



Automation Testing & Continuous Code Quality

Contents



- Introduction
- Objectives
- Testing Life cycle
- Levels of Software Testing
- Testing Tools
- Example of Testing Process
- Process of Testing

Introduction



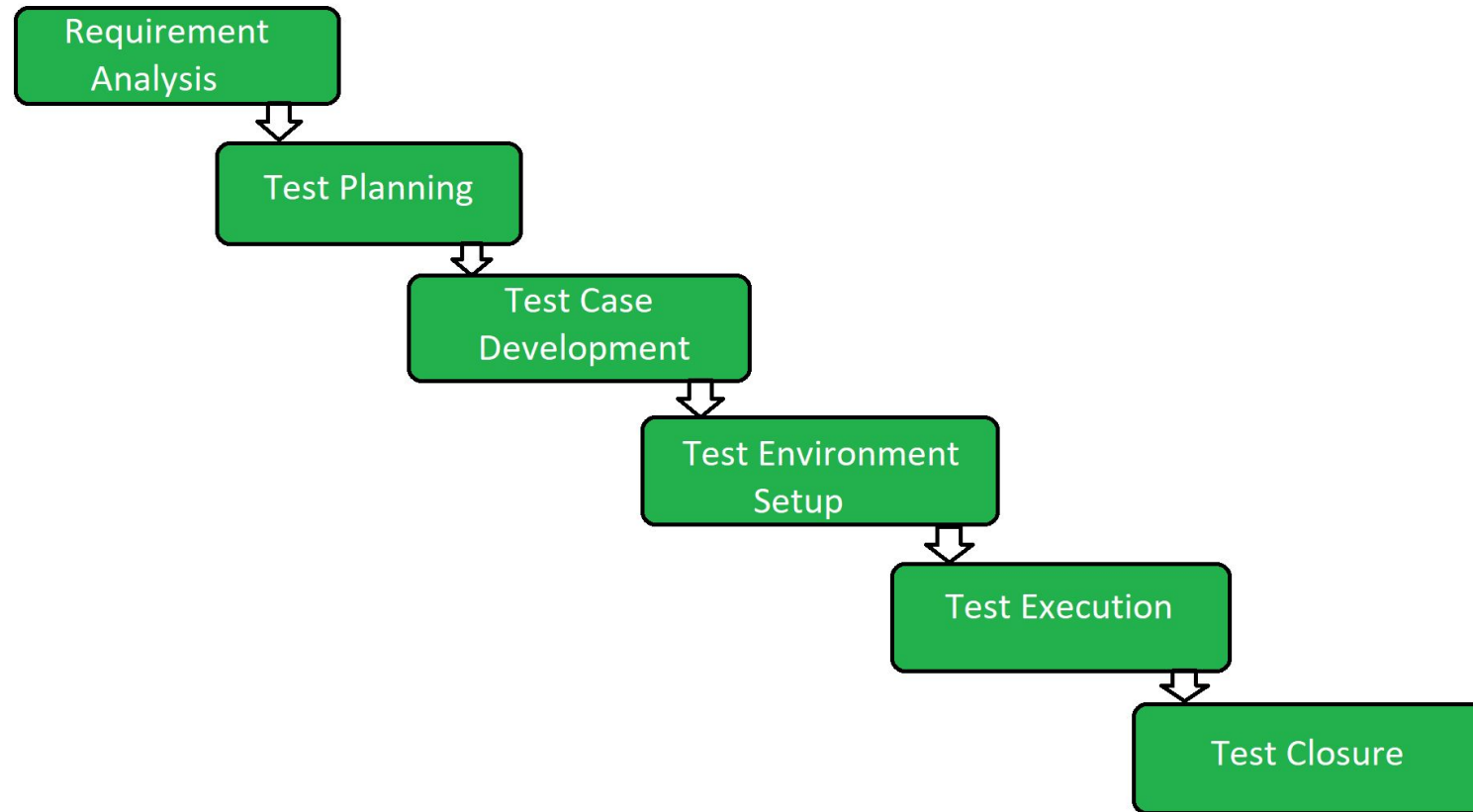
- Software development is not just about producing working software.
- The success is heavily dependent on appropriate testing process which is the indication of how well the software meets its requirements and will satisfy the owner's needs.
- Moreover, well tested functionality is not enough yet the codebase itself needs to be well written also.

