# CST8130 – Data Structures

# Assignment 1 – Test Plan

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**Feature 1: Add Item to Inventory**

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| Test Case | Input | Expected Output |
| Test 1 | Add a fruit item (f) | Success message, item added to inventory |
| Test 2 | Add a vegetable item (v) | Success message, item added to inventory |
| Test 3 | Add a preserve item (p) | Success message, item added to inventory |
| Test 4 | Attempt to add more items than the inventory limit | Error message, cannot add more items |
| Test 5 | Attempt to add an item with an existing item code | Error message, item code already exists |
| Test 6 | Invalid input during item addition | Error message, invalid input |

**Feature 2: Display Current Inventory**

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| Test Case | Input | Expected Output |
| Test 1 | Display inventory when it's not empty | List of items in the inventory |
| Test 2 | Display inventory when it's empty | "Inventory is empty. Cannot display items." |

**Feature 3: Buy Item(s)**

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| Test Case | Input | Expected Output |
| Test 1 | Buy an item with sufficient quantity | Success message, quantity updated |
| Test 2 | Attempt to buy an item with insufficient quantity | Error message, not enough quantity to buy |
| Test 3 | Buy an item with invalid input | Error message, invalid input |

**Feature 4: Sell Item(s)**

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| Test Case | Input | Expected Output |
| Test 1 | Sell an item with sufficient quantity | Success message, quantity updated |
| Test 2 | Attempt to sell an item with insufficient quantity | Error message, not enough quantity to sell |
| Test 3 | Sell an item with invalid input | Error message, invalid input |

**Feature 5: Search for Item**

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| Test Case | Input | Expected Output |
| Test 1 | Search for an existing item by code | Item details |
| Test 2 | Search for a non-existing item by code | Error message, code not found |

**Feature 6: Save Inventory to File**

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| Test Case | Input | Expected Output |
| Test 1 | Save inventory to a file | Success message, data saved to file |
| Test 2 | Save inventory when it's empty | Error message, inventory is empty |
| Test 3 | Save inventory with invalid filename | Error message, error while saving to the file |

**Feature 7: Read Inventory from File**

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| Test Case | Input | Expected Output |
| Test 1 | Read inventory from a valid file | Success message, data read from file |
| Test 2 | Read inventory from a non-existing file | Error message, file not found |
| Test 3 | Read invalid data from a file | Error message, error parsing item details |

**Feature 8: Exit Program**

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| Test Case | Input | Expected Output |
| Test 1 | Choose to exit the program | Program exits |