**API Test Automation Instruction Document**

**Purpose and Scope**

The purpose of this document is to guide users in setting up and using an API test automation framework for the backend API of a web application. The scope of this document includes installation, configuration, and testing processes.

**Documentation Format**

This document will be created as a Markdown file, which can be easily converted to various formats, including PDF and HTML.

**High-Level Overview**

The API test automation framework is designed to automate testing of the backend API for a web application. This framework includes components for sending HTTP requests, parsing responses, and reporting test results.

**Components and Modules**

The framework consists of the following modules:

1. **Core Module**: This module contains the base classes and utility functions used by other modules.
2. **Test Module**: This module contains the test cases and scenarios that will be executed as part of the automated tests.
3. **Reports Module**: This module is responsible for generating test reports and storing them in a database.

**Test Cases and Scenarios**

The framework includes a variety of test cases and scenarios, including:

1. **Create**: Tests to verify the ability to create new records.
2. **Read**: Tests to verify the ability to retrieve existing records.
3. **Update**: Tests to verify the ability to update existing records.
4. **Delete**: Tests to verify the ability to delete records.

**Best Practices and Guidelines**

Here are some best practices and guidelines to follow when using the API test automation framework:

1. **Keep tests independent**: Ensure that each test can be run independently of other tests.
2. **Use meaningful test names**: Use descriptive test names that accurately describe the purpose and scope of the test.
3. **Report test results**: Make sure to report test results in a clear and concise manner.
4. **Encapsulate functionality**: Encapsulate functionality in reusable classes and methods.
5. **Use descriptive assertions**: Use descriptive assertions that accurately describe the expected outcome.

**Setup**

**Prerequisites**

Before setting up the API test automation framework, make sure you have the following software installed:

* **Java Development Kit (JDK)**: Version 11 or higher.
* **Maven**: Version 3.6.3 or higher.

**Installation**

1. **Clone the repository**: Clone the API test automation framework repository from GitHub.
2. **Install dependencies**: Run the command **mvn install** to install the required dependencies.

**Configuration**

1. **Update the config.properties file**: Update the **config.properties** file with the correct values for the API endpoint, authentication credentials, and other settings.
2. **Generate test data**: Generate test data for use in the automated tests.

**Running the Automated Tests**

1. **Execute the test suite**: Execute the test suite by running the command **mvn test**.
2. **View the test reports**: View the test reports by opening the **target/surefire-reports** directory.

By following these setup instructions, users can easily install, configure, and run the API test automation framework for their web application.

**Conclusion**

This document has provided an overview of the API test automation framework, including its components, modules, test cases, best practices, and setup instructions. By following these guidelines, users can ensure that their backend API is thoroughly tested and validated, leading to a more stable and reliable web application.