2A. Show how the state of both an array-based and a link-based stack changes after each of the following operations: push('e'), push('s'), push('c'), pop(), push('u'), push('a'), pop(), push('o'), push('t'), pop(), push('h') After the last operation, work out the word held in the stack and the word that was output via the pop operations.

--- Array based

state of stack (input)	command	num of elements	output
[null]	push('e')	1	
['e']	push('s')	2	
['e', 's']	push('c')	3	
['e', 's', 'c']	pop()	2	['c']
['e','s']	push('u')	3	
['e','s', 'u']	push('a')	4	
['e','s', 'u', 'a'']	pop()	3	['a']
['e','s', 'u']	push('o')	4	
['e','s', 'u' , 'o']	push('t')	5	
['e','s', 'u' , 'o', 't']	pop()	4	['t']
['e','s', 'u' , 'o', 'h']	push('h')	5	

output – cat

--- Linked based (no-size)

state of stack (input)	command	node	node.next	top	size	output
[null]	push('e')	e	null	e	1	
['e']	push('s')	s	e	s	2	
['e', 's']	push('c')	c	s	c	3	
['e', 's', 'c']	pop()	s	e (you.r.on.s)	s	2	['c']
['e', 's']	push('u')	u	s	u	3	
['e', 's', 'u']	push('a')	a	u	a	4	
['e', 's', 'u', 'a'']	pop()	u	s	u	3	['a']
['e', 's', 'u']	push('o')	o	u	o	4	
['e', 's', 'u' , 'o']	push('t')	t	o	t	5	
['e', 's', 'u' , 'o', 't']	pop()	o	u	o	4	['t']
['e', 's', 'u' , 'o', 'h']	push('h')	h	o	h	5	

-- output: Cat

3A. Show how the state of both an array-based and a link-based stack changes after each of the following operations: push('Ireland'), pop(), push('England'), pop(), push('Wales'), pop(), push('Scotland'), pop(), push('France'), push('Germany')
After the last operation, list the countries that were popped from the stack and the countries held in the stack.

--- Array based

state of stack (input)	command	num of elements	output
[null]	push('Ireland')	1	
['Ireland']	pop()	0	['Ireland']
[null]	push('England')	1	
['England']	pop()	0	['England']
[null]	push('Wales')	1	
['Wales']	pop()	0	['Wales']
[null]	push('Scotland')	1	
['Scotland']	pop()	0	['Scotland']
[null]	push('France')	1	
['France']	push('Germany')	2	

output popped(): Ireland, England, Wales, Scotland .... (no pop on the last two)
output kept by stack: France, Germany

--- Linked based

state of stack (input)	command	node	node.next	top	size	output
[null]	push('Ireland')	Ireland	null	Ireland	1	
['Ireland']	pop()	Ireland	null	null	0	['Ireland']
[null]	push('England')	England	null	England	1	
['England']	pop()	England	null	null	0	['England']
[null]	push('Wales')	Wales	null	Wales	1	
['Wales']	pop()	Wales	null	null	0	['Wales']
[null]	push('Scotland')	Scotland	null	Scotland	1	
['Scotland']	pop()	Scotland	null	null	0	['Scotland']
[null]	push('France')	France	null	France	1	
['France']	push('Germany')	Germany	France	Germany	2	