



Automated testing

How to feel safe pressing the red button

Summary

- 🤔 What is it? Why do we need it?
- 🚲 Unit testing
- 🚚 Integration testing
- ✨ Demo time
- ? Q & A

What we won't cover/talk about

- implementation details
- existing tools overview



Why do we need automated testing?

I. As developer, we write pieces of software.

II. Developers are humans.

III. Human sometimes make mistakes.

IV. As human, we (may) write bugs.

As developers we write bugs

So we need some bullet proof solution to automatically test our code and check if we introduce new mistakes regularly.



Buster Keaton chasing some bugs in production after release.

How does it look like?

How does it look like?


Basically, an automated test may be reduced to 3 simple steps :

1 **Given** a context

2 **When** I execute some action

3 **Then** I expect a specific result

How does it look like?

INPUT  OUTPUT

Unit testing vs integration testing

Unit testing

Write tests for specific parts of a software (method, component...), isolated from the rest.

```
function add(a, b) {  
  return a + b;  
}
```

```
// given  
const a = 1;  
const b = 2;  
  
// when  
const result = add(a, b);  
  
//then  
expect(result).toBe(3);
```

Unit testing

- As a team, more than one developer is going to work on the same pieces of code
- Tests act as a guard to prevent them from introducing errors in a part of the software they did not write first
- Tests may act like specifications (test file are suffixed .spec sometimes) to understand what that part of the codebase is supposed to do

But testing all parts individually does not ensure you that all parts are working well together.



Integration testing

Integration testing

Test the whole software by letting a machine act like a normal user.

```
visit('/') // Attempt to visit home page without being authenticated

expect(url).toBe('/login') // check that are redirected to the login page

get('input[name="email"]').type('georges@abitbol.com') // fill email

get('input[name="password"]').type('laclasseamericaine') // fill password

get('button[type="submit"]').click() // click on submit button

expect(url).toBe('/') // check that we are on the home page
```


Integration testing

Human error is still here

- Automate the test launch itself
- Trigger it on each modification made on the codebase
- Prevent new release to be done if some tests (unit or integration) are failing