Objective

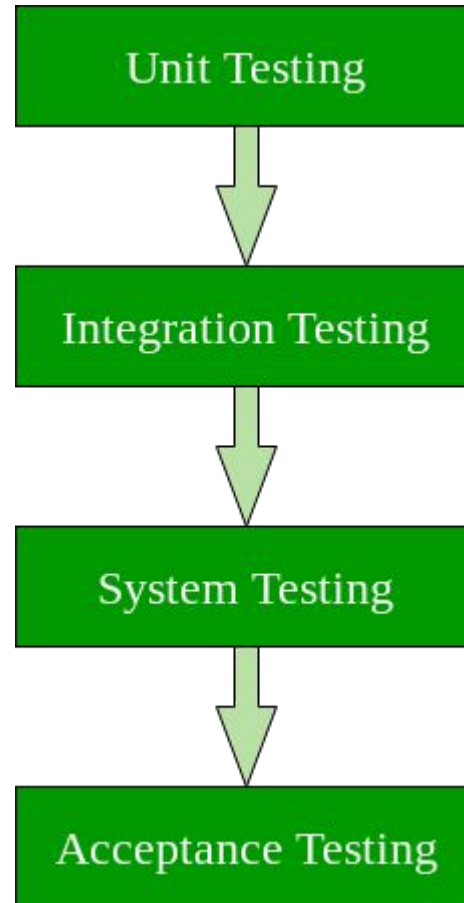


- Find uncover as many as errors (or bugs) as possible in a given product.
- Demonstrate a given software product matching its requirement specifications.
- Validate the quality of a software testing using the minimum cost and effort.

Testing Life cycle



Level of Software Testing



Testing Tools

Automation Testing: Selenium

- Slow and flaky
- Not developer-friendly



Testing Tools

Code Quality: IDE

- Only common errors (syntax, indentation) are caught
- Not be able to catch abstract errors such as code smells, security vulnerabilities and complexities

```
8  <script>
9
10  import DtsHeader from './DtsHeader';
11
12  export default {
13    name: 'Projects',
14    components: {
15      DtsHeader,
16    },
17    data() {
18      return {
19        projectHeader: 'Projects',
20      };
21    },
22  };
23  </script>
```


