# Test-Driven Development Lab

TDD is a development approach that involves writing the test scenarios & expected outcomes *before* writing any code. In other words, the tests drive development. In this lab, we’re going to go through tests that drove the development of the web application developed for this project.

## Add Fruit to Cart Test - Example

The web application must allow the user to add their desired fruit to their cart successfully. Let’s think about what a test scenario for that could look like.

Scenario: User adds fruit to their cart

Steps:

* Add fruits to the cart
* Check to see that the fruit was added.

Assertations:

* Assert that the cart contains the fruit that was added.
* Assert that the quantity reflects what was added.
* Assert that the running total of the cart was updated properly.

Based on this scenario, we can begin to think about how we would develop the application to pass the tests. We know that we need a cart instance that saves the users’ data and updates as the user changes it. When referencing the source code for our web application, you can see that the add method does this correctly and does satisfy the test.

A screen shot of a computer code

Description automatically generated

## Sorting a List Test

Now that we have a general understanding of how TDD works, let’s delve into a test scenario and example program to see this concept in action.

Given this test scenario:

Scenario: Sort a list of 10 random numbers.

Steps:

* Generate a list of 10 random numbers.
* Pass the list to the sorting function.

Assertations:

* Assert that the output list is sorted in ASCENDING order.
* Assert that the length of the input and output lists is the same.
* Assert that the items in both input and output lists are the same.

Write a program to satisfy the test scenario.

Example Solution:

A computer screen with text

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