

Agile + DevOps **WEST**

A TECHWELL EVENT

AD47

DevOps Engineering
3:15 PM

AD47 - Building the Blocks of Trust in Automation

Presented by:

Sneha Viswalingam

Zoll Lifevest

Brought to you by:



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Sneha Viswalingam

Sneha Viswalingam's passion for 'All things Automation' began when he started his career right after graduate school in the fancy field of automation in the bay area. Her experience revolves around developing end-to-end automation testing frameworks for web-based and Mobile applications. She enjoys focusing on making automation famous wherever she goes! Currently, she resides in Pittsburgh, PA. When not coding, she's a foodie travelling around the world to learn the art of cooking and an artist who loves to create acrylic paintings.



Building the Blocks of Trust in Automation

BY "Sneha Viswalingam"

Go to www.menti.com and use the code 68 73 63

How energized are you feeling this afternoon?

 Mentimeter



Slide is not active

Activate

 0

Go to www.menti.com and use the code **68 73 63**

What's your current role?

 Mentimeter



Slide is not active

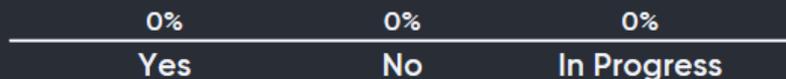
Activate

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Go to www.menti.com and use the code 68 73 63

Do you have your Regression Tests Automated?

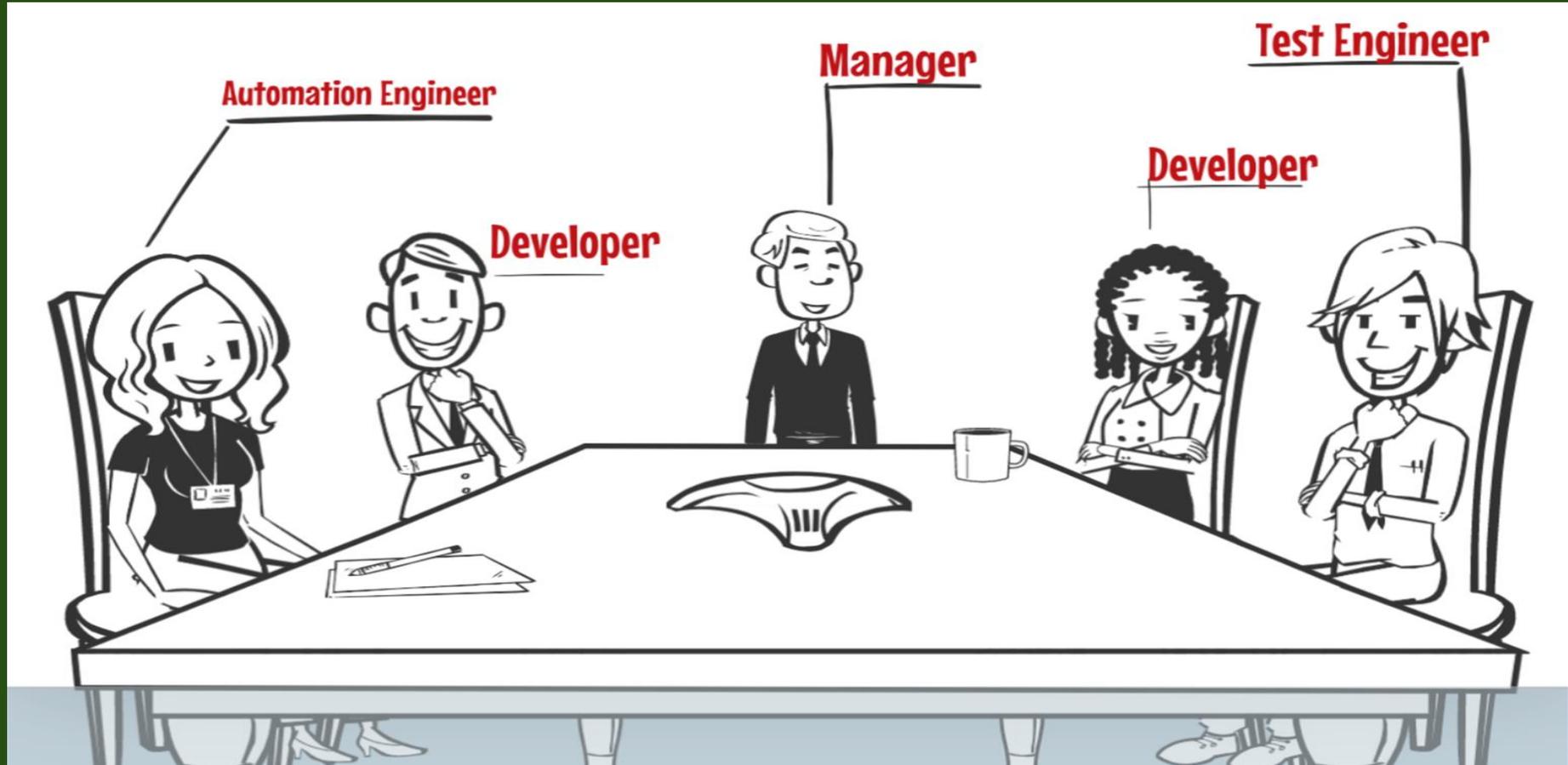
 Mentimeter

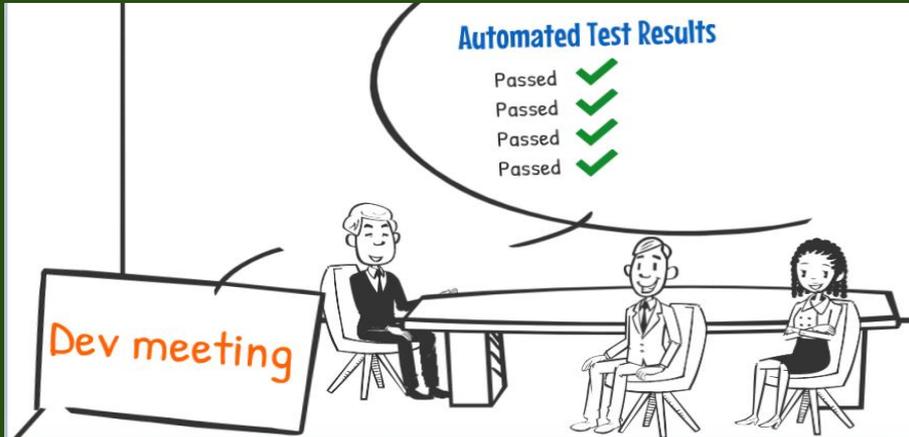
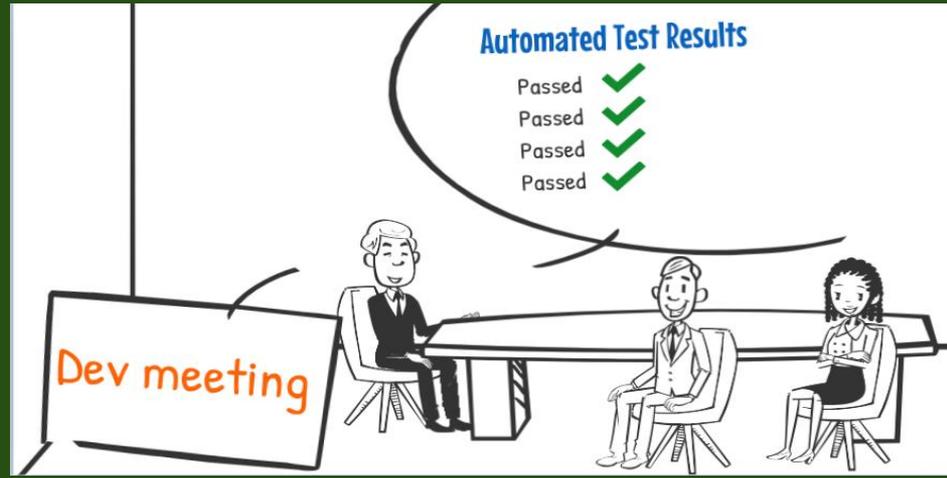
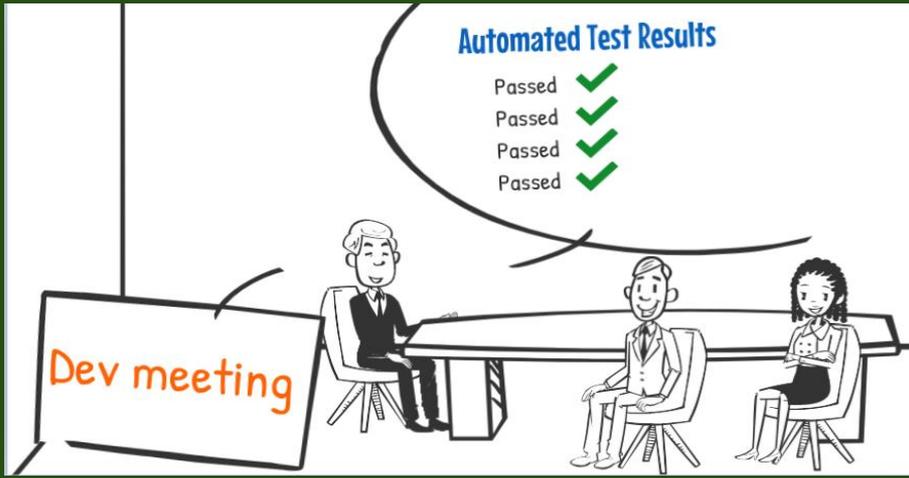


