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| TAD Double Linked List | | | | |
| DoubleLinkedList: N = set of nodes, n = nodes | | | | |
| Inv: N = set of nodes, n = nodes | | | | |
|  | Operation | Input | Output | Type |
| 1 | DoubleLinkedList() |  | Instance of Double LinkedList | Constructor |
| 2 | add(K key, V value) | K key, V value |  | Modifier |
| 3 | remove(K key) | K key | String | Modifier |
| 4 | swap(K key1, K key2) | K key1, K key2 | String | Modifier |
| 5 | getNode(K key) | K key | Node<K, T> | Analyzer |
| 6 | print() |  | String | Analyzer |
| 7 | getSize() |  | int | Analyzer |

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| DoubleLinkedList() |
| Type: Constructor |
| Creates an empty doubly linked list. |

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| add(K key, V value) |
| Type: Modifier |
| Adds a new node with the given key and value to the end of the list. |

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| remove(K key) |
| Type: Modifier |
| Removes the node with the given key from the list. |

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| swap(K key) |
| Type: Modifier |
| swaps the values of two nodes with the given keys. |

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| getNode(K key) |
| Type: Analyzer |
| Returns the node with the given key. |

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| print() |
| Type: Analyzer |
| Prints the key-value pairs of all nodes in the list in order. |

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| getSize(K key) |
| Type: Analyzer |
| Return the length of the list. |