Stack Space Complexity

If Stack runs for `n` times , each times space consumes 1 unit and hence it will add : 1 unit + 1 unit + ⋯ + n times = n unit of Space in memory.

nth Element get Pushed	→ 1 ***Unit***
. .	
4rth Element get Pushed	→ 1 ***Unit***
3rd Element get Pushed	→ 1 ***Unit***
2nd Element get Pushed	→ 1 ***Unit***
1st Element get Pushed	→ 1 ***Unit***

Hence Space complexity (for n push operation): O(n).

For array − based stack:

- ***Stack can hold at most n elements.***
- ***Each element takes constant space.***
- ***So total space required:***

$$n \times O(1) = O(n)$$

Thus:

$$\text{Space complexity of stack} = O(n)$$

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