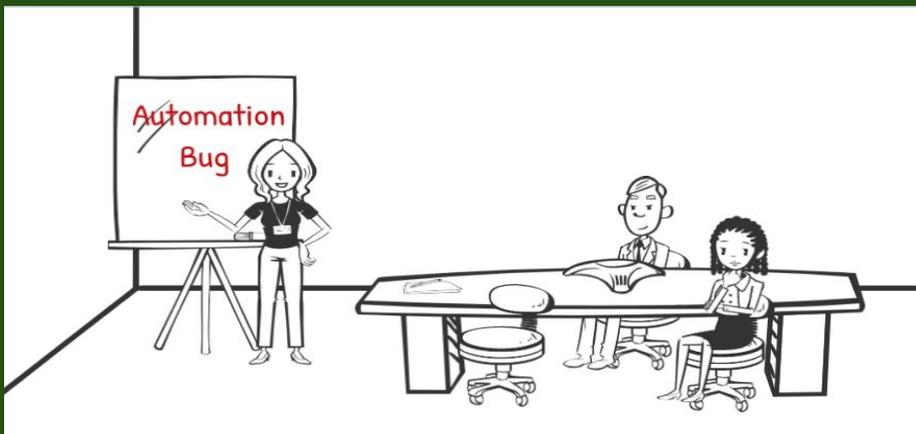
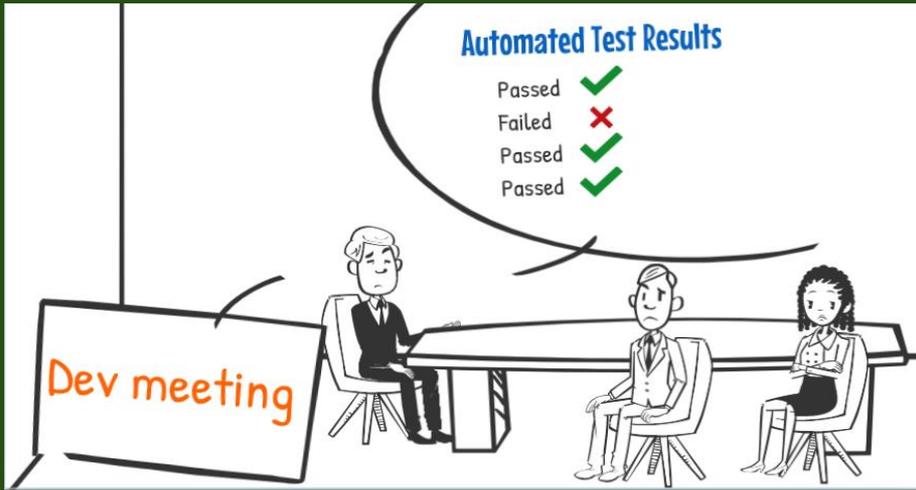
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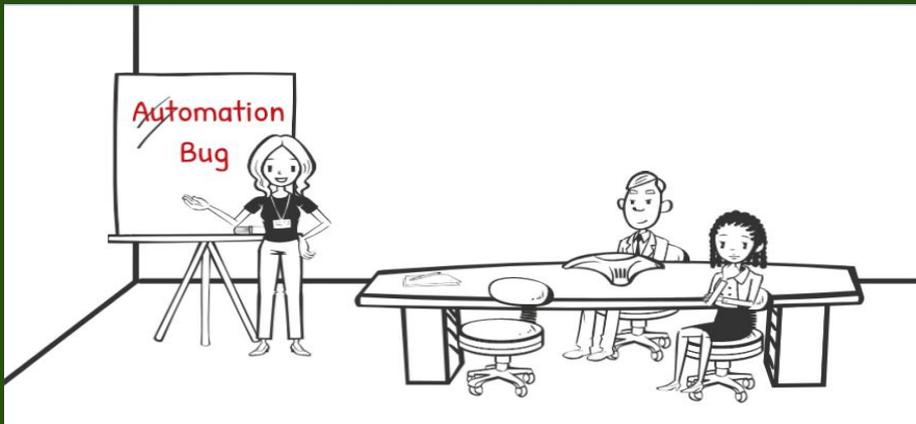
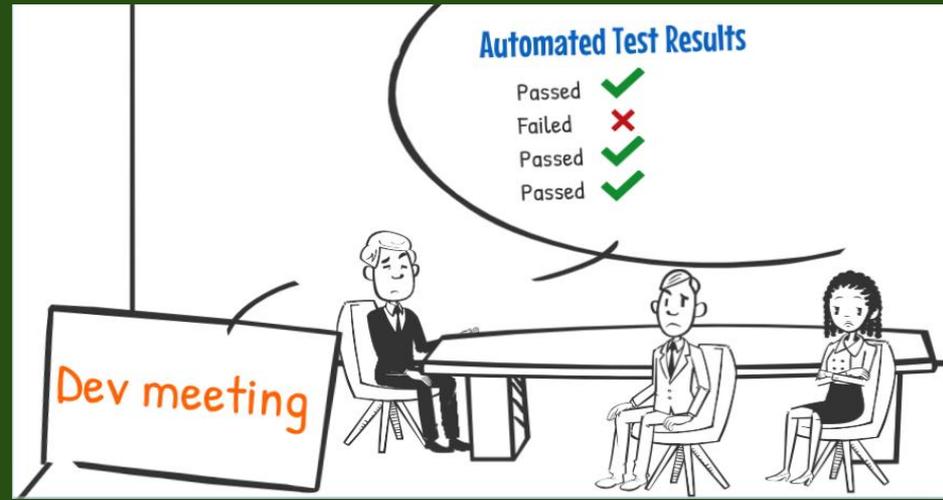
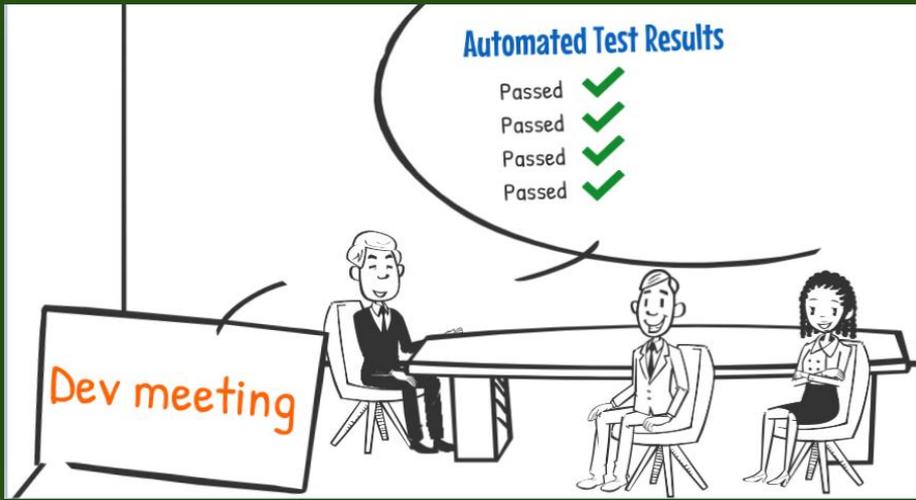
Activate

