# Test Description

**Test Name or ID**: T001 – T004

**Test Type**: Black box

**Description**: Tests to validate if the box size is within acceptable limits.

**Setup:** Input various box sizes as test data.

**Test Function**: validateBox

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test with box size exceeding valid limit | 7 | Invalid box size. 0 returned |  |  |
| Test with negative box size | -3 | Invalid box size. 0 returned |  |  |
| Test with valid box size within acceptable range | 3 | Valid box size. 1 returned |  |  |
| Test with box size below valid limit | 1.4 | Invalid box size. 0 returned |  |  |

**Bugs Found**:

Description of each bug found above and how to reproduce it.

# Test Description

**Test Name or ID**: T005 - T008

**Test Type**: Black box

**Description**: Tests to validate if the destination is within map bounds.

**Setup:** Input various destinations as test data.

**Test Function**: validateDest

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test with destination within map bounds | 1A | Valid destination. 1 returned |  |  |
| Test with destination outside map bounds | -3B | Invalid destination. 0 returned |  |  |
| Test with destination on the edge of map bounds | 25A | Valid destination. 1 returned |  |  |
| Test with destination far outside map bounds | 55A | Invalid destination. 0 returned |  |  |

**Bugs Found**:

Description of each bug found above and how to reproduce it.

# Test Description

**Test Name or ID**: T009 - T012

**Test Type**: Black box

**Description**: Tests to validate if the truck's capacity and weight are sufficient.

**Setup:** Input various weights and capacities as test data.

**Test Function**: hasEnoughSpace

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Test with capacity too large for the truck | 1500, 150 | Invalid capacity. Unable to ship |  |  |
| Test with weight too large for the truck | 3500, 100 | Invalid weight. Unable to ship |  |  |
| Test with valid weight and capacity | 1500, 100 | Valid specs. Truck can ship goods |  |  |
| Test with weight of 0 | 0, 100 | Valid specs. Truck can ship goods |  |  |

**Bugs Found**:

Description of each bug found above and how to reproduce it.

# Test Description

**Test Name or ID**: T017 - T020

**Test Type**: Black box

**Description**: Tests to compare the capacities and weights of two trucks.

**Setup:** Input various capacities and weights for trucks as test data.

**Test Function**: checkMoreCapacity

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Compare trucks with different weight capacities but same volume capacities | Truck 1 = 2000 W, 50 V / Truck 2 = 1500 W, 50 V | Truck 2 has more capacity |  |  |
| Compare trucks with different volume capacities but same weight capacities | Truck 1 = 1500 W, 50 V / Truck 2 = 1500 W, 60 V | Truck 1 has more capacity |  |  |
| Compare trucks with same weight and volume capacities | Truck 1 = 1500 W, 50 V / Truck 2 = 1500 W, 50 V | Trucks are equal. Return 1 |  |  |
| Compare trucks with one having higher weight capacity and the other higher volume capacity | Truck 1 = 1500 W, 50 V / Truck 2 = 2000 W, 30 V | Convert truck space to percentage. Return truck with lower percentage |  |  |

**Bugs Found**:

Description of each bug found above and how to reproduce it.

# Test Description

**Test Name or ID**: T021 - T024

**Test Type**: Black box

**Description**: Tests to compare coordinates of two points.

**Setup:** Input various coordinates as test data.

**Test Function**: eqPt

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Compare two points with the same coordinates | Point 1 = 4B, Point 2 = 4B | Returns true |  |  |
| Compare two points with different coordinates | Point 1 = 15C, Point 2 = 4B | Returns false |  |  |
| Compare a valid point with an invalid point | Point 1 = 55C, Point 2 = 4B | Returns false |  |  |
| Compare two points on the outer edges | Point 1 = 1A, Point 2 = 25A | Returns false |  |  |

**Bugs Found**:

Description of each bug found above and how to reproduce it.

# Test Description

**Test Name or ID**: T049 - T051

**Test Type**: Black box

**Description**: Tests the LoadShipment function by verifying that the truck's volume and weight capacities remain unchanged after attempting to load various shipments, ensuring the function handles different scenarios correctly.

**Setup:** Initialize truck objects with specific volume and weight capacities and shipment objects with various parameters, including invalid values.

**Test Function**: LoadShipment

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| Load a valid shipment into a truck | Truck 1: vol=100, weight=10 Shipment 1: vol=15, weight=5 | |  | | --- | | Truck 1 capacity remains unchanged |  |  | | --- | |  | |  |  |
| |  | | --- | | Load a shipment exceeding truck's volume |  |  | | --- | |  | | Truck 1: vol=85, weight=5 Shipment 2: vol=86, weight=1 | |  | | --- | | Truck 1 capacity remains unchanged |  |  | | --- | |  | |  |  |
| |  | | --- | | Load a shipment with zero volume and weight |  |  | | --- | |  | | Truck 1: vol=85, weight=5 Shipment 3: vol=0, weight=1 | |  | | --- | | Truck 1 capacity remains unchanged |  |  | | --- | |  | |  |  |

**Bugs Found**:

Description of each bug found above and how to reproduce it.