Automation Testing: Cypress

- Fast
- Developer-friendly
- Debuggability
- Complete end-to-end testing



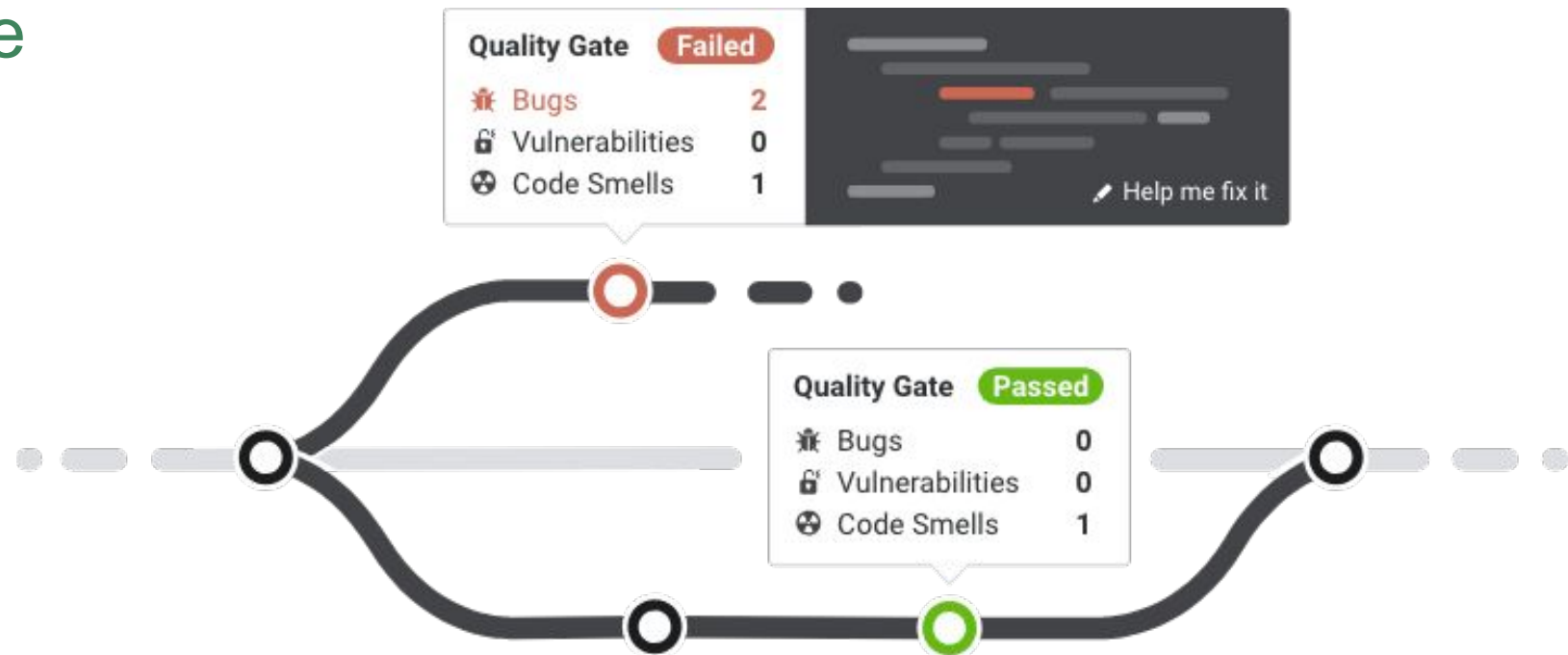
Testing Tools



Continuous Code Quality: SonarQube

- Maintainability issue
- Reliability issue
- Security issue