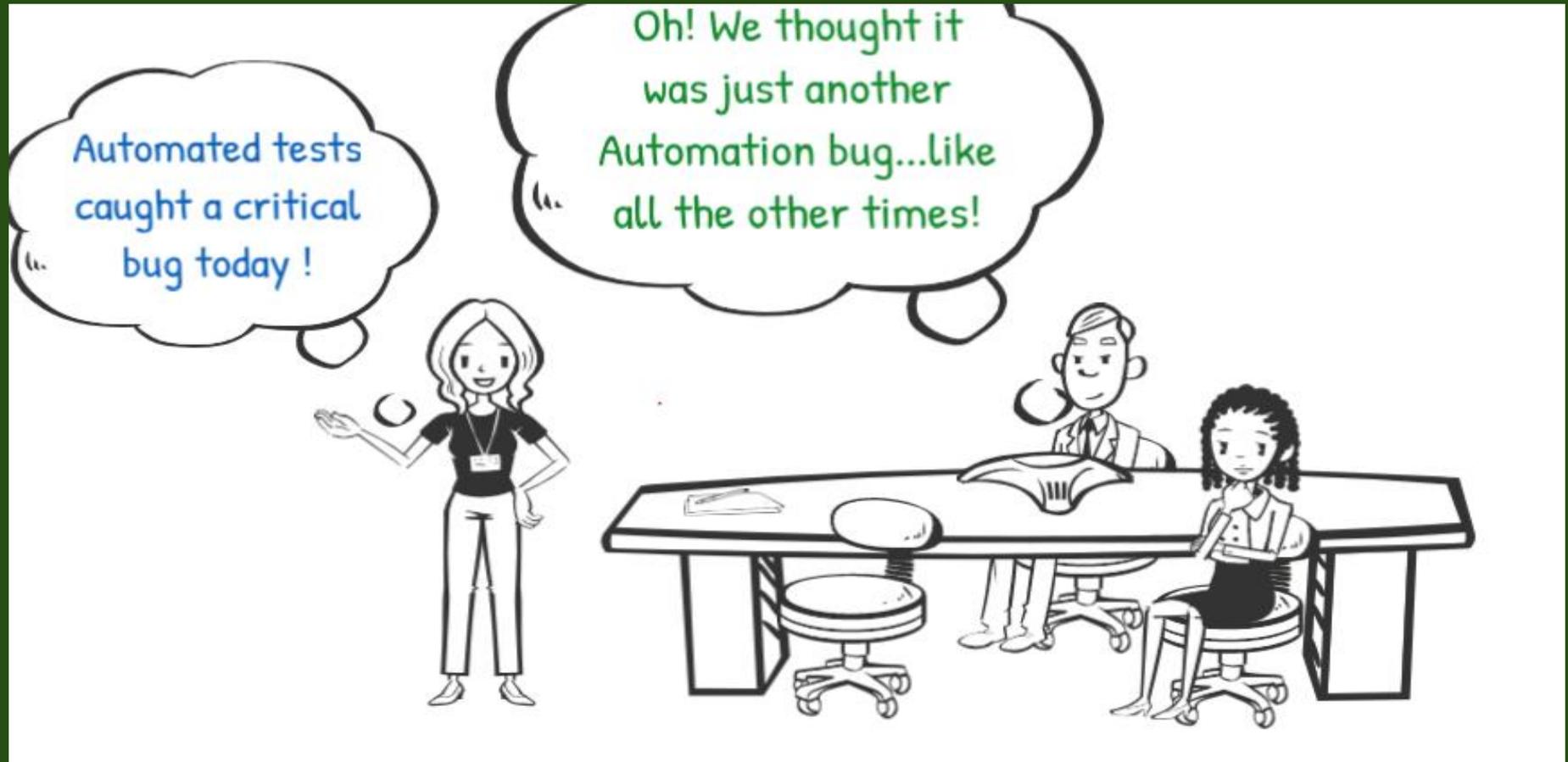
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TODAY'S TOPIC
IS ...



Building the Blocks of Trust in Automation

BY "Sneha Viswalingam"



@sviswalingam

Sneha

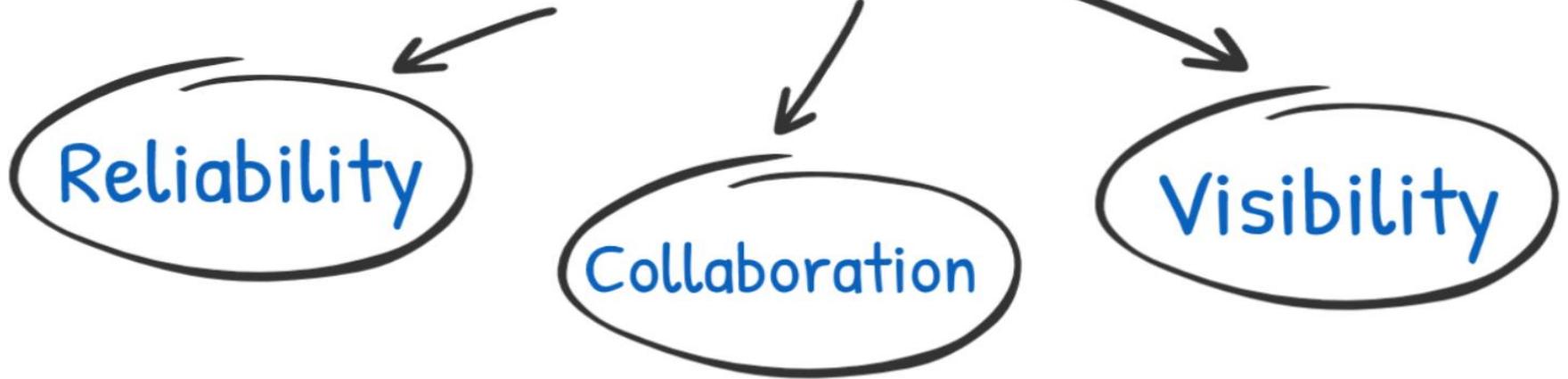
Viswalingam

Test Automation Engineer

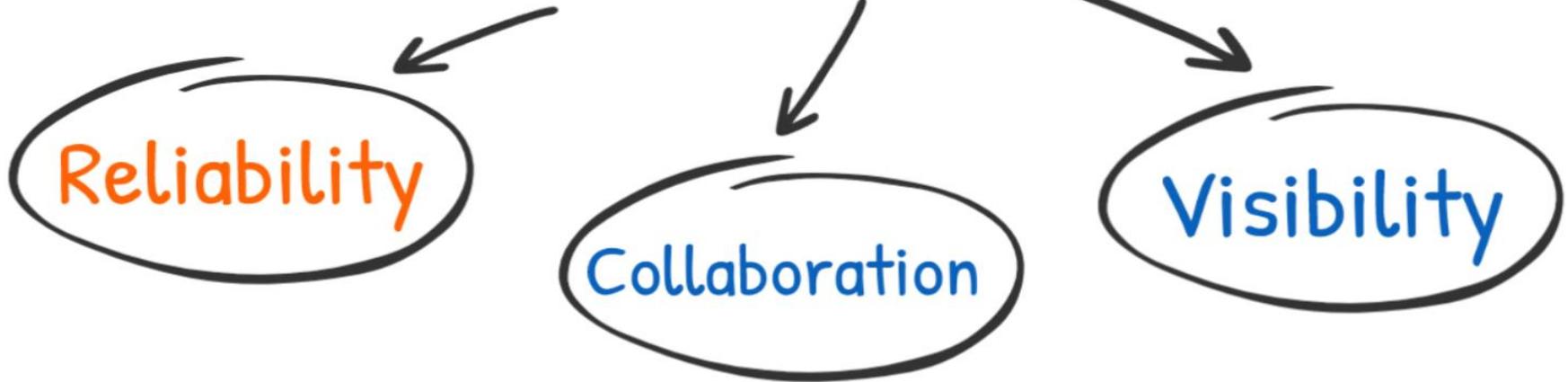
Zoll Lifevest



The Blocks



The Blocks



RELIABLE
TEST?



```
If  
Assertion = TRUE  
then  
PASS
```

```
If  
Assertion = FALSE  
then  
FAIL
```

Assertion Against Expected Output

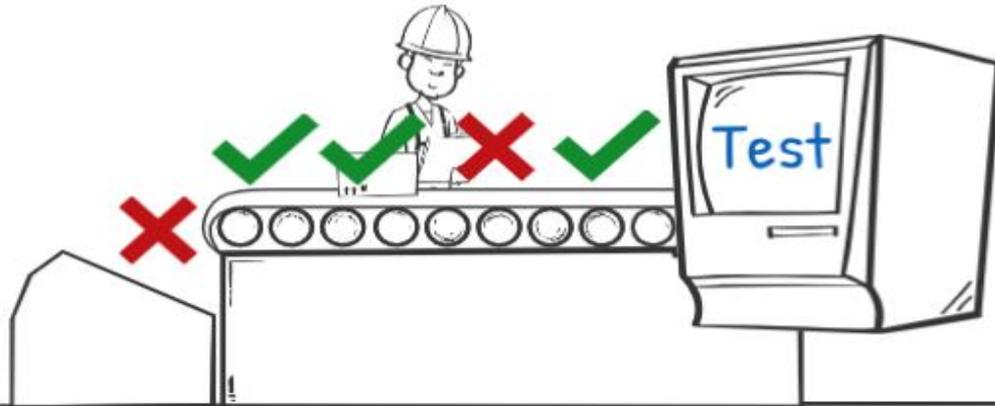
Test Anatomy

If **YELLOW** exists:

Perform action (**YELLOW** + **RED**)

