CYPRESS – END TO END TEST AUTOMATION

- BY COPE AUTOMATION

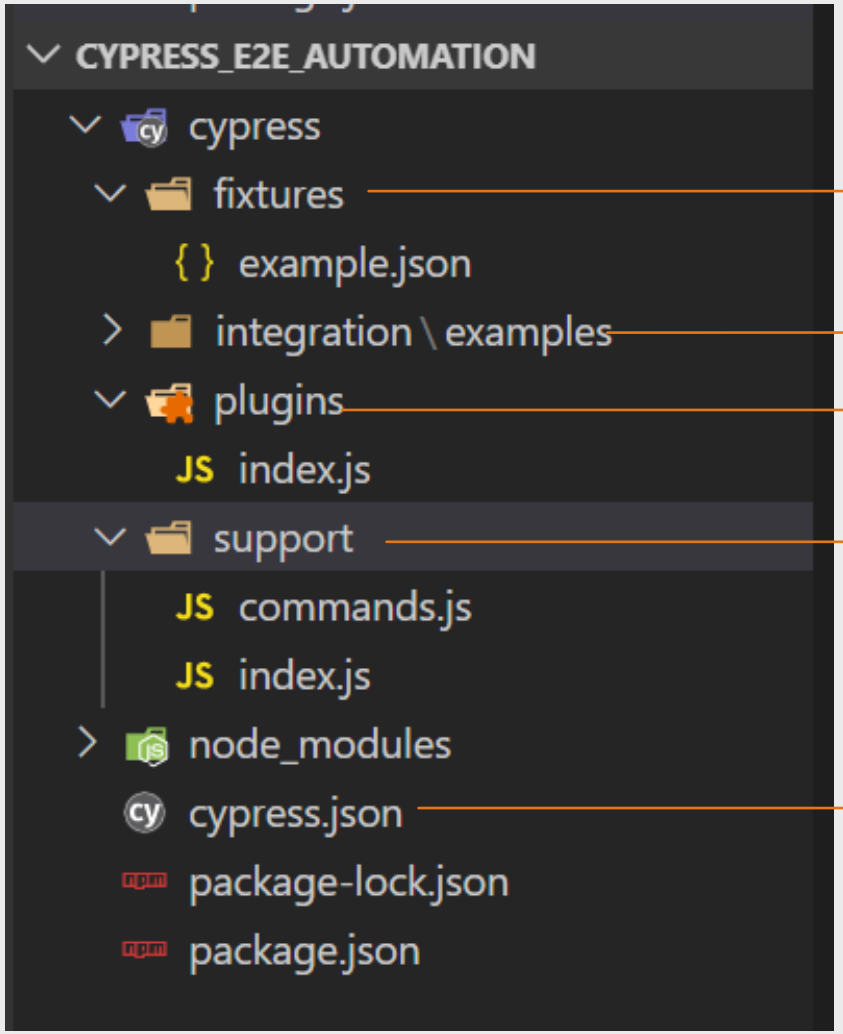
WHY IS CYPRESS ?

1. Time travel ability
2. Auto waiting & Retry-ability
3. Fast, less flaky and supports E2E tests
4. Complete control of the app or Browser: Network Traffic Control, API tests
5. Debuggability
6. Can be used by DEV and QA
7. Makes it possible to create **state independent, consistent tests**
8. Assertions at it's best: DOM & App level
9. Built-in screenshots and video recording capability
10. Ideal for JS based model web frameworks: Angular, React