sonarqube 

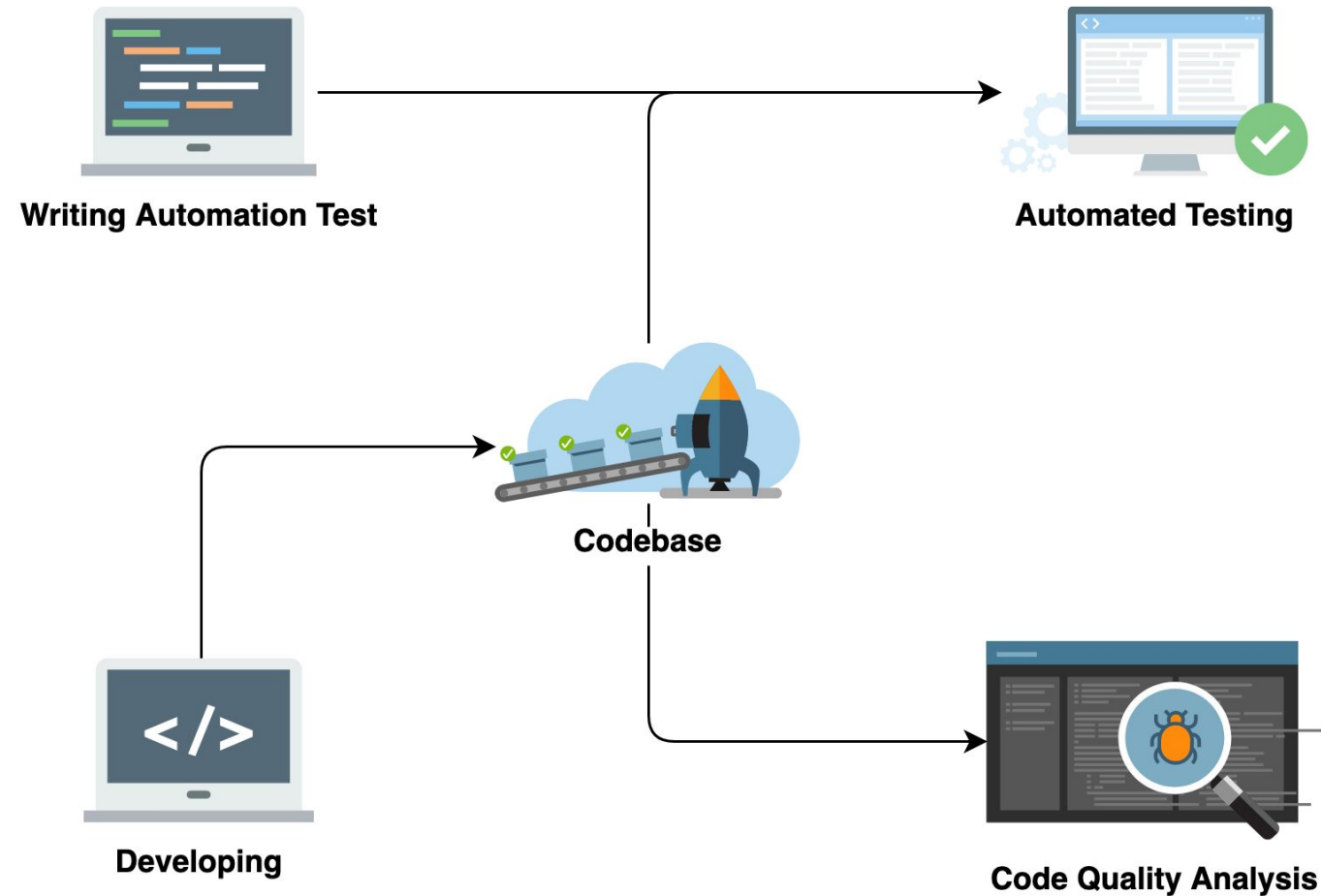


What we test

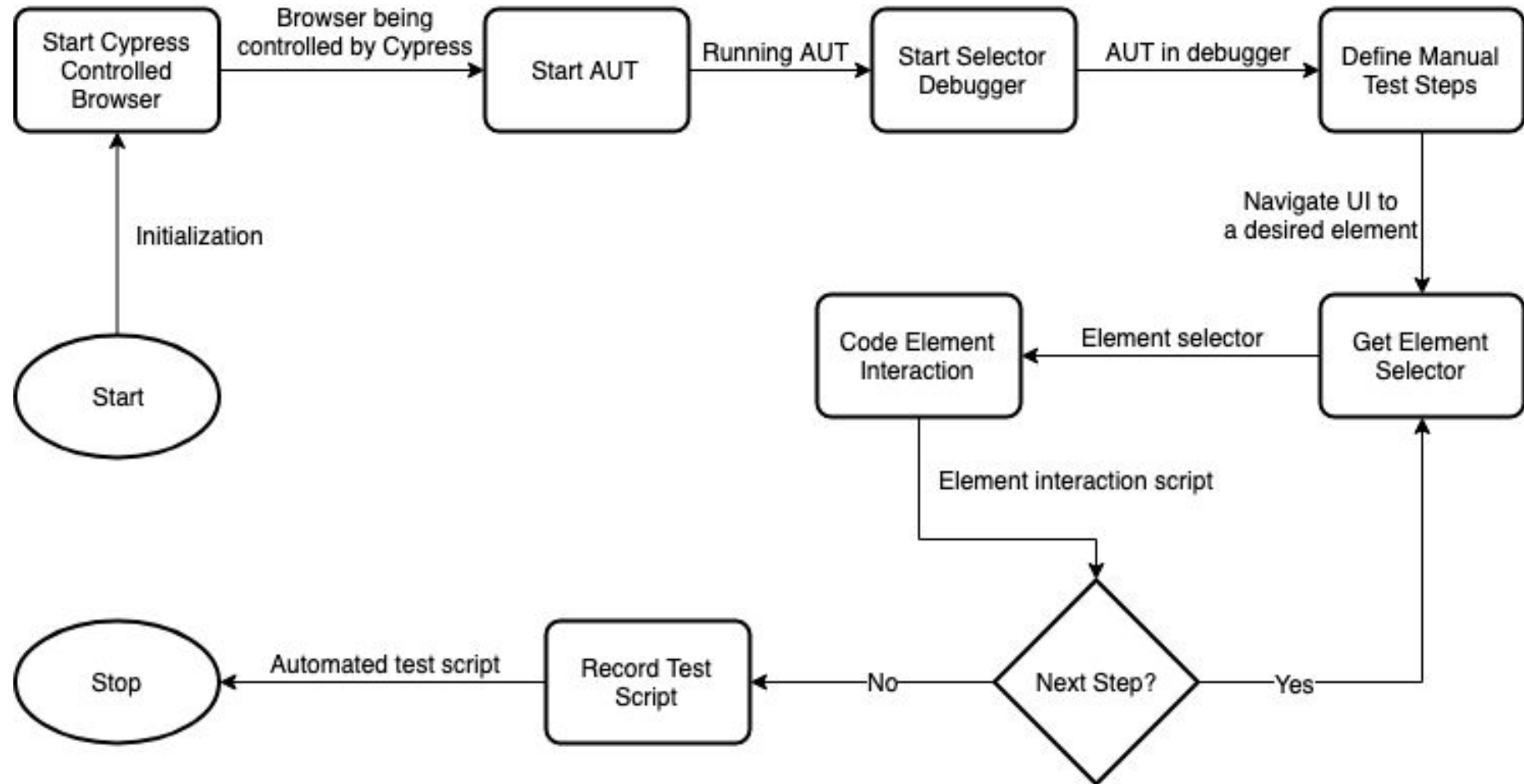


- Automation Testing
 - Web application
 - Functional testing
 - Integration testing
- Continuous Code Quality
 - Static code analysis

