

An aerial night photograph of San Francisco, California. The city's lights are visible, including the Golden Gate Bridge in the distance. In the foreground, there are long, curved light trails from cars on a road, and a bright, streaky light trail from a car on a hillside. The sky is dark blue.

Crash Course in Manual to Automated Testing

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AGENDA

1. Manual Testing 101
2. First Steps to Automated Testing
3. Writing your First Test
4. Level Up your Testing Skills



Scratching the Surface on Software Testing Basics



Software Testing Type Examples

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



Beginner knowledge in:

- Development Languages
 - Python
 - or 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**?
- 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>



Username

Password

LOGIN



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 [Selenium language bindings](#)
- 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
 - IDs
 - Class Names
 - CSS
 - XPath
- Use browser's developer tools
- Test your locators in the **Console** before you begin scripting!
 - CSS: `$$("#user-name")`
 - 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...

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

Selenium Resources

[Developer Tutorials](#)

[Selenium HQ](#)

[Elemental Selenium](#)



Thank You!

