# Test Description

**Test Name or ID**: T025 - T028

**Test Type**: White box

**Description**: These tests aim to validate the functionality of the hasEnoughSpace function.

**Setup:** Initialize various Truck objects with specific volume and weight capacities.

**Test Function**: hasEnoughSpace

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test with valid Truck object and enough capacity. | Truck {volCapacity=100, weightCapacity=200}, wght=50, vol=50. | 1 | 1 | Pass |
| Test with valid Truck object but not enough volume capacity. | Truck {volCapacity=30, weightCapacity=200}, wght=50, vol=50 | 0 | 0 | Pass |
| Test with valid Truck object but not enough weight capacity. | Truck {volCapacity=100, weightCapacity=30}, wght=50, vol=50 | 0 | 0 | Pass |
| Test with null Truck object. | NULL, wght=50, vol=50 | -1 | -1 | Pass |

**Bugs Found**:

No bugs were found during the testing of the function.

# Test Description

**Test Name or ID**: T029 - T032

**Test Type**: White box

**Description**: These tests aim to validate the functionality of the loadShipment function.

**Setup:** Initialize various Truck objects with specific volume and weight capacities.

**Test Function**: loadShipment  
**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test with valid box size and weight, and enough space in Truck. | Truck {volCapacity=100, weightCapacity=200}, wght=50, vol=5 | tr->volCapacity=5,  tr->weightCapacity=150 | tr->volCapacity=5,  tr->weightCapacity=150 | Pass |
| Test with invalid box size. | Truck {volCapacity=100, weightCapacity=200}, wght=50, vol=-1 | tr->volCapacity=100,  tr->weightCapacity=200  ("Box size is invalid!" -> nothing change) | tr->volCapacity=100,  tr->weightCapacity=200  ("Box size is invalid!" -> nothing change) | Pass |
| Test with invalid weight size. | Truck {volCapacity=100, weightCapacity=200}, wght=-50, vol=5 | tr->volCapacity=100,  tr->weightCapacity=200  ("Weight size is invalid!") | tr->volCapacity=100,  tr->weightCapacity=200  ("Weight size is invalid!") | Pass |
| Test with valid box size and weight but not enough space in Truck. | Truck {volCapacity=100, weightCapacity=200}, wght=500, vol=5 | tr->volCapacity=100,  tr->weightCapacity=200  ("Truck is full!") | tr->volCapacity=100,  tr->weightCapacity=200  ("Truck is full!") | Pass |

**Bugs Found**:

No bugs were found during the testing of the function.

# Test Description

**Test Name or ID**: T033 - T036

**Test Type**: White box

**Description**: These tests aim to validate the functionality of the checkMoreCapacity function.

**Setup:** Initialize various Truck objects with specific volume and weight capacities.

**Test Function**: checkMoreCapacity  
**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test with two valid Truck objects, tr2 has more capacity. | Truck1 {volCapacity=50, weightCapacity=100}, Truck2 {volCapacity=100, weightCapacity=200} | 2 | 2 | Pass |
| Test with two valid Truck objects, tr1 has more capacity. | Truck1 {volCapacity=100, weightCapacity=200}, Truck2 {volCapacity=50, weightCapacity=100} | 1 | 1 | Pass |
| Test with null Truck1. | Truck1 = NULL, Truck2 {volCapacity=100, weightCapacity=200} | 1 | 1 | Pass |
| Test with null Truck2. | Truck1 {volCapacity=100, weightCapacity=200}, Truck2 = NULL | 1 | 1 | Pass |

**Bugs Found**:

No bugs were found during the testing of the function.

# Test Description

**Test Name or ID**: T037 - T040

**Test Type**: White box

**Description**: These tests aim to validate the functionality of the validateWeight function.

**Setup:** Test the function with various weights

**Test Function**: validateWeight  
**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Input a valid weight | Weight = 10 | 1 | 1 | Pass |
| Input a weight of 0 | Weight = 0 | 0 | 0 | Pass |
| Input a negative weight | Weight = -50 | 0 | 0 | Pass |
| Input a weight on the boundary | Weight = 1 | 1 | 1 | Pass |

**Bugs Found**:

No bugs were found during the testing of the function.

# Test Description

**Test Name or ID**: T041 - T044

**Test Type**: White box

**Description**: These tests aim to validate the functionality of the validateBox function.

**Setup:** Test the various box sizes

**Test Function**: validateBox  
**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test small box size | Size = SM\_BOX | 1 | 1 | Pass |
| Test medium box size | Size = MD\_BOX | 1 | 1 | Pass |
| Test negative box size | Size = -6 | 0 | 0 | Pass |
| Test positive box size | Size = 50 | 0 | 0 | Pass |

**Bugs Found**:

No bugs were found during the testing of the function.

# Test Description

**Test Name or ID**: T045 - T048

**Test Type**: White box

**Description**: These tests aim to validate the functionality of validateDest the function.

**Setup:** Test the various destination

**Test Function**: ValidateDestination  
**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test valid destination | dest = {row = 5, col = 5} | 1 | 1 | Pass |
| Test negative row | dest = {row = -1, col = 5} | 0 | 0 | Pass |
| Test out of bounds row | dest = {row = 999, col = 5} | 0 | 0 | Pass |
| Test 0 values | dest = {row = 0, col = 0} | 1 | 1 | Pass |

**Bugs Found**:

No bugs were found during the testing of the function.