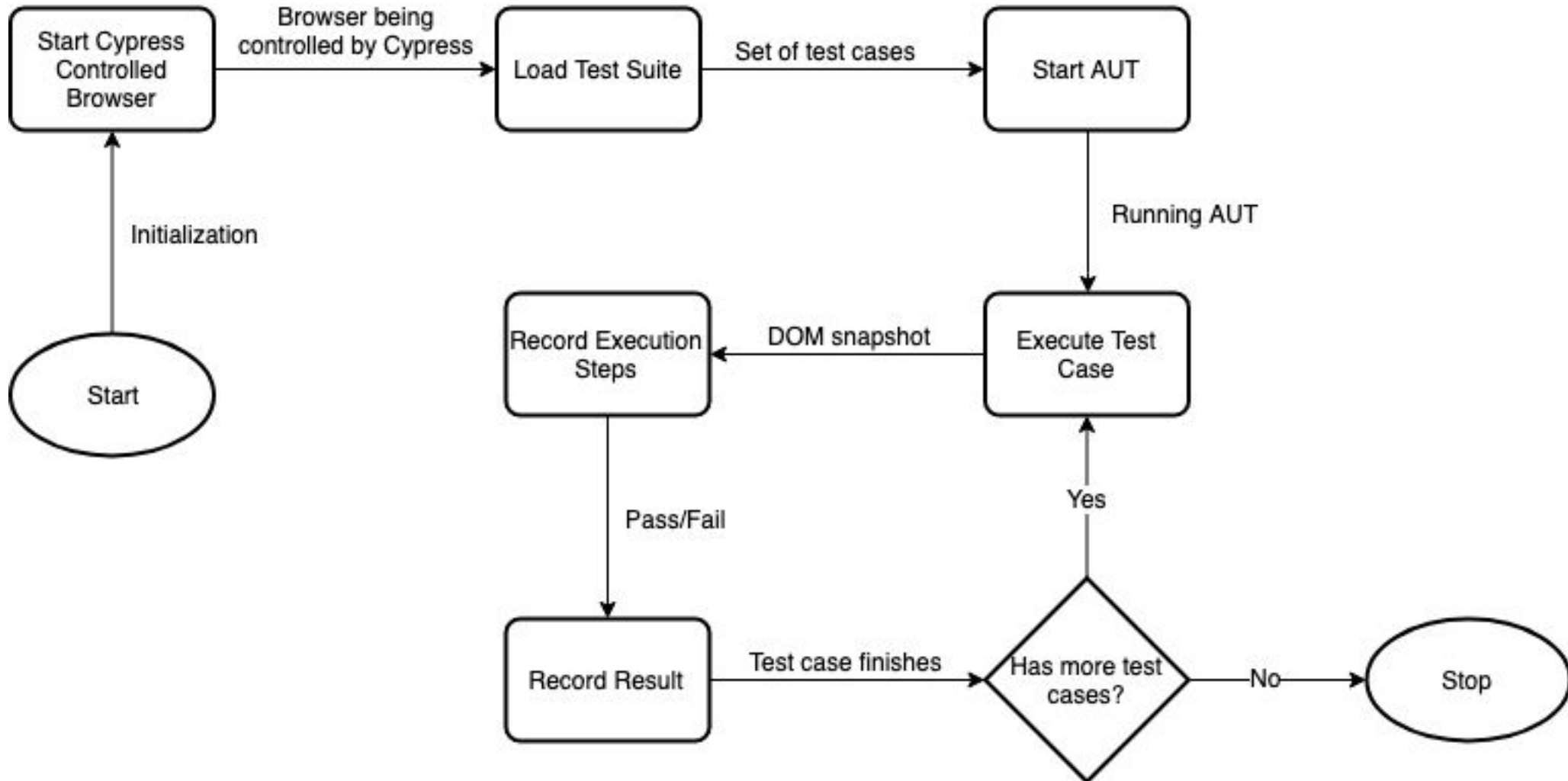
Example of Testing process



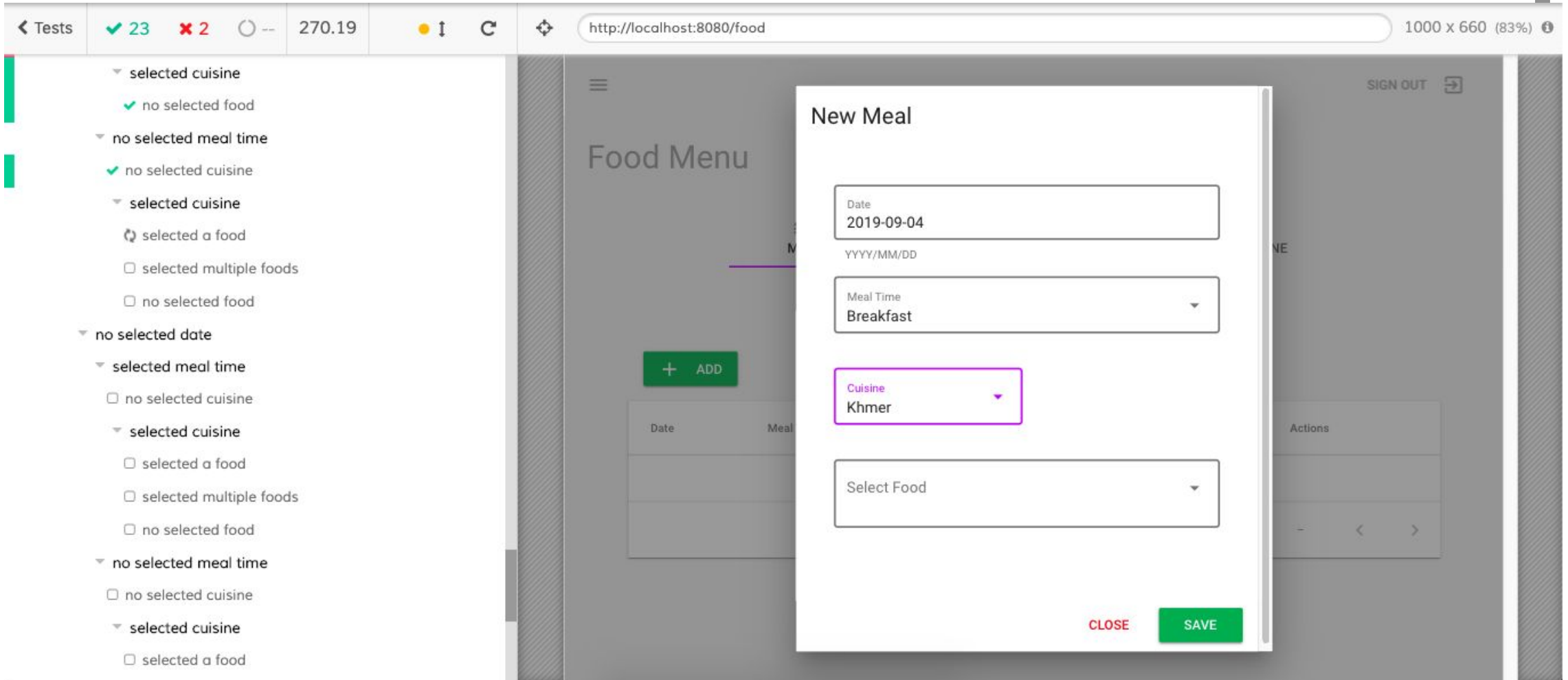
Cypress Test Script Development Process



Automation Testing Process



Cypress Test



The screenshot displays a Cypress test runner interface. The top bar shows test statistics: 23 passed (green checkmarks), 2 failed (red Xs), and a loading spinner. The browser address bar indicates the URL is `http://localhost:8080/food` with a resolution of 1000 x 660 at 83% zoom.

On the left, a sidebar lists test scenarios and assertions:






- selected cuisine
 - no selected food
- no selected meal time
 - no selected cuisine
- selected cuisine
 - selected a food
 - selected multiple foods
 - no selected food
- no selected date
- selected meal time
 - no selected cuisine
- selected cuisine
 - selected a food
 - selected multiple foods
 - no selected food
- no selected meal time
 - no selected cuisine
- selected cuisine
 - selected a food

The main application window shows a 'Food Menu' page with a 'New Meal' modal form open. The form contains the following fields:

- Date: 2019-09-04 (format YYYY/MM/DD)
- Meal Time: Breakfast
- Cuisine: Khmer
- Select Food

At the bottom of the modal are 'CLOSE' and 'SAVE' buttons. The background application shows a table with columns 'Date' and 'Meal'.

