{nums}[i] \neq \text{nums}[j]$

- Step 9 (for j in range($i+1$, $\text{len}(\text{nums})$)):
we go again in the loop and increase j to 4

- Step 10 (if $\text{nums}[i] == -\text{nums}[j]$):
 $i \Rightarrow \text{nums}[0] = 1 \quad \Rightarrow \text{nums}[i] == \text{nums}[j]$
 $j \Rightarrow \text{nums}[4] = 1 \quad \text{True}$

return True ✓