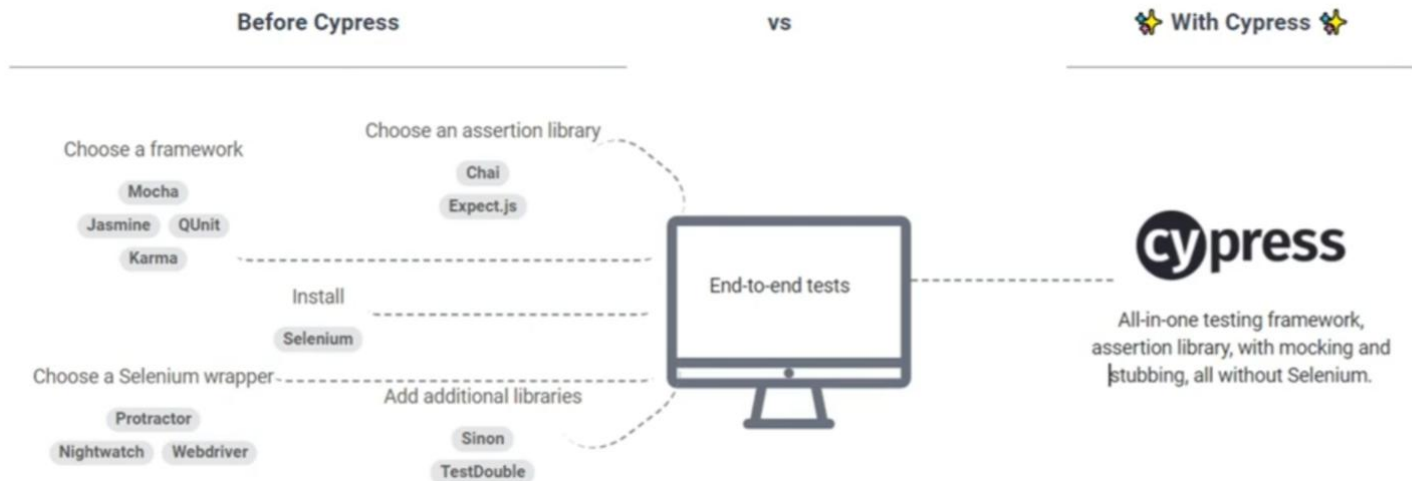# WHAT IS CYPRESS

- Cypress is a free and open source automation tool, MIT-licensed and written in JavaScript.

- Cypress is a next generation front end testing tool built for the modern web.

- Integration and unit tests are easy to write and debug.

- It is built on Node.js and comes packaged as an npm module. As its basis is Node.js, it uses JavaScript language for writing tests.

- 90% of coding can be done using Cypress inbuilt commands, which are easy to understand and implement.

- Cypress addresses the critical pain points developers, and QA engineers used to face when testing modern applications, E.g., synchronization issues, the inconsistency of tests due to elements not visible or available.

CYPRESS HAS BEEN MADE SPECIFICALLY FOR DEVELOPERS AND QA ENGINEERS

Before Cypress

vs

✨ With Cypress ✨

Choose a framework

Mocha

Jasmine   QUnit

Karma

Install

Selenium

Choose a Selenium wrapper

Protractor

Nightwatch   Webdriver

Choose an assertion library

Chai

Expect.js

Add additional libraries

Sinon

TestDouble

End-to-end tests

cypress

All-in-one testing framework, assertion library, with mocking and stubbing, all without Selenium.

WHERE AND WHO USES CYPRESS

- Developers or QA engineers building web applications using modern JavaScript frameworks.

- Cypress enables you to write all types of tests:
  - End-to-end tests
  - Integration tests
  - Unit tests

- Cypress can test anything that runs in a browser.

CYPRESS FEATURES

- **Time Travel:** Cypress takes snapshots as your tests run. Hover over commands in the Command Log to see exactly what happened at each step.

- **Debuggability:** Stop guessing why your tests are failing. Debug directly from familiar tools like Developer Tools.

- **Automatic Waiting:** Never add waits or sleeps to your tests. Cypress automatically waits for commands and assertions before moving on.

- **Spies, Stubs, and Clocks:** Verify and control the behavior of functions, server responses, or timers.

- **Network Traffic Control:** Easily control, stub, and test edge cases without involving your server. You can stub network traffic however you like.

- **Consistent Results:** Cypress architecture doesn't use Selenium or WebDriver. Say hello to fast, consistent and reliable tests that are flake-free.

- **Screenshots and Videos:** View screenshots taken automatically on failure, or videos of your entire test suite when run from the CLI.

- **Cross browser Testing:** Run tests within Firefox and Chrome-family browsers (including Edge and Electron) locally and optimally in a Continuous Integration pipeline.

COMPONENTS OF CYPRESS

- It has two main components that come by default in its installation
    - Cypress Test Runner
    - Cypress Dashboard.

- One of them is used as a runner to run our Cypress test cases on the local machine, and the other tracks our runs and status from our Automation Suite.

KEY POINT OF CYPRESS

- It is a next-generation UI automation tool, which executes the test cases directly inside the browser.

- Additionally, it provides the inbuilt test runner, using which a user can run the test cases directly from Cypress UI.

- It provides a Dashboard service, which displays the results of all test runs.

- It provides various unique features like Time Travel, Automatic wait, Stubs, etc. which makes it unique among the various other UI automation tools.