Cypress Test

All specs are complete!		✓ 1 spec passed ✗ 4 specs failed	Views:	🕒 Timeline	📊 Bar Chart	🖨 Machines
▼	📁 Unnamed	5 specs on 1 machine ▼	✓ 112 ✗ 28	🕒 17:03	🍏	🔍 61
✓	authentication.spec.js New		✓ 7	🕒 00:20	📄 📷 🔍	
✗	cuisine.spec.js		✓ 22 ✗ 7	🕒 02:54	📄 📷 7 🔍	
✗	food.spec.js		✓ 21 ✗ 14	🕒 04:25	📄 📷 14 🔍	
✗	food_type.spec.js		✓ 21 ✗ 5	🕒 02:27	📄 📷 5 🔍	
✗	meal.spec.js		✓ 41 ✗ 2	🕒 06:15	📄 📷 2 🔍	

Cypress Test



✖ food > create a new food > using an invalid food name > no selected food type and no selected cuisine

📄 📷 1 ▶

▶ Timed out retrying: expected '<div.v-messages__message>' to be 'visible'
This element '<div.v-messages__me...

✖ food > creating multiple foods > creates valid foods

📄 📷 1 ▶

▶ Timed out retrying: cy.click() failed because this element is not visible:
<button class="swal-button swal...

✖ food > creating multiple foods > creates invalid foods

📄 📷 1 ▶

▶ Timed out retrying: cy.click() failed because this element is not visible:
<button class="swal-button swal...

✖ food > creating multiple foods > creates mixed valid and invalid foods

📄 📷 1 ▶

▶ Timed out retrying: cy.click() failed because this element is not visible:
<button class="swal-button swal...

✖ food > creating a food after cancellation > creates a valid food

📄 📷 1 ▶

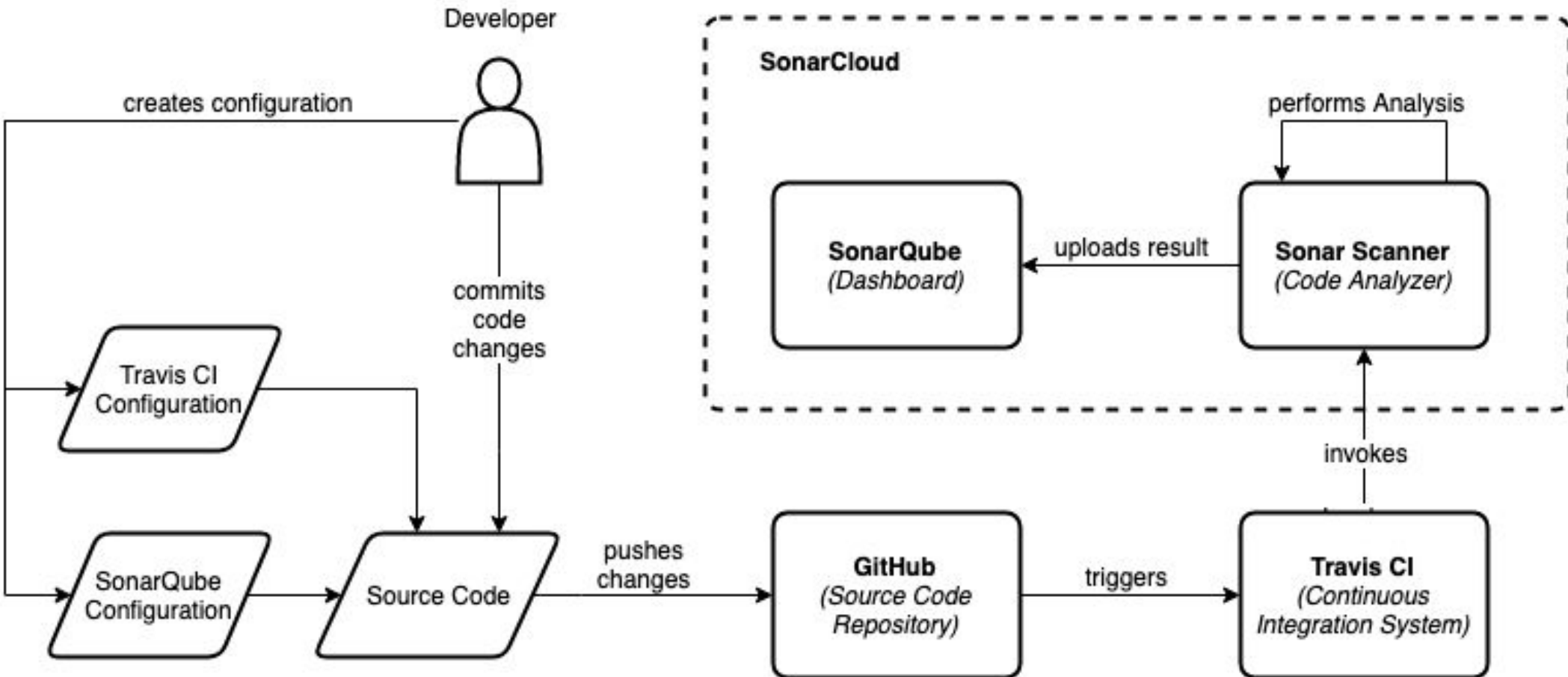
▶ Timed out retrying: cy.click() failed because this element is not visible:
<div class="v-select__selection...

