

* Problem statement :-

- Given are the two arrays $arr1$ & $arr2$ where each element is an integer.
- Write a function that adds each digit of the array starting from its last position & returns the result array.

* Examples :-

$arr1 = [9, 9, 9]$ $arr2 = [9, 9, 9, 9]$

$result = [1, 0, 9, 9, 8]$

$$\begin{array}{r} \overset{1}{9} \overset{1}{9} 9 \\ + 9 9 9 \\ \hline 10 9 9 8 \end{array}$$

$arr1 = [1]$ $arr2 = [9]$

$result = [1, 0]$

* Solution :-

- Create a list to store the result.
- Set two pointers: One for the last position of $arr1$ & one for $arr2$.
- Initialize $carry = 0$.
- While at least one of the arrays still has digits left, or the carry is non-zero:
 - i) Initialize $sum = 0$ for each iteration.
 - ii) If pointer of $arr1$ has any element, then add it to the sum & decrement the pointer.
 - iii) If pointer of $arr2$ has any element, then add it to the sum & decrement the pointer.
 - iv) Add carry to sum.
 - v) Compute the last digit $sum \% 10$
 - vi) Compute the carry $sum / 10$
 - v) Add the last digit to the 0^{th} index of result.
- After the loop, if $carry \neq 0$, add carry at the 0^{th} index of result.
- Convert result to $int[]$ and return it.

Time complexity :- $O(n)$ where $n = \max(\text{arr1.length}, \text{arr2.length})$

Space complexity :- $O(n)$ " " "