# Test Description

**Test Name or ID**: AT001

**Test Type: Acceptance**

**Description: This test verifies that the function isValidDest correctly identifies a destination within the delivery area.**

**Setup:** visual studio

**Test Function**: isValidDest

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| TestDestinationWithinDeliveryArea | Row=10, Col=15 | 1 | 1 | Pass |
| TestDestinationOutOfDeliveryArea | Row=25, Col=15 | 0 | 0 | Pass |
|  |  |  |  |  |

**Bugs Found**:N/A

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

**Test Name or ID**: AT002

**Test Type**: Acceptance

**Description**: This test ensures that when two trucks have the same distance to a shipment's destination, choose the proper truck under limit factors.

**Setup:** Create an array of Truck objects with same distances to the destination

**Test Function**: findTruckForShipment

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| TestChooseProperTruckWhenDistanceIsTheSame | Truck trucks[2] = {{1, route1, 1000, 10},{2, route2, 1000, 10}};  shipment.m\_dest.row = 9;  shipment.m\_dest.col = 9;  shipment.m\_weight = 500;  shipment.m\_boxSize = 3; | 0 | 0 | Pass |
|  |  |  |  |  |

**Bugs Found**:N/A

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

**Test Name or ID**: AT003

**Test Type: Acceptance**

**Description: This test checks that the function getClosestPoint accurately identifies the closest point on a route to a given destination.**

**Setup: Define a Point for the destination**

**Test Function**: getClosestPoint

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| TestGetClosestPoint | destination.row = 10;  destination.col = 9; | 19 | 19 | Pass |
|  |  |  |  |  |

**Bugs Found**:N/A

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

**Test Name or ID**: AT004

**Test Type: Acceptance**

**Description**: This test validates that the function isValidWeight correctly identifies a shipment weight within the range.

**Setup:** Set m\_weight to 1500, which is within the valid range

**Test Function**: isValidWeight

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| TestValidWeight | shipment.m\_weight = 1500; | 1 | 1 | Pass |
|  |  |  |  |  |

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

**Test Name or ID**: AT005

**Test Type: Acceptance**

**Description**: This test checks that the function isValidBoxSize correctly identifies a valid box size.

**Setup:** Set m\_boxSize to 3, which is a valid size.

**Test Function**: isValidBoxSize

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| TestValidBoxSize | shipment.m\_boxSize = 3; | 1 | 1 | Pass |
|  |  |  |  |  |

**Bugs Found**:N/A

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

**Test Name or ID**: AT006

**Test Type: Acceptance**

**Description**: This test verifies that a truck can carry a shipment within its weight and volume capacity.

**Setup:** Initialize a Shipment object with weight and box size.

**Test Function**: isTruckCanShip

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| TestTruckCanShip | truck.m\_weight\_capacity = 1000;  truck.m\_volume\_capacity = 50; shipment.m\_weight = 500; shipment.m\_boxSize = 3; | 1 | 1 | Pass |
| TestTruckCannotShipOverweight | truck.m\_weight\_capacity = 2400;  truck.m\_volume\_capacity = 50;  shipment.m\_weight = 200;  shipment.m\_boxSize = 3; | 0 | 0 | Pass |
|  |  |  |  |  |

**Bugs Found**:N/A

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

**Test Name or ID**: AT007

**Test Type: Acceptance**

**Description**: This test ensures that the function findTruckForShipment correctly selects the appropriate truck for a given shipment

**Setup:** Initialize a Shipment object with destination and weight

**Test Function**: findTruckForShipment

**Test Scenarios:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Test Data | Expected Result | Actual Result | Pass/Fail |
| TestFindTruckForShipment | Truck trucks[2] = {  {1, route1, 1000, 10},  {2, route2, 1000, 10}  };  shipment.m\_dest.row = 10;  shipment.m\_dest.col = 10;  shipment.m\_weight = 500;  shipment.m\_boxSize = 3; | 0 | 0 | Pass |
| TestFindTruckForShipmentNoTruckAvailable | Truck trucks[2] = {  {1, route1, 1000, 10},  {2, route2, 1000, 10}  };  shipment.m\_dest.row = 10;  shipment.m\_dest.col = 10;  shipment.m\_weight = 3000;  shipment.m\_boxSize = 3; | -1 | -1 | Pass |
|  |  |  |  |  |

**Bugs Found**:N/A

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