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| Binary Search Tree auto balanced.  **Name:** AVL | | |
| **Definition:**  Value is the list’s type.  Key is the value’s identifier | | |
| **Input:** {key: the value used to manage order and search the members’ tree; Value: the value that must be stored} | | |
| **Invariable:** | | |
| **Operations** | | |
| **Name** | **Input** | **Output** |
| Create AVL  **constructor** |  | Creates a new AVL |
| Add  **modifier** | AVL, Key, Value | AVL with the new key and value associated to a new node |
| remove  **modifier** | AVL, Key | AVL without the value associated to the key given |
| Search  **analyzer** | AVL, key | Value associated to the key |
| Balance.  **Modifier** | AVL | Balance the AVL |

Operations

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| **Operation:**  Create AVL | | | |
| **Operation type:** constructor | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
|  | Creates a new empty AVL | true | Creates a new AVL |
| Creates a new AVL with 0 elements which can be used. | | | |

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| **Operation:**  Add | | | |
| **Operation type:** modifier | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| AVL, key, Value | AVL within the new key and value associated to a ordered position | AVL must be initialized | Adds a new element with the key and value given in a specific position |
| Adds the value and key given to the AVL | | | |

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| **Operation:**  Remove | | | |
| **Operation type: modifier** | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| AVL, key | AVL without the element associated to the key given | AVL must be initialized and have at least 1 element | Removes the element associated to the key |
| Removes the value associated to the key from AVL | | | |

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| **Operation:**  Search | | | |
| **Operation type:** analyzer | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| AVL, key | The value associated to the key | AVL must be initialized | Gets the value associated to the key |
| Gets the value associated to the key | | | |

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| **Operation:**  Balance | | | |
| **Operation type:** modifier | | | |
| **Input** | **Output** | **Precondition** | **Postcondition** |
| AVL | The AVL, balanced | AVL must be initialized | Balances the AVL |
| Valances the AVL | | | |