Assert that output is **ORANGE**

Non Deterministic Test

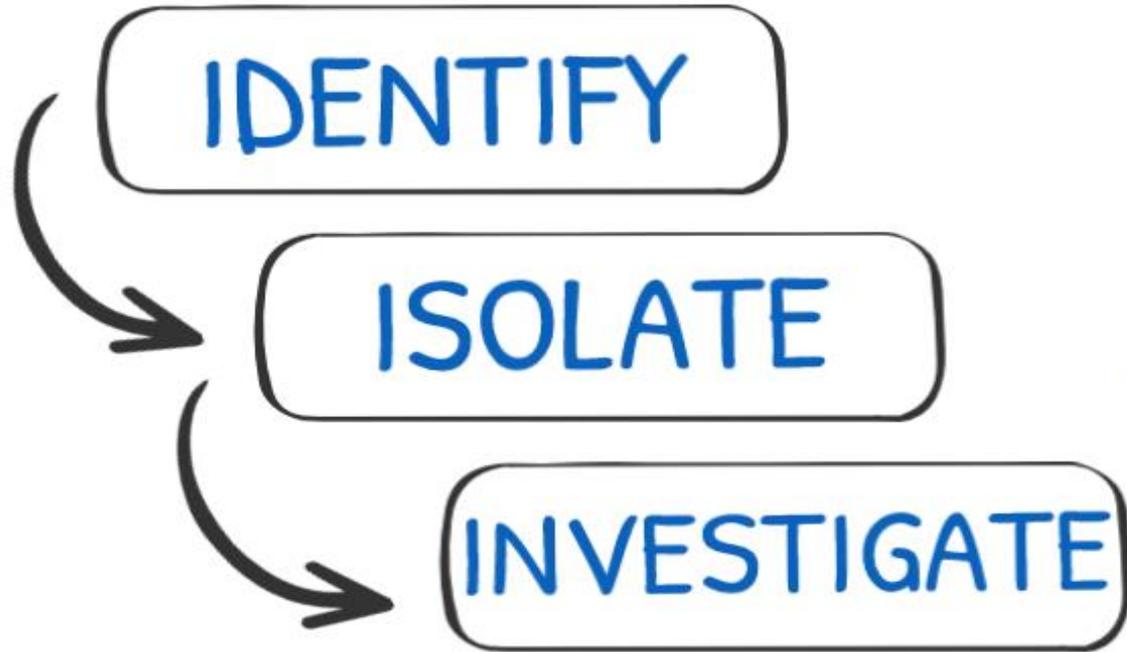


Same Test
Same Conditions
Different Results

Race Conditions
Dynamic Content
Infrastructure **Test Data**
Integration Absolute Sleeps Bad Wait State Caching Setup
Dependency Xpath Resource Leaks
Asynchronous Calls Concurrency Bad Test

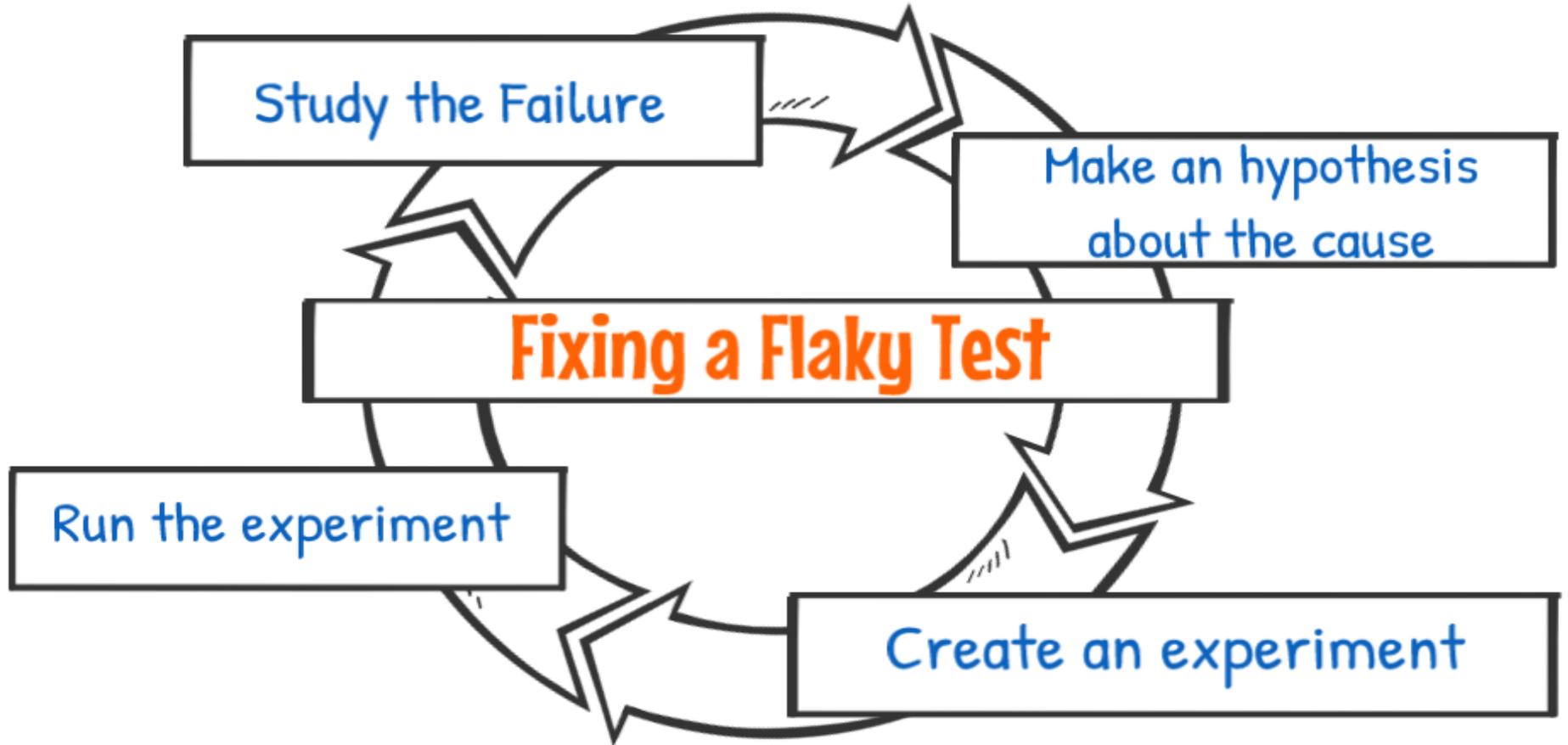
What causes flaky tests?

FLAKY TESTS?



Identify

- **Look** for a pattern
- **Spot** the flaky test
- **Note** them down



Isolate

- **Tag** the flaky tests
- Run main test suite and flaky test suite **separately**

```
1 Feature: PatientSearch
2
3 @FlakyTest
4 Scenario: Searches patient
5     Given The user logs into the PatMan application with an internal user
6     When The user enters the following PatMan patient search values
7         | Field          | Value |
8         | Account Number | 0000  |
9     And The user clicks the PatMan patient search button
10    And The user clicks the select button
11
```

Investigate

- **Post mortem** analysis
- Look for the **root cause**

Look for the Root Cause

Test

- Concurrency
- Caching
- Test Size
- Test Order Dependency
- Sleep
- Parallelization
- And soo much more...

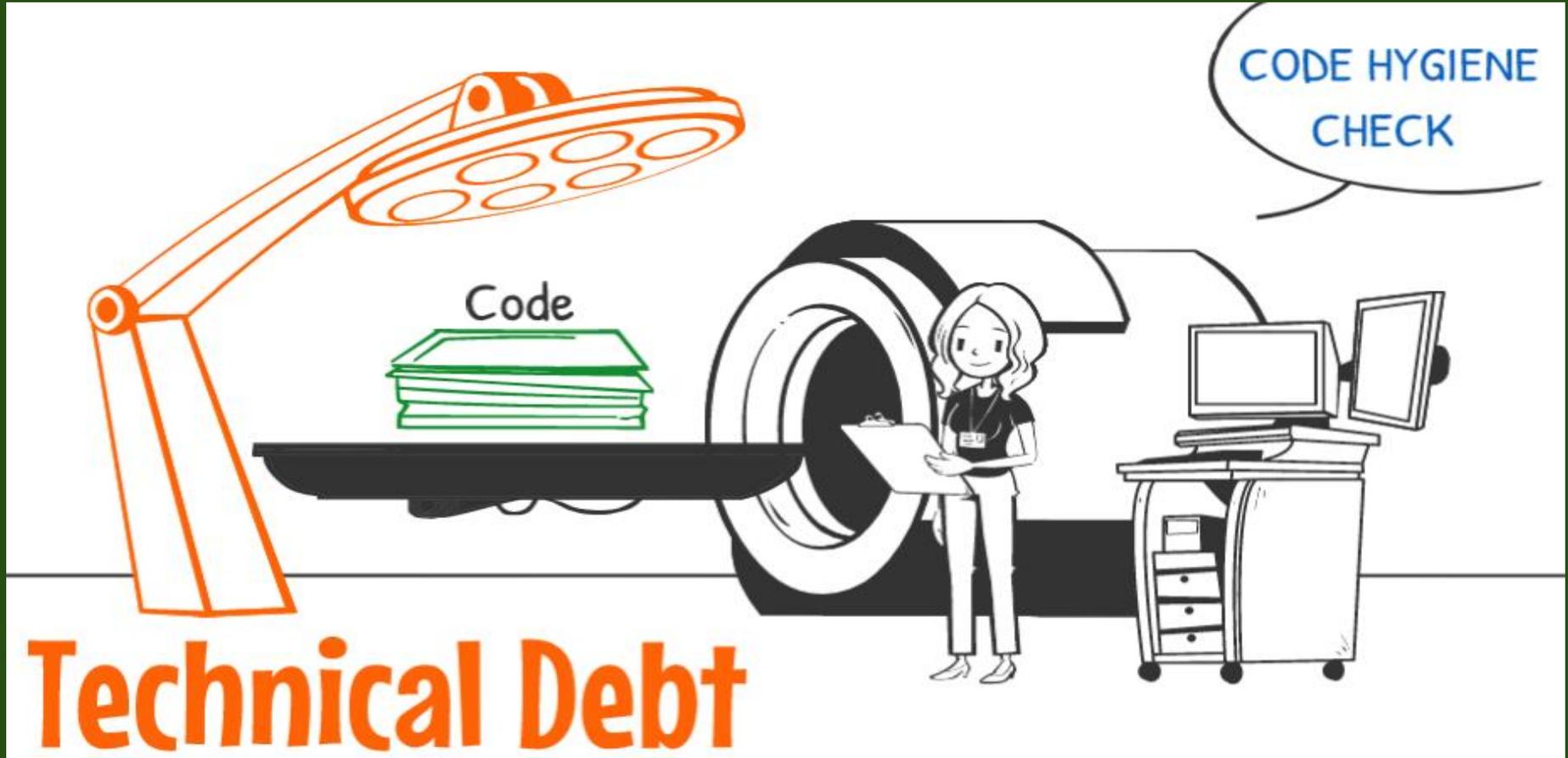


Environment

- CI Node Failure
- Network Issues
- Server Issues
- Database Issues
- 3rd Party Integration
- Resource Leaks
- Bug in the framework



