

Algorithm Boundary Cases:

Test Description	Input(s)	Expected Output(s)	Actual Output(s)
Ship that has nothing to be loaded	ShipCase1.txt , select one item to be unloaded, do not add any containers	Produces one move: Move the container to be unloaded to tuck	Produces 5 moves, Move 4 moves the desired container from the ship to the truck
Ship that has nothing to be unloaded	ShipCase1.txt , Do not select any containers, add one container to be loaded	Produces one move: Move container from truck to closest available open space	Produces 4 moves, Move 4 moves the desired container from the truck to the ship
Ship that has nothing to be unloaded or loaded	ShipCase1.txt , Select load/unload operation, don't select any containers to be unloaded, and don't input any containers to be loaded	After the program has finished calculating the user is automatically directed to the download manifest page, where a popup tells them that no moves needed to be made	Produces no moves, automatically redirects to download manifest page and presents a pop up that says that no moves need to be made.
Ship that needs everything to be unloaded	ShipCase1.txt , select every container select non to be unloaded	Produces 2 moves, move one container to truck, then move other container to ship	Calculation was allowed to run for 15 minutes before test was concluded no moves were produced
Empty Ship - Balancing	Empty_Ship.txt , select balance operation	After the program has finished calculating the user is automatically directed to the download manifest page, where a popup tells them that no moves needed to be made	Produces no moves, automatically redirects to download manifest page and presents a pop up that says that no moves need to be made.
Empty Ship - Load/Unload	Empty_Ship.txt , select load/unload	Unload select page has a blank list After	Produces no moves, automatically

	operation, do not choose anything to load	the program has finished calculating the user is automatically directed to the download manifest page, where a popup tells them that no moves needed to be made	redirects to download manifest page and presents a pop up that says that no moves need to be made.
Balanced ship	already_balanced.txt , Select Balance operation	After the program has finished calculating the user is automatically directed to the download manifest page, where a popup tells them that no moves needed to be made	Produces no moves, automatically redirects to download manifest page and presents a pop up that says that no moves need to be made.
Ship with 2 identical Containers - Balancing	Duplicate Containers.txt , Select balancing operation	Produces one move to move the container from 1,3 to 1,7	Produces 1 move that moves the container at 1,3 to 1,7
Ship with 2 identical Containers - Load/Unload	Duplicate Containers.txt , Select load/unload load one container with the name "Dog"	Produces one move to take loaded container from the truck and put it onto the ship	Produces 4 moves move 4 moves the desired container from the ship to the truck

User Interface Cases:

Test Description	Input(s)	Expected Output(s)	Actual Output(s)
User inputs a note that is over 256 Characters	String of a's that is 258 characters long	The note is broken up into 256 character strings before being sent back end. One string of 256 a's is sent then a string of 2 a's is sent. No visible feedback to users.	Note Set: aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaaaaaaaaaaaaaa aaaaaaaa Note Set: aa No visible feedback to user
User inputs a note that is only spaces	String of 1 space	User sees a popup window appear that says "Please enter at least one printable character." The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	Popup window: Please enter at least one printable character User unable to interact with program until closing popup Previous input is no longer there
User inputs a note that is empty	User hits enter without typing anything into the line edit	User sees a popup window appear that says "Please enter at least one printable character." The user is unable to interact with the program until this popup is dismissed. Users previous input is	Popup window: Please enter at least one printable character User unable to interact with program until closing popup Previous input is no

		deleted from line edit.	longer there
User inputs 2 invalid notes in a row	User hits enter without typing anything into the line edit then enters a string of 3 spaces	<p>After first input: User sees a popup window appear that says "Please enter at least one printable character." The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.</p> <p>After the second input: User sees a popup window appear that says "Please enter at least one printable character." The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.</p>	<p>After first input: Popup window: Please enter at least one printable character</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p> <p>After second input: Popup window: Please enter at least one printable character</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs a name that is over 256 Characters	String of all a's that is 257 characters long	<p>User sees a popup window appear that says "Name cannot be greater than 256 Characters. You are over the character limit by 1 characters"</p> <p>The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.</p>	<p>Popup window: Name cannot be greater than 256 Characters. You are over the character limit by: 1 characters.</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs a name that is only spaces	String of 3 spaces	User sees a popup window appear that says "Please enter at	Popup window: Please enter at least one printable

		least one printable character.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>character</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs a name that is empty	User hits enter without typing anything into the line edit	User sees a popup window appear that says “Please enter at least one printable character.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Please enter at least one printable character</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs 2 invalid names in a row	User enters String of all a’s that is 300 characters long then enters an empty string	<p>After first input: User sees a popup window appear that says “Name cannot be greater than 256 Characters. You are over the character limit by 44 characters” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.</p> <p>After the second input: User sees a popup window appear that says “Please enter at least one printable character.” The user is unable to interact with the program until this popup is dismissed.</p>	<p>After First input:</p> <p>Popup window: Name cannot be greater than 256 Characters. You are over the character limit by: 44 characters.</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p> <p>After Second input:</p> <p>Popup window: Please enter at least one printable character</p> <p>User unable to</p>