INSTALLATION COMPONENTS

- Code Editor:VS code (Microsoft)
- Node.Js – Node Js and NPM
- Cypress

FOLDER STRUCTURE



To stores **data** (test data. stub data, API request/response data

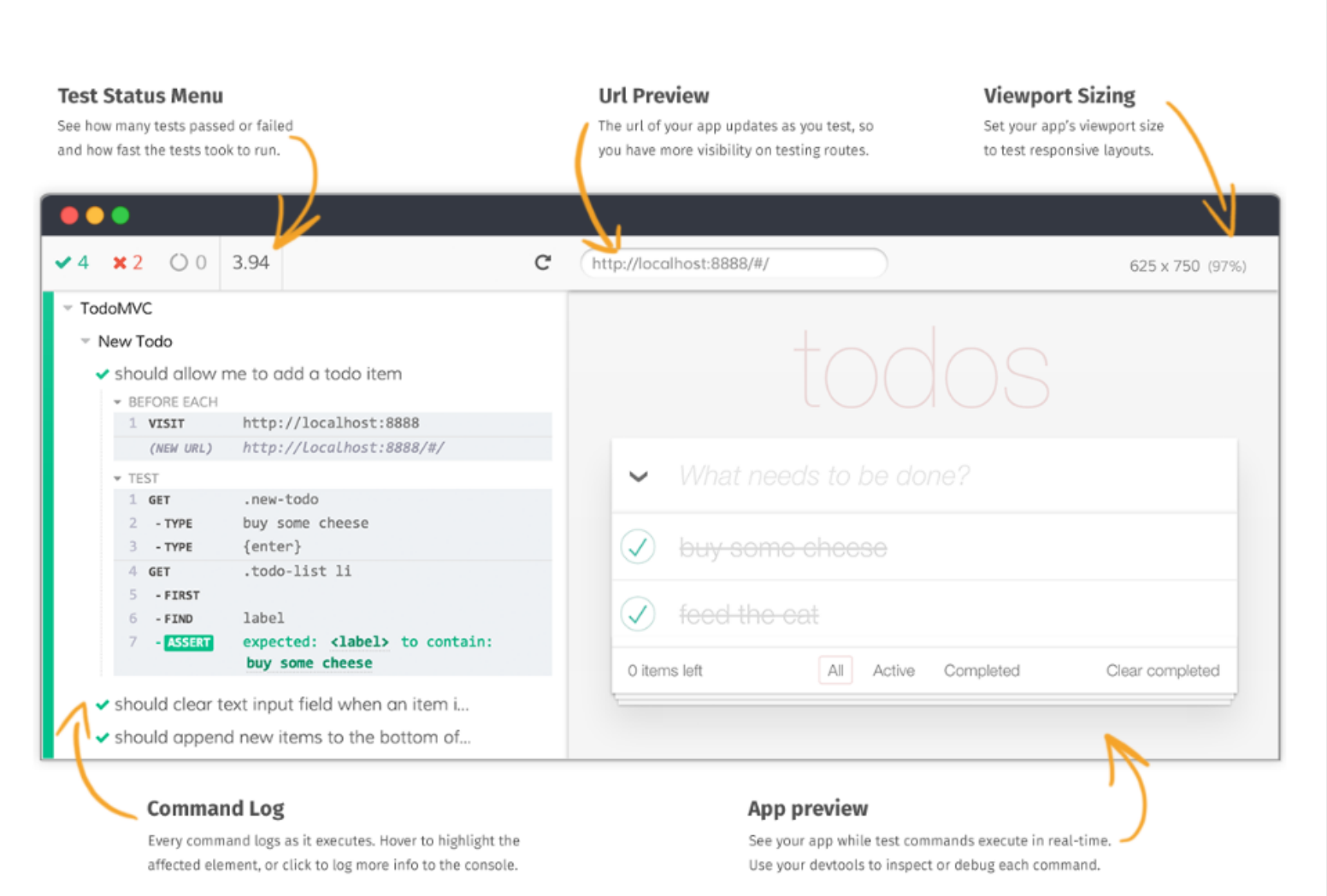
All the **test** files (with 'spec')

To run **node process** (e.g. DB query) – cy.task()

