

66. Plus One

Solved

Easy

Topics

Companies

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*.

Example 1:

Input: `digits = [1,2,3]`

Output: `[1,2,4]`

Explanation: The array represents the integer 123.

Incrementing by one gives $123 + 1 = 124$.

Thus, the result should be `[1,2,4]`.

Example 2:

Input: `digits = [4,3,2,1]`

Output: `[4,3,2,2]`

Explanation: The array represents the integer 4321.

Incrementing by one gives $4321 + 1 = 4322$.

Thus, the result should be `[4,3,2,2]`.

Example 3:

Input: digits = [9]

Output: [1,0]

Explanation: The array represents the integer 9. Incrementing by one gives $9 + 1 = 10$. Thus, the result should be [1,0].

Constraints:

- `1 <= digits.length <= 100`
- `0 <= digits[i] <= 9`
- `digits` does not contain any leading 0's.

Python:

class Solution:

```
def plusOne(self, digits: List[int]) -> List[int]:
```

```
    n = len(digits)
```

```
    # Start from the last digit
```

```
    for i in range(n-1, -1, -1):
```

```
        if digits[i] < 9: # If digit is less than 9, just add 1
```

```
            digits[i] += 1
```

```
            return digits
```

```
        digits[i] = 0 # If digit is 9, set it to 0 and continue
```

```
    # If all digits were 9, e.g. [9,9,9] → [1,0,0,0]
```

```
    return [1] + digits
```

JavaScript:

```
/**
```

```
 * @param {number[]} digits
```

```
 * @return {number[]}
```

```
 */
```

```
var plusOne = function(digits) {
```

```
    // Start from the last digit
```

```

for (let i = digits.length - 1; i >= 0; i--) {
  // If current digit is less than 9, just add 1 and return
  if (digits[i] < 9) {
    digits[i] += 1;
    return digits;
  }
  // If digit is 9, set it to 0 and continue loop (carry over)
  digits[i] = 0;
}

// If we finish loop, it means all digits were 9 (e.g., [9,9,9])
// So result should be [1,0,0,...]
digits.unshift(1);
return digits;
};

```

Java:

```

class Solution {
  public int[] plusOne(int[] digits) {
    int n = digits.length;

    // Traverse the array from the last digit
    for (int i = n - 1; i >= 0; i--) {
      // If current digit is less than 9, just add 1 and return
      if (digits[i] < 9) {
        digits[i]++;
        return digits;
      }
      // If digit is 9, make it 0 and continue loop
      digits[i] = 0;
    }

    // If all digits are 9, then we need an extra digit
    int[] result = new int[n + 1];
    result[0] = 1; // rest are already 0 by default
    return result;
  }
}

```