		Users previous input is deleted from line edit.	<p>interact with program until closing popup</p> <p>Previous input is no longer there</p>
User opens the file dialog but makes no selection for a file	User clicks “Select File” Button then clicks cancel to exit the file dialog	The confirm button does not appear for the user and no manifest name is displayed	Confirm button does not appear, display box in top left still blank
User selects one manifest but changes their mind and selected a different manifest	User clicks “Select File” Button then selects their first manifest, then clicks “Select file” again and selects a different manifest	The confirm button appears after the user makes their first selection and the name of the manifest they selected appears in the top left of the screen. Then after they've made their second selection the confirm button is still be present and the name of their selected manifest appears in the top left of the screen	<p>Confirm button appears after selecting first manifest name of first manifest appears in top left</p> <p>Confirm button still present after selecting the second manifest name of second manifest appears in top left</p>
User selects one manifest but changes their mind and opens the file dialog and hits cancel	User clicks “Select File” Button then selects their first manifest, then clicks “Select file” again and selects cancel	The confirm button appears after the user makes their first selection and the name of the manifest they selected appears in the top left of the screen. After they cancel out of the file dialog the top left of the screen no longer displays a manifest name and the confirm button disappears	<p>Confirm button appears after selecting first manifest name of first manifest appears in top left</p> <p>Confirm button disappears after canceling top left display box is blank</p>
User Selects but then unselects an unload	User selects option A but then unselects	The selection is highlighted and the	Option A is highlighted checkbox

option	option A	box is checked, then after they click again the box is unchecked	icon is check, after unselecting checkbox is unchecked
User inputs a container description that is over 256 characters	String of 260 b's	User sees a popup window appear that says "Container Description cannot be greater than 256 Characters. You are over the character limit by 4 characters" The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Name cannot be greater than 256 Characters. You are over the character limit by: 4 characters.</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs a container description that is only spaces	string of 5 spaces	User sees a popup window appear that says "Please enter at least one printable character." The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Please enter at least one printable character</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs a container description that is empty	User hits enter without typing anything into the line edit	User sees a popup window appear that says "Please enter at least one printable character." The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Please enter at least one printable character</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>

User inputs a container name that only consists of "NAN"	String of "NAN"	User sees a popup window appear that says "Your container description may not solely consist of the words: "NAN" or "Unused" The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Your container description may not solely consist of the words "NAN" or "Unused".</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs a container name that only consists of "Unused"	String of "Unused"	User sees a popup window appear that says "Your container description may not solely consist of the words: "NAN" or "Unused" The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Your container description may not solely consist of the words "NAN" or "Unused".</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs 2 invalid container descriptions in a row	String of "UNUSED" then User hits enter without typing anything into the line edit	<p>After first input: User sees a popup window appear that says "Your container description may not solely consist of the words: "NAN" or "Unused" The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.</p> <p>After second input: User sees a popup window appear that says "Please enter at</p>	<p>After first input: Popup window: Your container description may not solely consist of the words "NAN" or "Unused".</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p> <p>After Second input: Popup window: Please enter at least one printable</p>

		least one printable character.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	character User unable to interact with program until closing popup Previous input is no longer there
User inputs 2 identical container descriptions	String “aaa” then string “aaa”	Two containers appear on the list “1 aaa” and 2”aaa” two containers are created and sent to the backend.	White box below text edit has 2 containers aaa and aaa
User inputs a weight that is less than 1 kilo	-1000	User sees a popup window appear that says “Please enter an integer weight within the range: 1 - 99999 kilos.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	Popup window: Please enter an integer weight within the range: 1-99999 kilos. User unable to interact with program until closing popup Previous input is no longer there
User inputs a weight that is greater than 99999 kilos	9999999999	User sees a popup window appear that says “Please enter an integer weight within the range: 1 - 99999 kilos.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	Popup window: Please enter an integer weight within the range: 1-99999 kilos. User unable to interact with program until closing popup Previous input is no longer there
User tries to input a sting into the weight input	String “aaaaa”	User sees a popup window appear that says “Please enter an integer weight within	Popup window: Please enter an integer weight within the range: 1-99999

		the range: 1 - 99999 kilos.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>kilos.</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User tries to input a string that only consists of spaces	String of 1 space	User sees a popup window appear that says “Please enter an integer weight within the range: 1 - 99999 kilos.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Please enter an integer weight within the range: 1-99999 kilos.</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User tries to input an empty string into the weight input	User hits enter without typing anything into the line edit	User sees a popup window appear that says “Please enter an integer weight within the range: 1 - 99999 kilos.” The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.	<p>Popup window: Please enter an integer weight within the range: 1-99999 kilos.</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
User inputs 2 invalid inputs into the weight input in a row	String “bcba” then user enters -50	After first input: User sees a popup window appear that says “Please enter an integer weight within the range: 1 - 99999 kilos.” The user is unable to interact with the program until this popup is dismissed. Users	<p>After first input: Popup window: Please enter an integer weight within the range: 1-99999 kilos.</p> <p>User unable to interact with program until closing popup</p>

		<p>previous input is deleted from line edit. After second input: User sees a popup window appear that says "Please enter an integer weight within the range: 1 - 99999 kilos." The user is unable to interact with the program until this popup is dismissed. Users previous input is deleted from line edit.</p>	<p>Previous input is no longer there</p> <p>After Second input: Popup window: Please enter an integer weight within the range: 1-99999 kilos.</p> <p>User unable to interact with program until closing popup</p> <p>Previous input is no longer there</p>
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