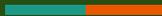
The Flaky Branch
lives till the tests
are no longer flaky
for a long time !



Technical Debt

Damage
Control Done





Why Should
Automation Code be
treated any less
than Production
code?

Jira Software Dashboards ▾ Projects ▾ Issues ▾ Boards ▾ Portfolio ▾ Create

Search 🔍 ⚙️ ? 🗨️

Web AT

- Web Test Automation ▾
- Backlog
- Active sprints
- Releases
- Reports
- Issues
- Components

PROJECT SHORTCUTS

Add a link to useful information for your whole team to see.

+ Add link

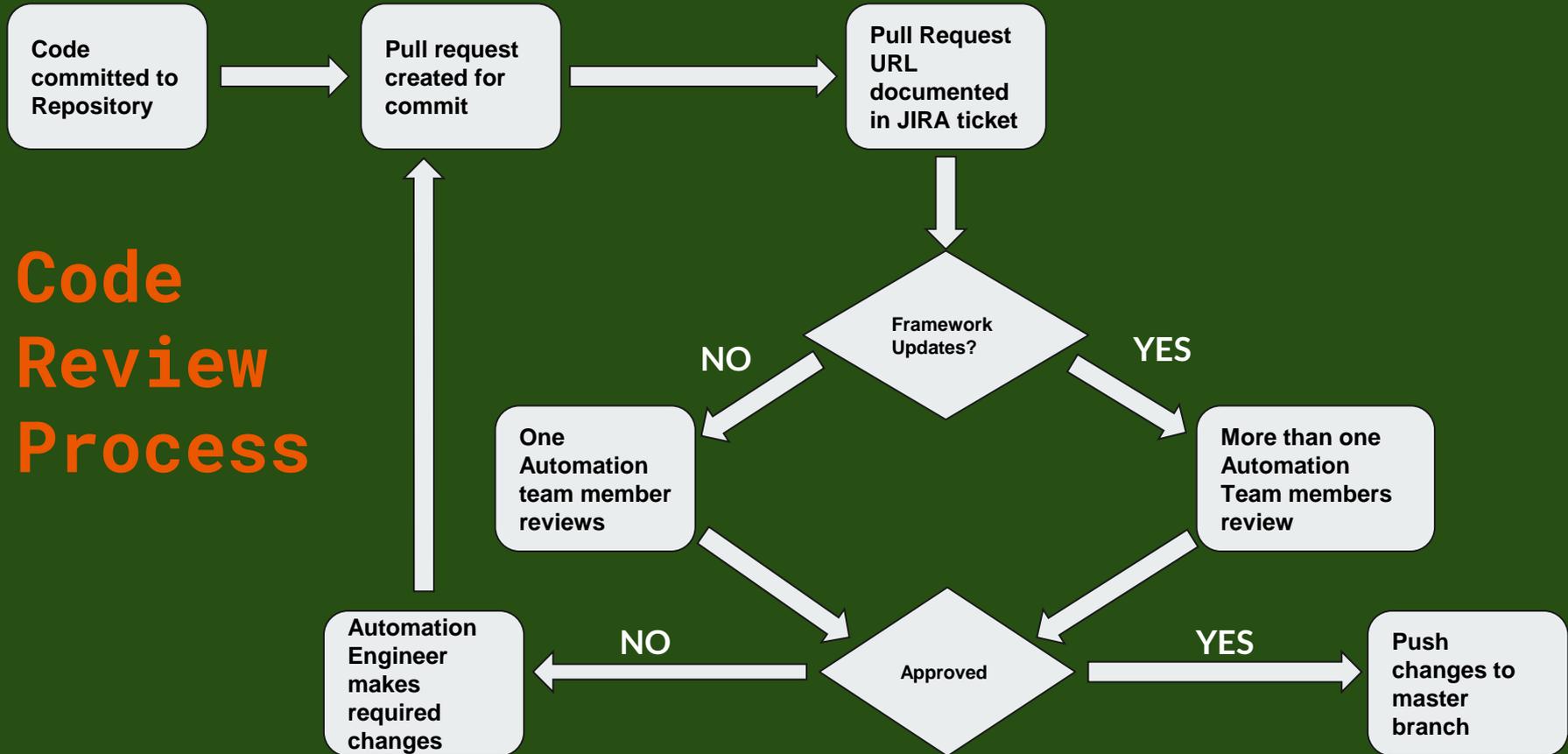
The Office

🕒 2 days remaining Complete Sprint Board ↕

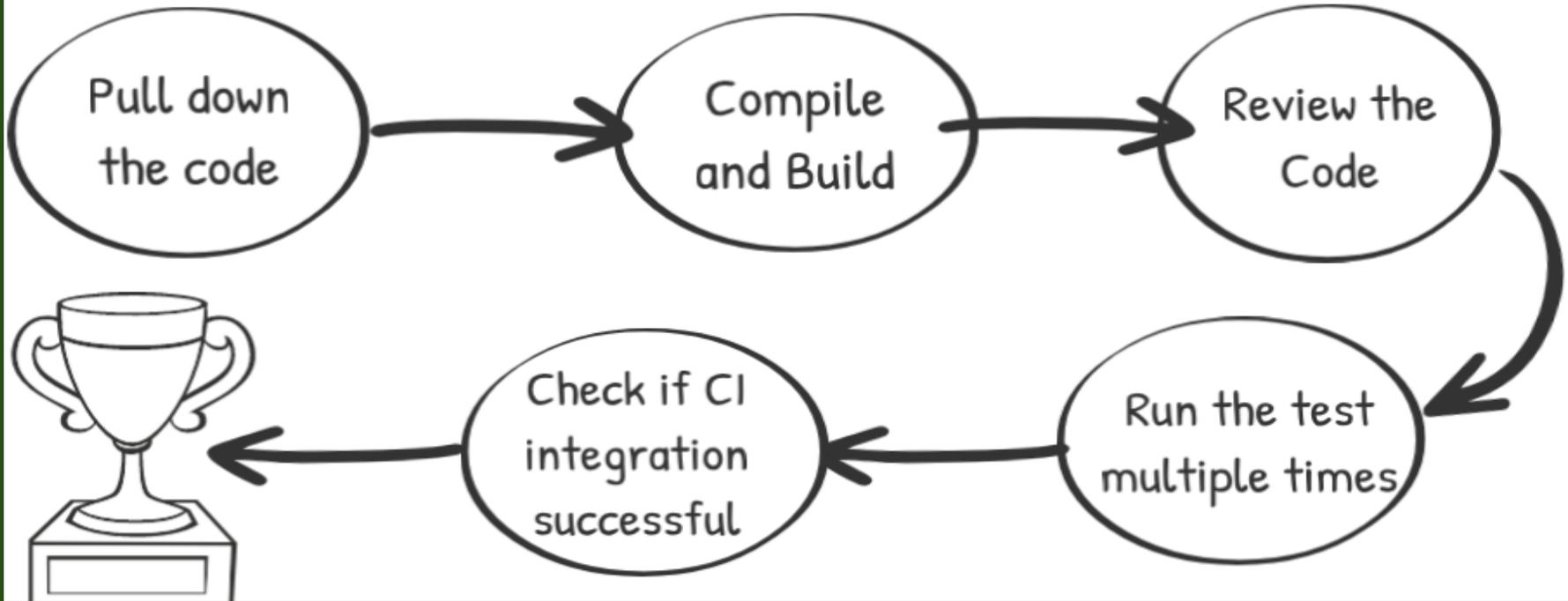
QUICK FILTERS: Only My Issues Recently Updated

