Challenge Question

Challenge: Push ["A", "B", "C", "D"], pop 2, push "E". What is top?

The challenge requires a step-by-step algorithmic approach. We will use a stack data structure and perform the operations sequentially.

1. **Initialize an empty stack:** Start with an empty list or array that will represent our stack. stack = []
2. **Push the first set of elements:** Add "A", "B", "C", and "D" to the stack in the given order. This means "A" is at the bottom and "D" is at the top. stack.append("A") stack.append("B") stack.append("C") stack.append("D")
3. **Pop two elements:** The pop operation removes the top element. Popping twice will remove "D" and then "C". stack.pop() # Removes "D" stack.pop() # Removes "C"
4. **Push "E":** Add the new element "E" to the top of the stack. stack.append("E")
5. **Identify the top element:** The last element added to the stack is "E", so it is at the top. top_element = stack[-1]

The final answer is "E".