# Cypress Test Automation Framework Documentation

## Overview

This Cypress framework automates testing for Magento's demo site.   
The framework implements best practices such as the Page Object Model (POM), reusable commands,   
configurable environments, and detailed reporting to ensure a scalable and maintainable solution.

## Key Features

1. \*\*Page Object Model (POM):\*\* Centralized handling of UI elements for modularity.  
2. \*\*Reusable Commands:\*\* Simplifies test actions like login and product interactions.  
3. \*\*Cross-Browser Support:\*\* Compatible with Chrome, Firefox, and others.  
4. \*\*Test Reporting:\*\* Includes screenshots, videos, and detailed reports for failure analysis.  
5. \*\*Retry Logic:\*\* Configurable retries for flaky tests.  
6. \*\*API and UI Tests:\*\* Covers user registration, login, product search, cart management, and checkout.

## Setup Instructions

1. \*\*Clone the Repository:\*\* Use `git clone <repository\_url>` to clone the repository.  
2. \*\*Install Dependencies:\*\* Run `npm install` in the root directory.  
3. \*\*Configure Environment:\*\* Update `cypress.config.js` with your base URL or environment variables.  
4. \*\*Install Browsers:\*\* Ensure Chrome and Firefox are installed for cross-browser testing.

## Execution Guidelines

1. \*\*Run Tests in Headless Mode:\*\* Execute `npm test` to run all tests headlessly.  
2. \*\*Run Tests Interactively:\*\* Execute `npm run open` to open the Cypress GUI and run tests interactively.  
3. \*\*Run Specific Tests:\*\* Use `cypress run --spec "path/to/test/file.cy.js"` to run specific test files.  
4. \*\*Generate Reports:\*\* Reports will be generated automatically in the `cypress/reports` directory (Mochawesome).

## Troubleshooting and Extensibility

1. \*\*Flaky Tests:\*\* Adjust retry logic in `cypress.config.js`.  
2. \*\*Custom Commands:\*\* Extend `cypress/support/commands.js` for reusable actions.  
3. \*\*Environment Issues:\*\* Use `env` configuration in `cypress.config.js` for multiple environments.  
4. \*\*Error Analysis:\*\* Review screenshots and videos in `cypress/screenshots` and `cypress/videos`.

## Framework Structure

- \*\*cypress/e2e\*\*: Contains test files organized by feature.  
- \*\*cypress/fixtures\*\*: Stores external test data in JSON format.  
- \*\*cypress/support\*\*: Includes custom commands and POM files.  
- \*\*cypress/reports\*\*: Stores test execution reports.  
- \*\*package.json\*\*: Defines project dependencies and scripts.  
- \*\*cypress.config.js\*\*: Configuration file for Cypress settings.