To Do	In Progress	Blocked / On Hold	Ready to Test	Review	Done
📌 WAT-994 DONE 2 sub-tasks mPatientNav_PPM.asp			📌 WAT-1132 ↑ Test Script		📌 WAT-1134 ↑ Page Object and Step Definition 🐱
📌 WAT-994 IN PROGRESS 2 sub-tasks PPM3.asp			📌 WAT-1135 ↑ Test Script		📌 WAT-1134 ↑ Page Object and Step Definition 🐱
📌 WAT-998 IN PROGRESS 2 sub-tasks exceptionsSalesTracker.asp			📌 WAT-1143 ↑ Test Script 🌌	📌 WAT-1142 ↑ Page Object and Step Definition	

Code Review Process



Code Review Workflow



DRY Code
Short Methods
Suitable Comments
Code Maintainability
Naming Conventions
Data Security (HIPAA)
No Hard Coded Values
Design Patterns

Setup/Teardown
Test Description
Test Coverage
Less Brittle
No Unnecessary Sleeps
Selection of Locators
Cross Browser Testing
Assertions

Config Changes Verified
Build and Test
CI Build Success
Definition of Done Satisfied

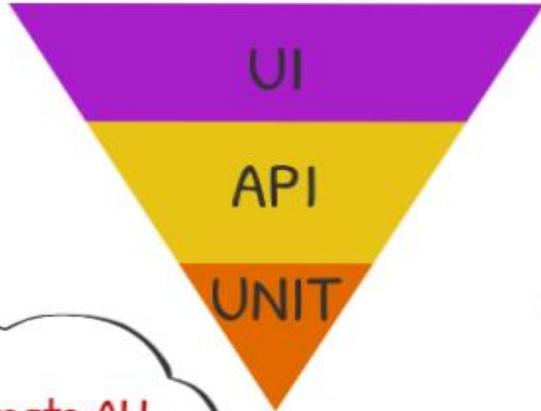
Test Automation Code Review Cheat Sheet



The Blocks



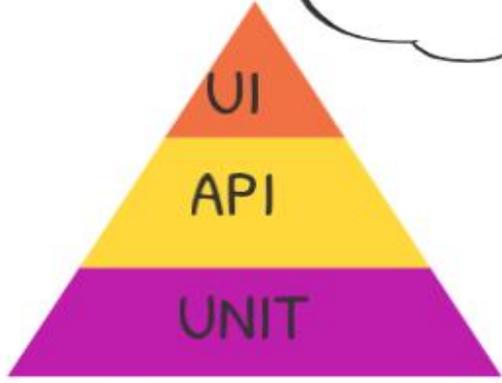
Inverted Testing Pyramid



Automate ALL the things



Automate the RIGHT things



Testing pyramid



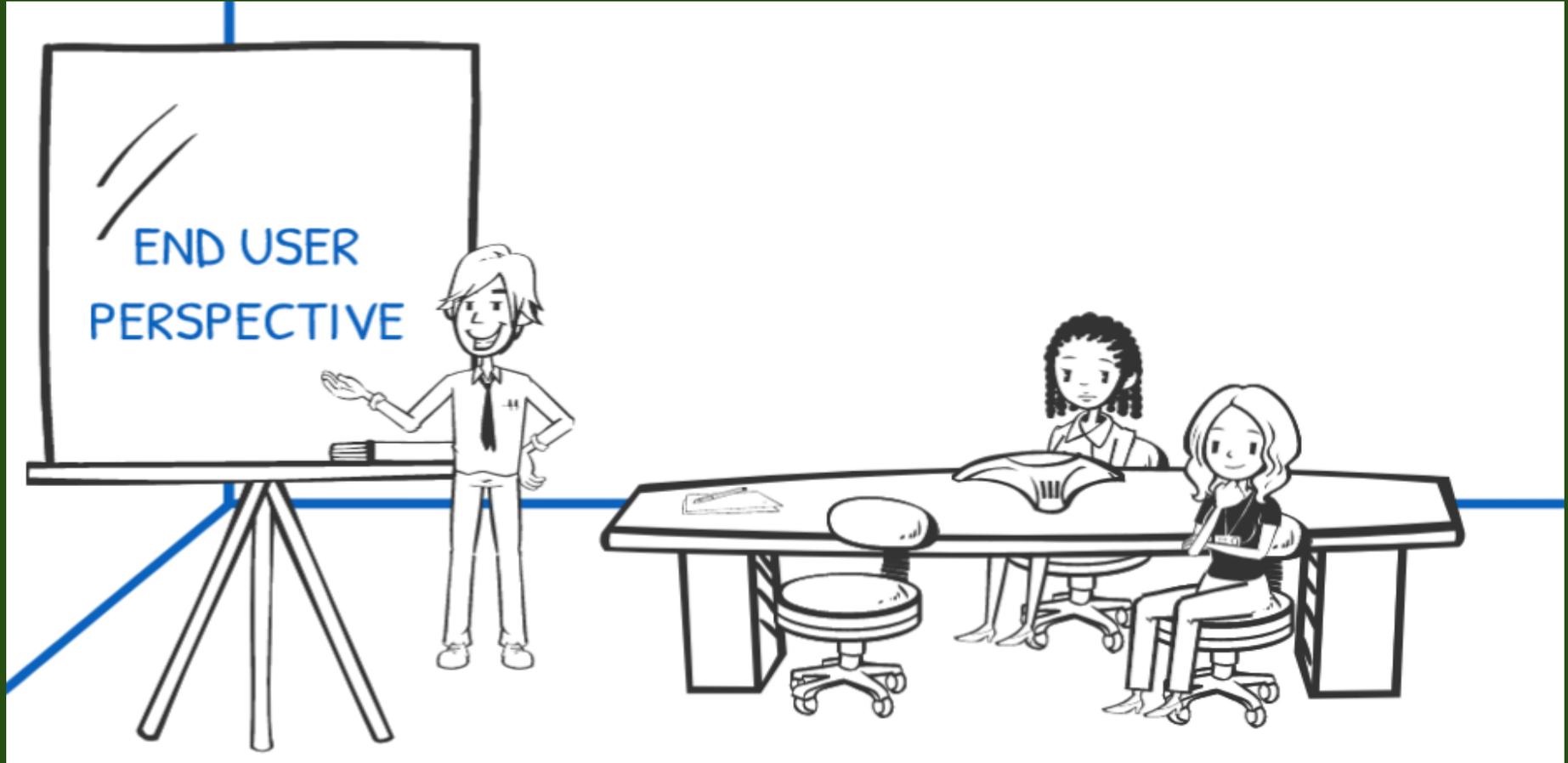
Quality Assurance Leaders - Advocates for Success





Software Developers

- Design for Testability
- Knowledge Sharing





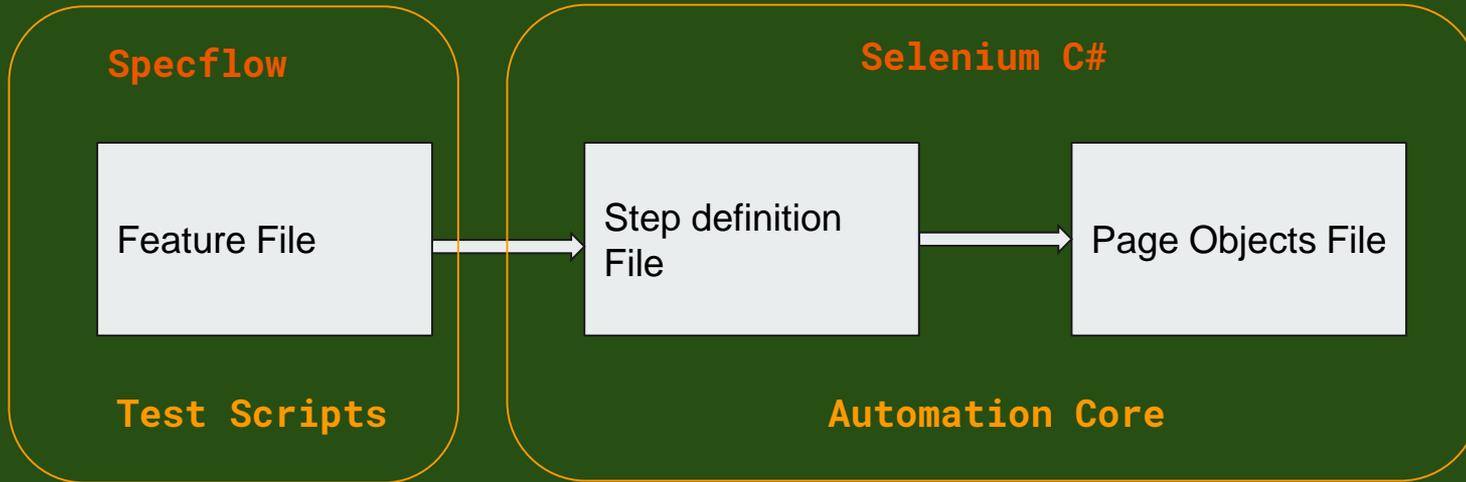
Test Engineers

- Subject Matter Experts

Tidy Gherkin

- Chrome App, easy to install
- No need to install an IDE
- Ease of use
- Free and Lightweight

