Automation Testing

Red-Green-Refactor

A Day in the Life of an Automation Test Engineer

Anna now understands the foundation of TDD, how it works, and how it relates to agile.

She needs to understand what is red-green-refactor and how it works.

To achieve the above, she will learn a few concepts in this lesson that can help her to find a solution for the scenario.

Learning Objectives

By the end of this lesson, you will be able to:

- Illustrate red-green-refactor
- Understand the flow of red-green-refactor

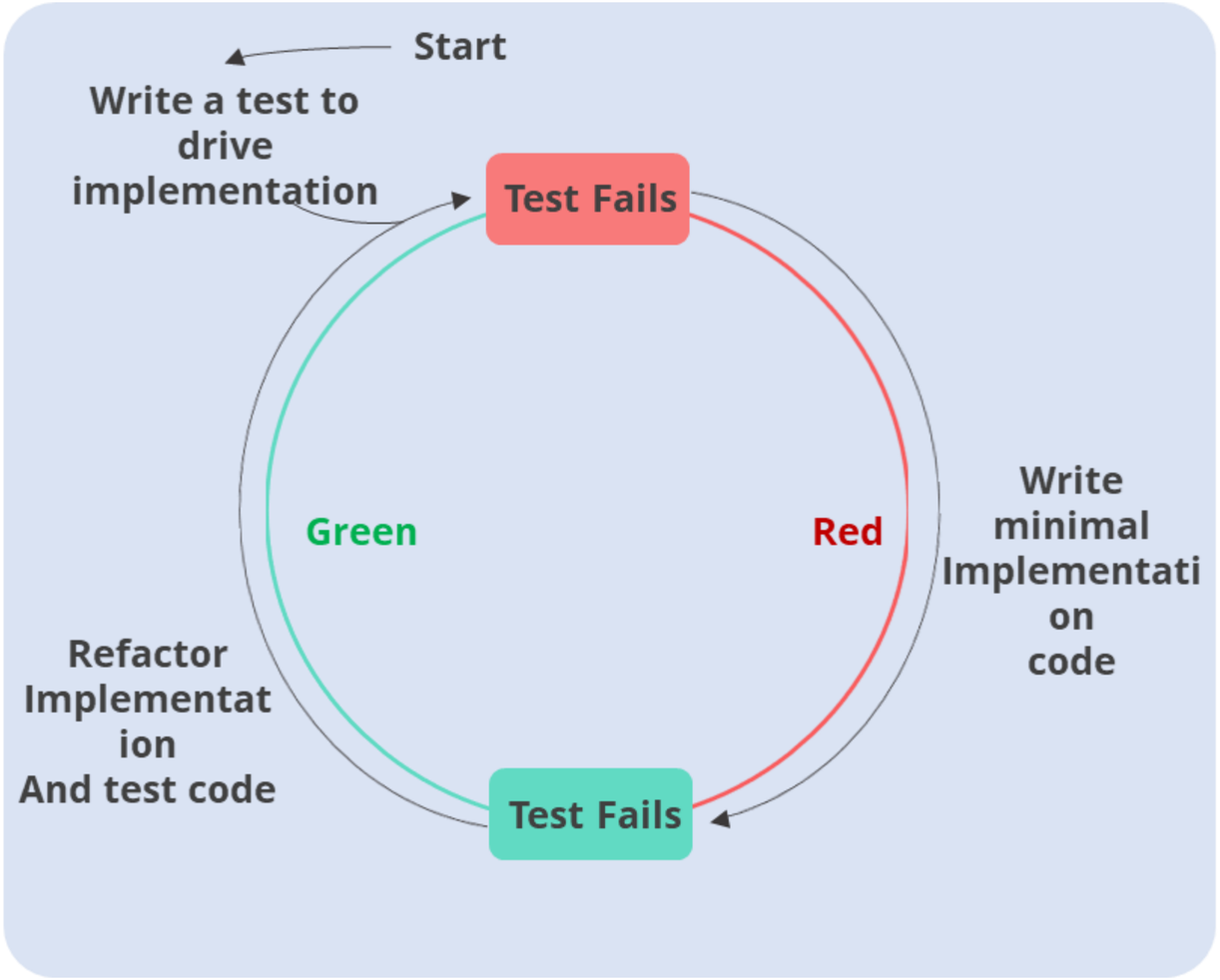
Red-Green-Refactor: Overview

Introduction to Red-Green-Refactor

In short development cycles, developers utilize red, green, and refactor to construct a test suite, write implementation code, and optimize their codebase.

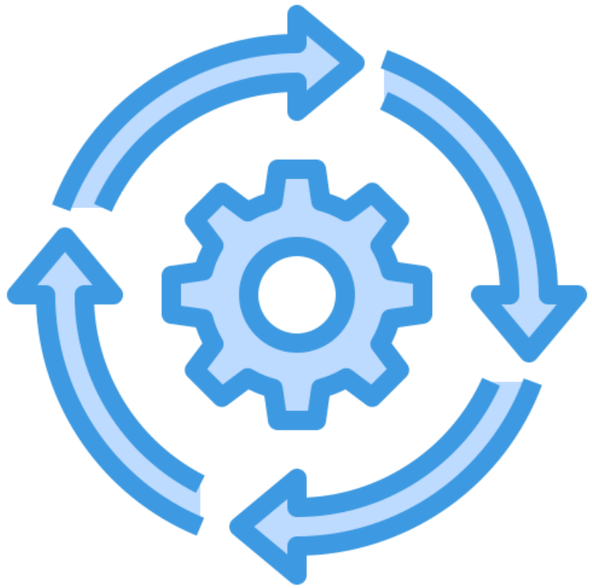
The Red-Green-Refactor Process

Development Cycle



Red

The red, green, and refactoring cycles always begin with the red phase. This phase's goal is to build a test that will help with the implementation of a feature.



