





Scratching the Surface on Software Testing Basics

Software Testing Type Examples

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Manual Testing

- Alpha Testing
- Acceptance Testing
- System Testing
- Black Box / White Box Testing (Behavioral Testing)

Automated Testing

- Unit Testing
- Component Testing
- Integration Testing
- Regression Testing

Why Manual Testing Isn't Going Away...yet



Scenarios:

- Troubleshoot failing release/build Automation
- Discovery test when receiving customer bugs from automated components
- Verify bug fixes and enhancements before patch/release
- Troubleshoot failing automation scripts
- Train automation and dev people in functional/behavioral testing so they write better code



First Steps to Becoming an Automation Engineer

Automation Engineer Prerequisites

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Beginner knowledge in:

- Development Languages
 - Python
 - o r Ruby
 - or JavaScript

- Operation Tools
 - Cloud Platforms (AWS/GCP/Azure)
 - Containers
 - Command Line/Prompt



Preparing to Write Your First Script

Gather / Create a Requirements Sheet



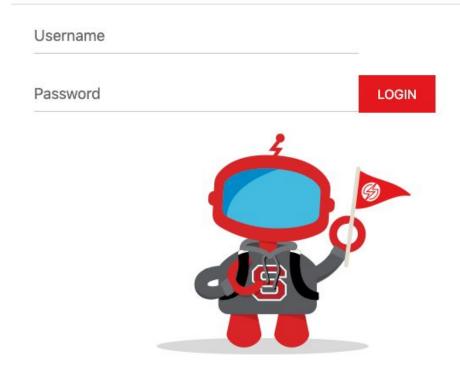
- What does this application do?
- What does this page of this application do?
- What does this function, on this page, of this application do?
- What are the required elements for each function?
- Our How do we locate these elements on the page?
- What are the expected test results based on correct input?
- What are the expected test results based on incorrect input?

Sample Application: Swag Labs





URL: https://www.saucedemo.com



Accepted usernames are:

standard_user locked_out_user problem_user performance_glitch_user

Password for all users:

secret_sauce

Extract Human Interaction and Create Actions



"The first thing about cooking rabbit stew is catching the rabbit" - Isaac Asimov (I, Robot)

Identify human actions to inform your script functions:

- Enter correct credentials for a successful login
- Enter incorrect, or empty credentials, for an unsuccessful login

Those functions, and their expected outcomes, inform your **tests**:

- validLoginTest()
- invalidLoginTest()



Selenium in Five Minutes

What is it and what do I need to know?



- It's an Automated Testing Framework
- Uses the W3C WebDriver Protocol (as of 2019)
- Download and install the relevant <u>Selenium language bindings</u>
- Install the WebDriver for a specific browser (chrome, firefox etc.)

W3C WebDriver Protocol



- Documentation
- WebDriver is an Interface
- W3C is a web protocol
- The first thing your script should do is create a WebDriver session that communicates with your local browser.

Exercise: Open a browser with Selenium WebDriver

Identifying Elements on a Page



- HTML DOM
- Element locator strategies
 - o IDs
 - Class Names
 - o CSS
 - XPath
- Use browser's developer tools
- Test your locators in the Console before you begin scripting!
 - o CSS: \$\$("#user-name")
 - o XPath: \$x("//*[@id=\"user-name\"]")

Exercise: Locate Elements using Chrome Dev Tools

Locating Elements with Selenium



Example in Java:

```
import org.openqa.selenium.By;
import org.openqa.selenium.WebElement;
WebElement usernameElement = driver.findElement(By.id("username"));
WebElement passwordElement = driver.findElement(By.id("password"));
WebElement submitElement =
driver.findElement(By.className("btn_action");
```

Exercise: Locate Elements in an Application

Perform Actions on Elements with Selenium



Example in Java:

```
usernameElement.sendKeys("Peter Parker");
passwordElement.sendKeys("spider_man");
submitElement.submit();
```

Exercise: Perform Actions on Located Elements

Assert Expected Results of Test with Selenium



Example in Java:

import org.openqa.selenium.By;

Exercise: Write Test Assertion for Test Actions

What Next?



Next Steps...

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- Practice, Practice!
- Try Appium (for mobile application testing)
- Configure Parallel Testing
- Cross Browser/Platform Testing
- Implement the <u>Page Object Model</u> for improved test performance
- Test on <u>Sauce Labs!</u>

Selenium Resources

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Developer Tutorials

Selenium HQ

Elemental Selenium

Thank You!