High Level Architecture





Tidy Gherkin

Offered by: martin.roddam

★★★★★ 51 | [Extensions](#) | 17,211 users

Launch app

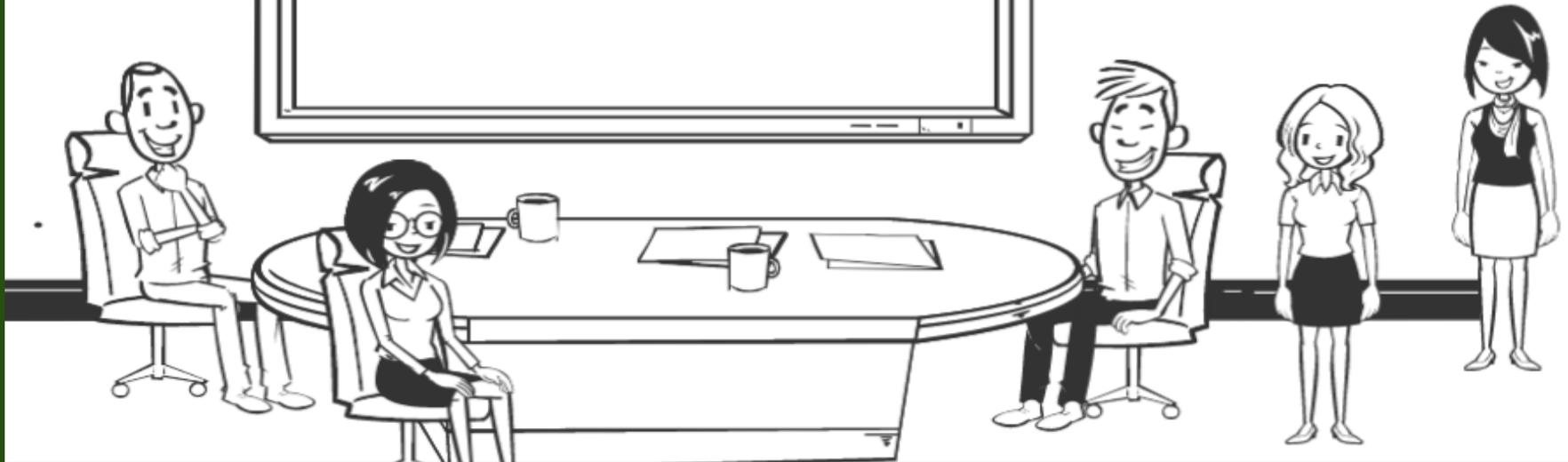
- Overview
- Reviews
- Support
- Related**

 Postman ★★★★★ 9,097	 Vysor ★★★★★ 5,667	 Text ★★★★★ 1,233	 BrowserStack Local ★★★★★ 273	 Cloud SWF Player with ... ★★★★★ 2,740
 Web Server for Chrome ★★★★★ 1,363	 Caret ★★★★★ 1,250	 Advanced REST client ★★★★★ 12,149	 Secure Shell App ★★★★★ 3,140	 Chrome Apps & Extensi... ★★★★★ 1,386
 ShiftEdit ★★★★★ 1,818	 Google Apps Script ★★★★★ 1,108			

Writing Feature Files

- Behavior Driven
- Phrasing Steps
- Title
- Style

QA Club



Testing Concepts

Automation
API testing
Frameworks
Headless Testing
Microservice testing
BDD/TDD
Cloud
Soft Skills
HTML/CSS
Regulated Testing
Unit Testing
Mindmapping
GIT/VS/Jira Tips

QA CLUB TOPICS

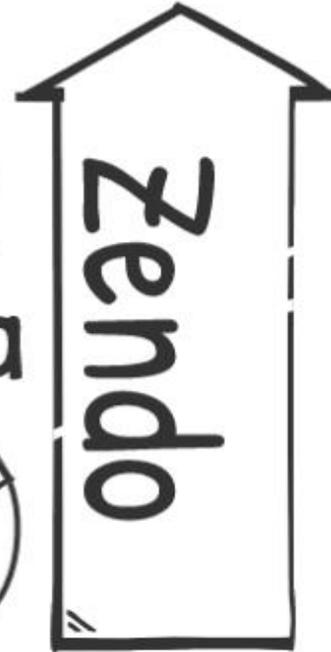
**Bring Games to
your Workplace**



Quality Jenga
Testsphere

99 Test Balloons

Agile Pictionary Game



And so much more...

Common Goal



Release
Bug-Free
Software

The Blocks



Dashboard

A one page report that tells the story clean and clear with charts and gauges

WHY

Why is the dashboard being
created?

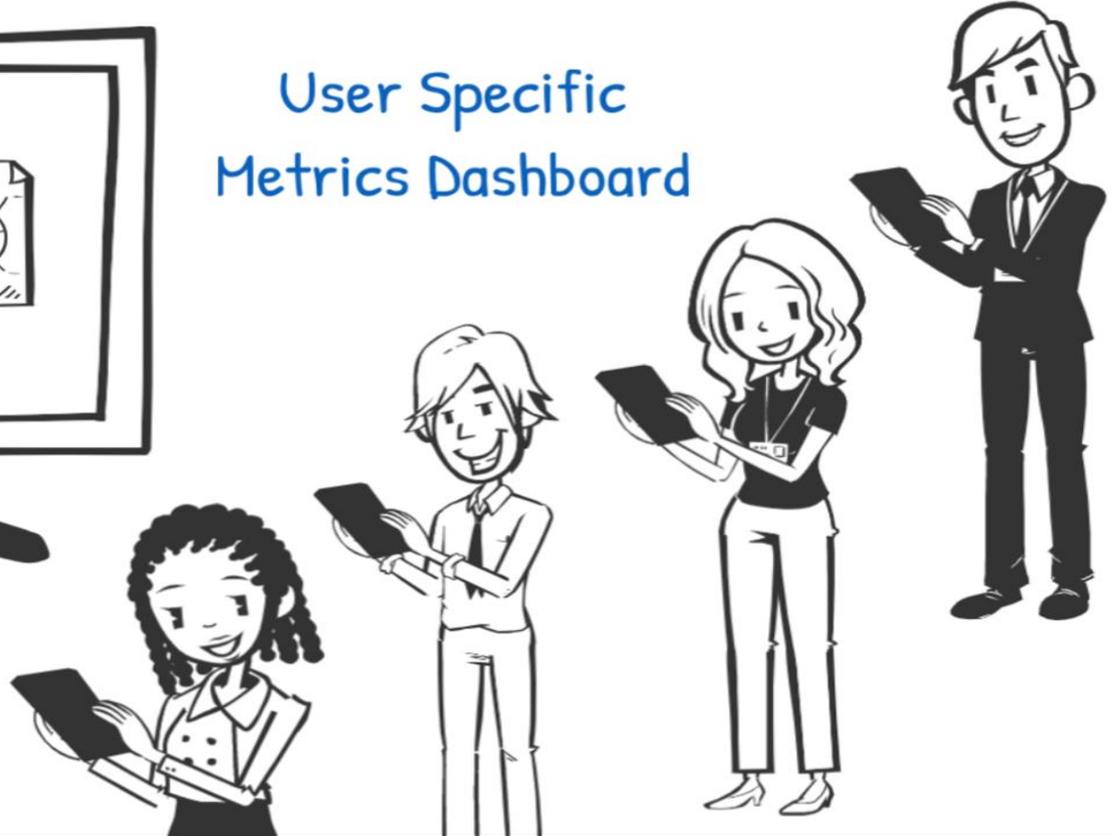
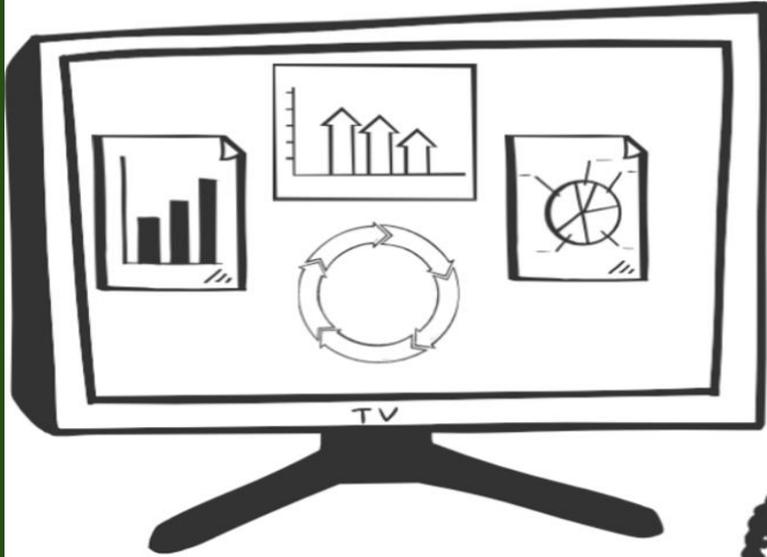




WHO

Who is the audience?

User Specific Metrics Dashboard



WHAT

What metrics should the dashboard include?



