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| Stack data structure  **Name: Stack** | | |
| **Definition:**  Value is the list’s type | | |
| **Input:** | | |
| **Invariable:** | | |
| **Operations** | | |
| **Name** | **Input** | **Output** |
| createStack  **constructor** |  | Creates a new Stack |
| add  **modifier** | Stack, value | Stack within value |
| remove  **modifier** | Stack | Removes the value at stack’s header (last element added) |
| element  **analyzer** | Stack, value | Current value at header |
| Size  **analyzer** | Stack | Stack’s items quantity |
| poll  **analyzer, modifier** | Stack, Integer | Value at Stack’s header, Stack without previous value at header |
| peek  **analyzer** | Stack | Value at stack’s header |
| offer  **modifier** | Stack, value | Stack within value given (at the start of the queue) |

Operations

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| **Operation:**  createStack | | | |
| **Operation type:** constructor | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
|  | Creates a new Stack | true | Creates a Stack empty |
| Creates a new Stack which can be used. | | | |

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| **Operation:**  Add | | | |
| **Operation type:** modifier | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| Stack, Value | Stack within the new value | Stack must be initialized | Adds the new value at the start of the stack |
| Adds the value given to the stack | | | |

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| **Operation:**  Remove | | | |
| **Operation type: modifier** | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| Stack | Stack without the last element added | Stack must be initialized and have at least 1 element | Removes the last element (current younger) of the stack |
| Removes the last element (header) of the Stack | | | |

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| **Operation:**  element | | | |
| **Operation type:** analyzer | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| Stack | Last element of the Stack | Stack must be initialized | Gets the last value of the Stack (header) |
| Gets the last value (current younger) of the Stack | | | |

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| **Operation:**  Size | | | |
| **Operation type:** analyzer | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| Stack | Integer with the stack’s item Quantity | Stack must be initialized | The Integer will be the size of the stack (n>= 0) |
| Gets the current size of the Stack | | | |

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| **Operation:**  Poll | | | |
| **Operation type:** modifier | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| Stack | Last value of the stack | Stack must be initialized and have at least 1 item | Gets the last value of the Stack (header) and removes it from Stack |
| Gets and removes the last value of the stack | | | |

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| --- | --- | --- | --- |
| **Operation:**  peek | | | |
| **Operation type:** analyzer | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| Stack | last element of the Stack | Stack must be initialized | Gets the last value of the stack (header) |
| Gets the last value (current younger) of the Stack | | | |

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| **Operation:**  Offer | | | |
| **Operation type:** modifier | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| Stack, value | Adds the new value to the Stack | Stack must be initialized | Adds the new value to the stack and puts it in the header. |
| Adds a new value to the Stack | | | |