Red

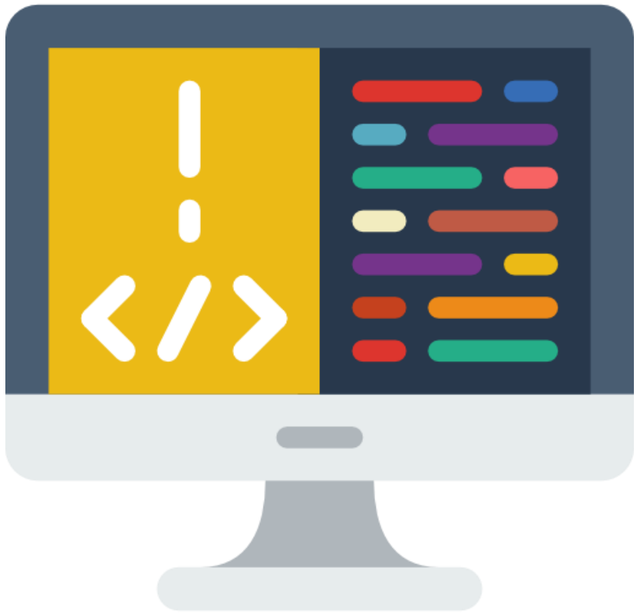
Scenario:
Write a function named sortArray that sorts an array's numerical values in ascending order. To begin, write a test that verifies the following input and output:

Input: [9, 5, 7]
Output: [5, 7, 9]

```
1) sortArray returns an array sorted in ascending order:
   TypeError: Calculate.arraySort is not a function
    at Context.it (test/index_test.js:10:32)
```

Green

The green phase is when the user writes the code that will allow a user to test to pass. The idea is to find a solution without focusing on how to implement it optimally.

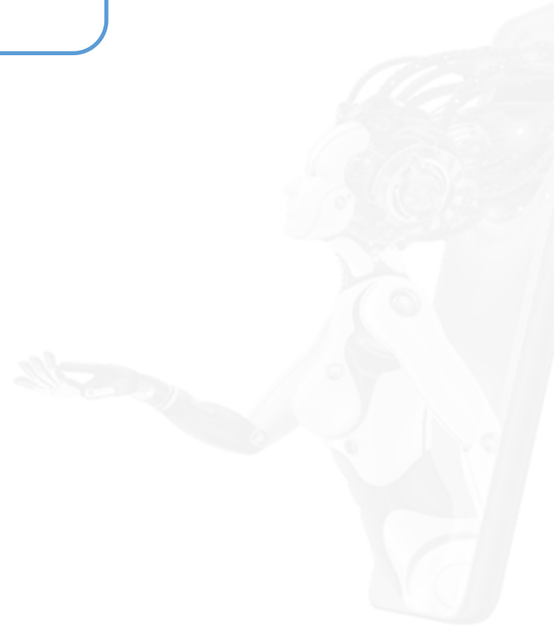


Green

After implementation, the user should see a passing message similar to this:

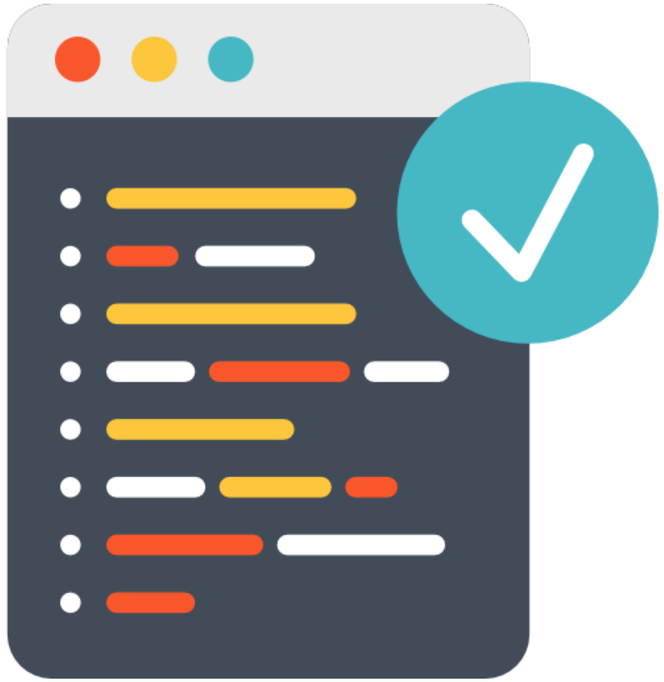
```
sortArray
  ✓ returns an array sorted in ascending order


1 passing (19ms)
```



Refactor

Now the user is in the refactor phase. Users can make modifications so that tests pass without any errors.



Refactor

When the user completes the refactoring and runs the suite again, the following output will appear:

```
sortArray
  ✓ returns an array sorted in ascending order


1 passing (7ms)
```

Key Takeaways

- Developers use the red, green, and refactor method to divide their focus into three phases.
- The red phase encourages users to consider what they wish to accomplish.
- Green phasing guides users in thinking about how to pass tests.
- The refactoring step encourages the user to consider how they may improve the current implementation.