**Test Plan for Pantry Tracking Software - Unit: addItem Method**

Objective:

To test the addItem method, which adds items to the pantry in the pantry tracking software, ensuring it handles various scenarios correctly.

**Test Case 1: Add Item Successfully**

Input:

Item name: "Rice"

Quantity: 5

Expiry date: 2023-12-31

Expected Output: The addItem method should add the item to the pantry.

The pantry should now contain an entry for "Rice" with a quantity of 5 and an expiry date of 2023-12-31. testAddItemSuccess tests the successful addition of an item to the pantry.

**Test Case 2: Add Item with Negative Quantity**

Input:

Item name: "Cereal"

Quantity: -2 (negative)

Expected Output: The addItem method should handle the negative quantity gracefully. The method should not add the item to the pantry. An error message should be returned, indicating that the quantity must be a positive integer.

testAddItemNegativeQuantity tests that the method correctly handles a negative quantity. The assertThrows method is used to assert that calling addItem with a negative quantity throws an IllegalArgumentException. If the exception is thrown, the test passes.

**Test Case 3: Add Item with Empty Name**

Input:

Item name: "" (empty string)

Quantity: 3

Expiry date: 2023-10-15

Expected Output: The addItem method should validate the item name and reject the addition. An error message should be returned, indicating that the item name cannot be empty.

testAddItemEmptyName tests that the method correctly handles an empty item name. the assertThrows method is used to assert that calling addItem with an empty name throws an IllegalArgumentException, causing the test to pass.