✖ food > creating a food after cancellation > creates an invalid food

📄 📷 1 ▶





▶ Timed out retrvina: cv.click() failed because this element is not visible:





Continuous Code Quality Process



Sonarqube Source Code Analysis




sonarcloud  My Projects My Issues NEW New rules for Go  Explore  


 SereiPonna /  Resort Rating Dashboard  master 


August 29, 2019, 12:06 AM Version 1.0-SNAPSHOT

Overview Issues Measures Code Activity Administration

Quality Gate  Passed


Reliability [Measures](#)


2 

Bugs 


started 6 days ago

Security [Measures](#)


0 


Vulnerabilities 

0


Security Hotspots 

Maintainability [Measures](#)

34min 


Debt 

6


Code Smells 

About This Project PUBLIC


No tags

 1.5k

Lines of Code

 1.4k

JavaScript

 66

CSS

Project Activity

August 29, 2019

1.0-SNAPSHOT

Show More

Quality Gate

(Default) [Sonar way](#)







Quality Profiles






(CSS) [Sonar way](#)


(JavaScript) [Sonar way](#)


External Links

Sonarqube Source Code Analysis

sonarcloud  My Projects My Issues NEW New rules for Go   Explore  Search for projects and files...  

S SereiPonna /  Resort Rating Dashboard  master  August 29, 2019, 12:06 AM Version 1.0-SNAPSHOT  

Overview Issues Measures Code Activity Administration 

← 1 / 2 issues 

src/components/Dashboard.vue



Rename or remove duplicate property name 'watch'.
Bug +1
alt + ↑ ↓ to navigate issue locations

src/css/Dashboard.css

Unexpected shorthand "flex-flow" after "flex-wrap"
Bug





2 of 2 shown





```
71         this.$store.commit('changeRate', res.data.rates)
72         const rating = this.$store.getters.rating
73         return rating
74     },
75     watch: {
76         month: function () {
77             this.pickerVisible = !this.pickerVisible
78             return this.month
79         }
80     },
81     mounted() {
82     },
83     ,
84     watch: {
85         month: function() {
86             this.pickerVisible = !this.pickerVisible;
87             return this.month;
88         }
89     }
90 };
91 </script>
92
93 <style scope>
94     chart-card {
```

Rename or remove duplicate property name 'watch'. [See Rule](#) 6 days ago ▾ L85 
Bug ▾ Major ▾ Open ▾ SereiPonna ▾ 5min effort Comment  pitfall ▾



Sonarqube Source Code Analysis





 My Projects My Issues NEW New rules for Go ×  Explore  + 

 SereiPonna /  Resort Rating Dashboard  master 

August 29, 2019, 12:06 AM Version 1.0-SNAPSHOT

Overview Issues Measures Code Activity Administration  


 1 / 2 issues 



src/components/Dashboard.vue









Rename or remove duplicate property




84
85


```
,  
  watch: {
```





Rename or remove duplicate property name 'watch'. 

6 days ago  L85 

 Bug  Major  Open  SereiPonna  5min effort  Comment  pitfall 

 Property names should not be duplicated within a class or object literal —  

Property names should not be duplicated within a class or object literal javascript:DuplicatePropertyName 

 Bug  Major  Main sources  pitfall Available Since Jun 19, 2013 SonarAnalyzer (JavaScript) Constant/issue: 5min

JavaScript allows duplicate property names in classes and object literals, but only the last instance of a duplicated name determines the actual value that will be used for it. Therefore, changing values of other occurrences of a duplicated name will have no effect and may cause misunderstandings and bugs.

Defining a `class` with a duplicated `constructor` will generate an error.

Before ECMAScript 2015, using duplicate names will generate an error in JavaScript strict mode code.

Noncompliant Code Example

```
var data = {  
  "key": "value",  
  "1": "value",  
  "key": "value", // Noncompliant - duplicate of "key"  
  'key': "value", // Noncompliant - duplicate of "key"  
  key: "value", // Noncompliant - duplicate of "key"
```

Thank you