Product of Array Except Self

For this problem we must compute product of all elements except nums[i] in $O(n)$ time, no division and ideally $O(1)$ extra space (excluding result array).

Approach: Prefix and Suffix Products:

Idea: · answer[i] = product of all elements to the left of i x product of all elements to the right of i.

Steps: 1. First pass (left products):
    Fill answer[i] with product of all elements to the left of i.
2. Second pass (right products):
    Multiply answer[i] by product of elements to the right (maintained in a variable).

Complexity:
    · Time: $O(n)$ (2 passes)
    · Space: $O(1)$ extra space (output array not counted).