Identifying Useful Metrics

- Create a prototype
- Send a survey with the prototype to ask what they want and why

Manager Specific Dashboard

- Organizational objectives
- Percentage of broken builds
- Percentage of Test coverage
- Performance Trend

QA Specific Dashboard

- Stack Trace
- Total test Time
- Test Environment metrics
- Overall test results

Developer Specific Dashboard

- CI results
- Check-in that led to Test failure
- Where/What is broken
- Test failure error

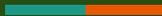
Build your own Dashboard





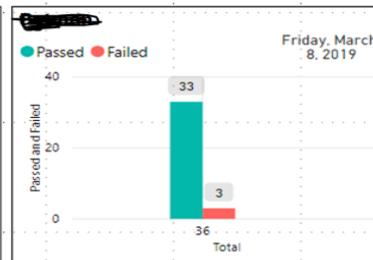
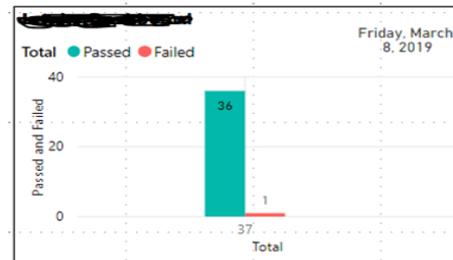
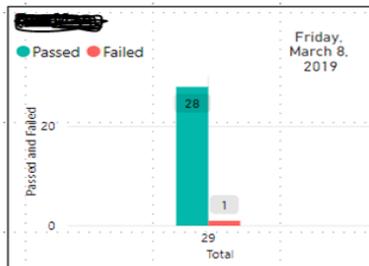
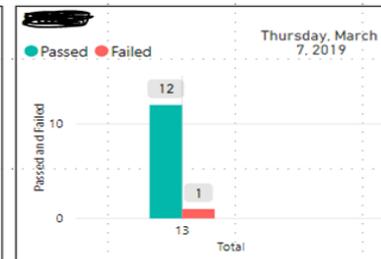
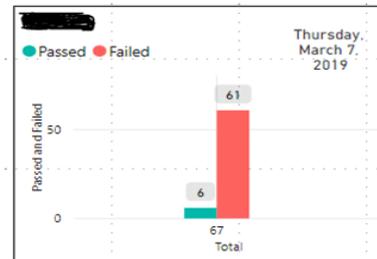
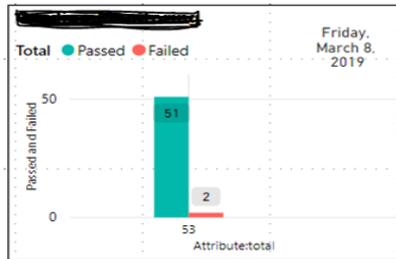
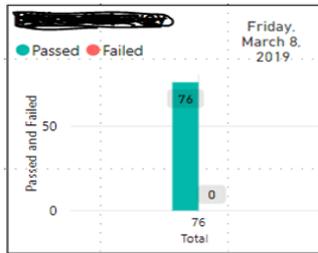
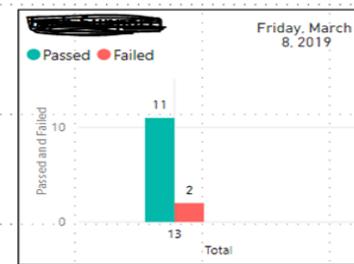
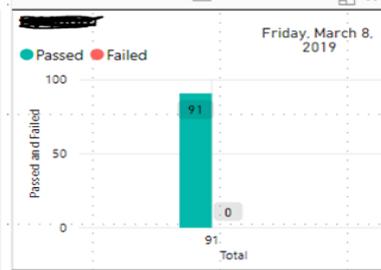
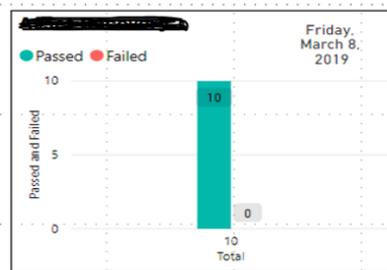
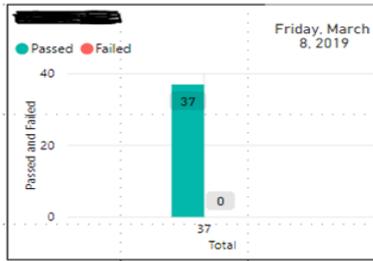
HOW

How will the users access it?



Building a simple Dashboard using Power BI

The screenshot displays the Microsoft Power BI Desktop interface. At the top, the ribbon includes tabs for File, Home, View, Modeling, and Help. The Home tab is active, showing various options like Paste, Cut, Copy, Format Painter, and Get Data. The 'Get Data' button is highlighted, which has opened a 'Get Data' dialog box. This dialog box has a search bar at the top and a list of data sources on the left, including All, File, Database, Power BI, Azure, Online Services, and Other. The 'All' category is selected, showing a list of connectors such as Excel, Text/CSV, XML, JSON, Folder, SharePoint folder, SQL Server database, Access database, SQL Server Analysis Services database, Oracle database, IBM Db2 database, IBM Informix database (Beta), IBM Netezza, MySQL database, PostgreSQL database, and Sybase database. At the bottom of the dialog, there are 'Certified Connectors' and 'Connect' and 'Cancel' buttons. To the right of the main workspace, the 'Filters' pane is visible, showing a message: 'There aren't any filters to display.' Below this, there are sections for 'VISUALIZATIONS' and 'FIELDS'. The 'VISUALIZATIONS' section contains a grid of visualization icons and a 'Values' section with an 'Add data fields here' button. The 'FIELDS' section contains a search bar and a 'Search' button. Below these are sections for 'FILTERS' (Page level filters, Report level filters) and 'DRILLTHROUGH' (Keep all filters, Off, Drag drillthrough fields here). At the bottom left, the status bar shows 'Page 1' and a plus sign.





TestSuite Name	Output																		
ACHomeFeature	<p>Feature: ACHome</p> <p>Scenario: Smoke_ACHome</p> <p>Given The user logs into the [redacted] application with a Web Dev user</p> <p>-> done: LoginSteps.GivenTheUserIsLoggedInToDashboard("Web Dev") (11.6s)</p> <p>When The user navigates to the AC Home page</p> <p>-> error: The HTTP request to the remote WebDriver server for URL [redacted] url timed out after 60 seconds.</p> <p>Then Verify the following fields on the AC Home page</p> <p>--- table step argument ---</p> <table border="1"><tr><td> Field </td></tr><tr><td> Quick-Summary </td></tr></table> <p>-> skipped because of previous errors</p>	Field	Quick-Summary																
Field																			
Quick-Summary																			
AfterHoursPatientFollowUpFeature	<p>Feature: AfterHoursPatientFollowUp</p> <p>Scenario: Smoke_AfterhoursPatientFollowUps</p> <p>Given The user logs into the [redacted] application with a Web Dev user</p> <p>-> done: LoginSteps.GivenTheUserIsLoggedInToACDashboard("Web Dev") (5.6s)</p> <p>When The user navigates to the After Hours Patient Follow Ups page</p> <p>-> done: AfterHoursPatientFollowUpsSteps.TheUserOpensTheAfterHoursPatientFollowUpsPage() (12.6s)</p> <p>Then Verify the following fields on the After Hours Patient Follow Ups page</p> <p>--- table step argument ---</p> <table border="1"><tr><td> Field </td></tr><tr><td> Quick Summary </td></tr><tr><td> Notes And Special Instructions </td></tr><tr><td> Territory </td></tr><tr><td> Last Saved By </td></tr><tr><td> Last Saved On </td></tr><tr><td> Urgency </td></tr><tr><td> Service Type </td></tr><tr><td> Patient Name </td></tr><tr><td> Patient Address </td></tr><tr><td> Location Of Patient </td></tr><tr><td> PSR </td></tr><tr><td> Scheduled Service Date </td></tr><tr><td> Service Completion Date </td></tr><tr><td> Work Order </td></tr><tr><td> Click To Select Urgency Level </td></tr><tr><td> Click To Select Region </td></tr><tr><td> Filter </td></tr></table> <p>-> error: The HTTP request to the remote WebDriver server for URL [redacted] element timed out after 60 seconds.</p>	Field	Quick Summary	Notes And Special Instructions	Territory	Last Saved By	Last Saved On	Urgency	Service Type	Patient Name	Patient Address	Location Of Patient	PSR	Scheduled Service Date	Service Completion Date	Work Order	Click To Select Urgency Level	Click To Select Region	Filter
Field																			
Quick Summary																			
Notes And Special Instructions																			
Territory																			
Last Saved By																			
Last Saved On																			
Urgency																			
Service Type																			
Patient Name																			
Patient Address																			
Location Of Patient																			
PSR																			
Scheduled Service Date																			
Service Completion Date																			
Work Order																			
Click To Select Urgency Level																			
Click To Select Region																			
Filter																			
InventoryFeature	<p>Feature: Inventory</p>																		



FILTERS



The Blocks



Action Points



Do not ignore flaky tests. Deal with them when you see them

Invest in key partnerships to build better Automated Tests

Get creative with Test Result visualization

Test Failure!!!



Test Successful!!!



@sviswalingam

www.linkedin.com/in/snehaviswalingam

Sneha Viswalingam

Test Automation Engineer

Thank You!