# Requirements

1. Het maximum gewicht bovenop een container is 120 ton.
2. Een volle container weegt maximaal 30 ton. Een lege container weegt 4000 kg.
3. Er mag niets bovenop een container met waardevolle lading worden gestapeld; wel mogen deze containers zelf op andere containers geplaatst worden.
4. Een container met waardevolle lading moet altijd via de voor- of achterkant te benaderen zijn. Je mag er vanuit gaan dat ook gestapelde containers te benaderen zijn.
5. Alle containers die gekoeld moeten blijven moeten in de eerste rij worden geplaatst vanwege de stroomvoorziening die aan de voorkant van elk schip zit.
6. Om kapseizen te voorkomen moet ten minste 50% van het maximum gewicht van een schip zijn benut.
7. Het schip moet in evenwicht zijn: het volledige gewicht van de containers voor iedere helft mag niet meer dan 20% verschillen.
8. De afmeting van een schip moet instelbaar zijn in de applicatie, waarbij de hoogte en breedte in containers aangegeven kan worden.

# Test cases

**Test Suite Name**: Container test suite

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test case name** | **Test step** | **Action** | **Test data** | **Expected result** | **Test result** |
|  |  |  |  |  |  |
| **TC-01**  Create containers for ship size | 1 | Create a pile for each position at x,y. and specify the side of the ship | Int x = 5,  Int y =5 | Containerpiles.count = 25 | 25 |
|  |  |  |  |  |  |
|  | 2 | Run CreateContainerPiles() and use the given int’s as parameters |  | Containerpiles.count = 25 | count = 25 |
|  |  |  |  |  |  |  |  |  |  |  |
| **TC-02**  Create containers for ship size | 1 | Create a pile for each position at x,y. and specify the side of the ship | Int x = 4,  Int y =8  New testShip |  |  |  |  |  |  |  |
|  | 2 | Run CreateContainerPiles() and use the given int’s as parameters |  | Containerpiles[15].side = Left | Side = left |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **TC-03**  Create containers for ship size | 1 | Create a pile for each position at x,y. and specify the side of the ship | Int x = 3,  Int y = 3  New testShip |  |  |  |  |  |  |  |
|  | 2 | Run CreateContainerPiles() and use the given int’s as parameters |  | Containerpiles[3].side = Middle | Side = Middle |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| **TC-04**  Valid weight for loads  (invalid test) | 1 | Create 3 test containers and a test ship that has 2 maxcolumns, maxrows. | testShip (2,2)  Testcontainer(0, 20, regular, 0); |  |  |
|  | 2 | Run the Validation method. |  | false | false |
| **TC-05**  Valid weight of loads. | 1 | Create 10 test containers with a totalweight 300 and a test ship that has 2 maxcolumns, maxrows. | Testcontainer(0, 30, regular, 0);  testShip(2,2) |  |  |
|  | 2 | Run the Validation method. |  | true | true |
|  |  |  |  |  |  |
| **TC-06**  Validate regular containers in pile | 1 | Create a regular container and pile. | testPile(0,0,0,Left)  Container(0,20,Regular) |  |  |
|  | 2 | Run the Sort method. |  | false | false |
|  |  |  |  |  |  |
| **TC-07**  Validate cooled containers in pile | 1 | Create a regular container and pile. | testPile(0,0,0,Left)  Container(0,20,cooled) |  |  |
|  | 2 | Run the Sort method. |  | false | false |
|  |  |  |  |  |  |
| **TC-08**  Validate cooled containers in pile  (invalid test) | 1 | Create a cooled container and pile. | testPile(0,0,2,Left)  Container(0,20,cooled) |  |  |
|  | 2 | Run the Sort method. |  | true | true |
|  |  |  |  |  |  |
| **TC-09**  Validate valuable containers in pile) | 1 | Create a valuable container and pile. | testPile(0,0,0,Left)  Container(0,20,valuable)  lastRow = 2 |  |  |
|  | 2 | Run the Sort method. |  | false | false |
|  |  |  |  |  |  |
| **TC-10**  Validate valuable containers in pile | 1 | Create a valuable container and pile. | testPile(0,0,2,Left)  Container(0,20,valuable)  lastRow = 2 | false | false |
|  | 2 | Run the Sort method. |  | true | true |
|  |  |  |  |  |  |
| **TC-11**  Validate valuable containers in pile)  (invalid test) | 1 | Create a valuable container and pile. | testPile(0,0,2,Left)  Container(0,20,valuable)  lastRow = 6 |  |  |
|  | 2 | Run the Sort method. |  | true | true |
|  |  |  |  |  |  |
| **TC-12**  Sort regular containers in piles | 1 | Create 4 container piles with a column and row position of a 1 by 1 ship.  Create 9 regular containers. | testPile(0,0,0,Left)  testPile(1,1,0,Left)  testPile(2,2,0,Left)  testPile(3,3,0,Left)  -  Container(0,20,Regular) |  |  |
|  | 2 | Run the Sort method. |  | ContainerPile[0].containers.count = 5 | ContainerPile[0].containers.count = 5 |
|  |  |  |  |  |  |
| **TC-13**  Sort cooled containers in piles | 1 | Create 4 container piles with a column and row position of a 1 by 1 ship.  Create 9 regular containers. | testPile(0,0,0,Left)  testPile(1,1,0,Left)  testPile(2,2,0,Left)  testPile(3,3,0,Left)  -  Container(0,20,Regular) |  |  |
|  | 2 | Run the Sort method. |  | ContainerPile[0].containers.count = 5 | ContainerPile[0].containers.count = 5 |
|  |  |  |  |  |  |
| **TC-14**  Sort valuable containers in piles | 1 | Create 4 container piles with a column and row position of a 1 by 1 ship.  Create 9 regular containers. | testPile(0,0,0,Left)  testPile(1,1,0,Left)  testPile(2,2,0,Left)  testPile(3,3,0,Left)  -  Container(0,20,Regular) |  |  |
|  | 2 | Run the Sort method. |  | ContainerPile[0].containers.count = 1 | ContainerPile[0].containers.count = 1 |
|  |  |  |  |  |  |
| **TC-15**  Get topload weight | 1 | Create a pile with 4 regular containers | Container(0,20,regular)  Container(0,20,regular)  Container(0,20,regular)  Container(0,40,regular) |  |  |
|  | 2 | Run GetTopLoadWeight() |  | 70 | 70 |

# Testmatrix