Problem Link:

https://leetcode.com/problems/plus-one/

Problem Description:

You are given a **large integer** represented as an integer array `digits`, where each `digits[i]` is the `i`th digit of the integer. The digits are ordered from most significant to least significant in left-to-right order. The large integer does not contain any leading `0`'s.

Increment the large integer by one and return *the resulting array of digits*.

Problem Approach:

Mathematics

Sample Test Case:

Input: digits = [1,2,3]

Output: [1,2,4]

Solution:

We start by iterating the array in reverse manner, since addition is started by one's place, then tens, then hundreds and so on. If the digit at the current index is 9, then we change it to 0, as after nine, there comes 10 (One's digit of 10 is 0). Then we move to the next iteration, i.e. tens place. And if that digit is not 9, then we simply add one to the element at the present iteration index and return the array. And if all digits are 9, that means, the whole array got iterated, we would be left with an array of zeros. So, we add one as a prefix of the array, and return the array.

Code (Python):

```
def plusOne(self, digits: List[int]) -> List[int]:
        for i in range(len(digits)-1,-1,-1):
            if digits[i] == 9:
                digits[i] = 0
            else:
                digits[i] += 1
                return digits
        return [1] + digits
```