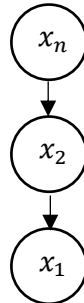


TAD Stack

$$\text{Stack} = \{x_1, x_2, x_3, x_4 \dots x_n\}$$

Where the element x_n is the last element added and is the first to leave

Graphic representation

$$\{inv: x_n = top \wedge \text{last added will be first out}\}$$
Primitive operations

Name	Input	Outup
Stack	...	Stack
push	Stack x element	Stack
isEmpty	Stack	Boolean
top	Stack	element
pop	Stack	element
size	Stack	Integer

Stack(): Modifier

"Create a new empty stack"

$$pre = \{true\}$$

$$pos = \{\text{new stack to add elements}\}$$
Push(T newItem) : Modifier

"Allows you to add an element to a created stack, this element is added to the top"

$$pre = \{\text{Stack created}\}$$

$$pos = \{\text{Stack.size} = \text{Stack.size} + 1, \text{top} = \text{newItem}\}$$
IsEmpty() : Validation

"Allows to check if the stack has elements or not".

$$pre = \{\text{Stack created}\}$$

$$pos = \{true \text{ if the stack is empty, false if not}\}$$
Top(): Validation

"Returns the value of the element at the top position without deleting it"

$$pre = \{\text{Stack created and top} \neq \text{null}\}$$

$$pos = \{\text{element in top}\}$$

Pop() : Modifier
"Returns the value of the element at the top position and then deletes it."
$pre = \{Stack\ created\ and\ top = null\}$ $pos = \{element\ in\ top, and\ stack.size = stack.size - 1\}$

Size() : Validation
"Returns the number of elements in the stack"
$pre = \{Stack\ created\}$ $pos = \{number\ of\ elements\ in\ stack\}$