



## Testing Report

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## Introduction

The purpose of this report is to describe and explain the testing carried out on a manifest loading optimisation program.

## Test strategy

A structured testing approach was conducted to validate the program's functionality, performance and usability. A combination of manual and automated testing was used.

Manual testing: Used for testing user interface responsiveness and navigation.

Automated testing: Used for testing core functionalities and verifying expected outputs.

## Objectives

The primary objectives of the testing process are to:

- Ensure that the program provides consistent and accurate results based on input data.
- Ensure that the program is user friendly.
- Ensure that the program is resource and time efficient.

## Scope

Features to Be Tested:

- File selection and upload functionalities.
- Algorithm execution for optimal loading plan.
- Viewing individual item details.
- Viewing individual lorry information.
- Saving output to local machine.
- User interface responsiveness and navigation.

Testing Types:

- System testing: verifies the expected output.
- Performance testing: measures execution time.
- Accessibility testing: ensures that the program is accessible to everyone

Constraints:

- The program only accepts JSON files and does not support other file formats.

## Test Cases

Test Case ID	TC001
Test Description	Verify that the user can successfully select a file and upload it by clicking the "Select a file" button.
Pre-Conditions	The application is already running.
Steps to Execute	<ol style="list-style-type: none"><li>1. Click the 'Select File' button on home page</li><li>2. Wait for Select File form to load</li><li>3. Click 'Select a File' button on new form</li><li>4. Select the desired file from folder explorer</li><li>5. Click the 'Confirm File' button</li></ol>
Expected Result	<ul style="list-style-type: none"><li>• The selected file's path is displayed on the home page.</li></ul>
Status (Pass/Fail)	Pass

Test Case ID	TC002
Test Description	Can view the optimal load output
Pre-Conditions	An acceptable JSON file has been selected
Steps to Execute	<ol style="list-style-type: none"><li>1. Click the 'Generate Optimal Loading Method'</li></ol>
Expected Result	<ul style="list-style-type: none"><li>• The text box next to the row of buttons should show the output from the algorithm providing an output</li></ul>
Status (Pass/Fail)	Pass

Test Case ID	TC003
Test Description	Verify that the user can view individual lorry items.
Pre-Conditions	An output has been generated by the program
Steps to Execute	1. Click on the 'Select Lorry' button
Expected Result	<ul style="list-style-type: none"> <li>The Select Lorry form loads</li> </ul>
Status (Pass/Fail)	Pass

Test Case ID	TC004
Test Description	Verify that the user can save the output to a text file on their local machine.
Pre-Conditions	An output has been generated by the program
Steps to Execute	<ol style="list-style-type: none"> <li>Click on the 'Save Output to File' button</li> <li>Wait for file explorer to load</li> <li>Save file in preferred location</li> </ol>
Expected Result	<ul style="list-style-type: none"> <li>Success message displayed to user</li> <li>Text file found in desired location</li> </ul>
Status (Pass/Fail)	Pass

Test Case ID	TC005
Test Description	Verify that the user can view individual items details.
Pre-Conditions	An output has been generated by the program
Steps to Execute	<ol style="list-style-type: none"> <li>1. Click on 'View an Item's Details' button</li> <li>2. Wait for file explorer to load</li> <li>3. Save file in preferred location</li> </ol>
Expected Result	<ul style="list-style-type: none"> <li>• The output window shows the user details about the item selected</li> </ul>
Status (Pass/Fail)	Pass

Test Case ID	TC006
Test Description	Verify that the user can save individual lorry information to a text file on their local machine
Pre-Conditions	An output has been generated by the program
Steps to Execute	<ol style="list-style-type: none"> <li>1. Click on 'Save Lorry Information' button</li> <li>2. Wait for Item Details form to load</li> <li>3. Select item ID in input box to view details of</li> <li>4. Click 'View Item' button</li> </ol>
Expected Result	<ul style="list-style-type: none"> <li>• Success message displayed to user</li> <li>• Text file found in desired location</li> </ul>
Status (Pass/Fail)	Pass

Test Case ID	TC006
Test Description	Verify that the user can successfully exit the program when they click the 'Exit Program' button.
Pre-Conditions	The program is running and the user is at a point where exiting the program is a valid action.
Steps to Execute	1. Click the 'Exit Program' button.
Expected Result	<ul style="list-style-type: none"><li>• The program is closed successfully.</li></ul>
Status (Pass/Fail)	Pass

## Non-Functional Requirements testing

Test ID	Description	Type
NF01	The result of the items to put in each load returns within 15 seconds per 1000 items	Performance
NF02	The colouring and overall design will be simple and easy to use to allow for maximum accessibility to all users.	Accessibility
NF03	The most frequently used features must be easily accessible and reached with minimal navigation.	Usability
NF04	The results produced by the program must be outputted in a simple and easy to understand way.	Accessibility
NF05	The program should be optimised in terms of memory usage to avoid excessive memory usage which could lead to performance issues.	Performance

## Evidence

