Challenge Task (with algorithm and code)

Push ["1", "2", "3"], pop two, push "4". Which is top?

🔍 Algorithmic Steps:

1. Initialize an empty stack.
2. Push "1", "2", "3" → Stack becomes ["1", "2", "3"]
3. Pop two → Removes "3" and "2" → Stack becomes ["1"]
4. Push "4" → Stack becomes ["1", "4"]
5. Check top → Last item is "4"

Code Explanaions

stack = []

# Step 1: Push operations

stack.append("1")

stack.append("2")

stack.append("3")

# Step 2: Pop two

stack.pop()

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# Step 3: Push "4"

stack.append("4")

# Step 4: Check top

Reflection Question

Why does a stack represent temporary actions?

Stacks are ideal for modeling temporary actions because they follow the **Last-In, First-Out (LIFO)** principle. Here's why:

* **Undo/Redo Systems**: Temporary actions like edits or form submissions are stored in order, and the most recent one is reversed first.
* **Function Calls**: In programming, temporary contexts like function calls are stacked, and the last called function returns first.
* **Browser History**: Navigating back removes the most recent page first.
* **Short-Term Memory**: Stacks mimic how we handle transient tasks—deal with the latest first, then work backward.