Reusable custom commands

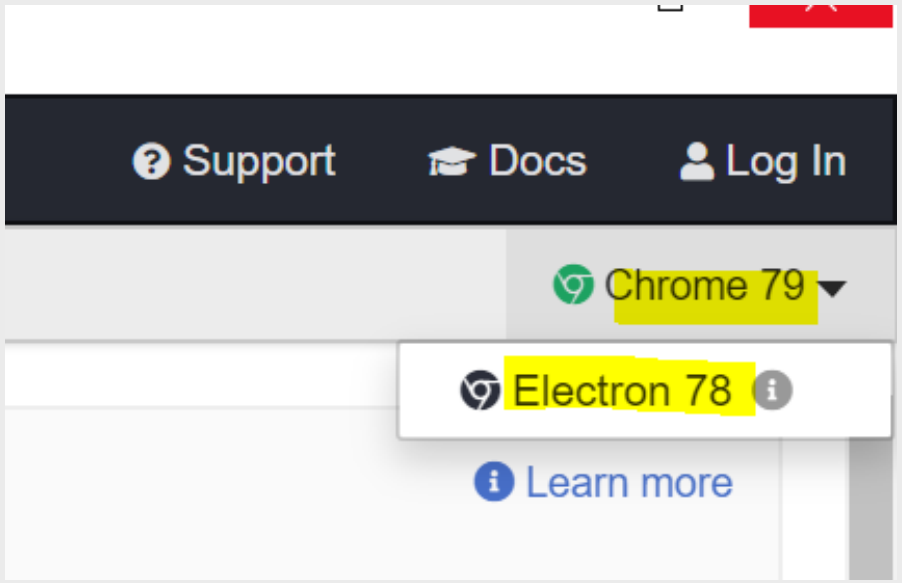
Config file

CYPRESS COMPONENTS – TEST RUNNER



BROWSER SUPPORT

1. What's the difference?



CODE INTELLISENCE

1. Cypress
   - **Option 1**: /// <reference types="Cypress" /> (Triple-Slash Directives)
     - Downside: We need to add to each spec/test file
   - **Option 2**: Reference type declarations
2. Cypress. json

WHAT IS MOCHA?

Mocha is a **JavaScript test framework** running on Node.js and in the browser

MOCHA'S BDD INTERFACE

```
describe('Array', function() {
  before(function() {
    // ...
  });

  describe('#indexOf()', function() {
    context('when not present', function() {
      it('should not throw an error', function() {
        (function() {
          [1, 2, 3].indexOf(4);
        }.should.not.throw());
      });
      it('should return -1', function() {
        [1, 2, 3].indexOf(4).should.equal(-1);
      });
    });
    context('when present', function() {
      it('should return the index where the element first appears in the array', function() {
        [1, 2, 3].indexOf(3).should.equal(2);
      });
    });
  });
});
```

MOCHA'S BDD – SUMMARY

Suite Level	*before(), after()*
	describe() or context()
Test Level	*beforeEach(), afterEach()*
	it(), specify()

WHY UNDERSTANDING SELECTORS IS IMPORTANT ?

“The more you know about selectors, the less time you spend automating tasks”

DOES CYPRESS FOLLOW SELENIUM SELECTORS METHOD?

```
className(String className) : By - By
cssSelector(String selector) : By - By
id(String id) : By - By
linkText(String linkText) : By - By
name(String name) : By - By
partialLinkText(String linkText) : By - By
tagName(String name) : By - By
xpath(String xpathExpression) : By - By
```

```
cy.
    .get()
    .contains()
```

WHAT IS JQUERY?

*It's a **JavaScript library** - It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers*

WHAT IS CSS

Cascading Style Sheets (CSS) is a simple mechanism for adding style (e.g., fonts, colors, spacing) to Web documents.

WHAT'S THE RELATION BETWEEN JQUERY AND CSS?

```
<script>
$( "#myDiv" ).css( "border", "3px solid red" );
</script>
```

Jquery queries DOM element to **apply CSS** (styles)

Cypress uses the same mechanism to **Action** on the element

WHAT IS AN ELEMENT (TAG) & AN ATTRIBUTE ?

Element name (Tag name)

Attribute name

```
<input name="txtUsername" id="txtUsername" type="text">
```

Attribute Value

MOST USED PATTERNS

Pattern 1: ID

Syntax	**#id**
Description	*Selects element with the given id attribute*
Example	`cy.get('#user-name').type('standard_user')`

MOST USED PATTERNS

Pattern 2: Class

Syntax	**.class**
Description	*Selects element(s) with the given class*
Example	`cy.get('.btn_action').click()`

MOST USED PATTERNS

Pattern 3: Combination of Element name (Tag name) and Attribute

Syntax	**tagname[attName = value]**
Description	*Selects element(s) which matches given combination*
Example	`cy.get('div[type=username]').type('standard_user')`

MOST USED PATTERNS

Pattern 4: Attribute Equals

Syntax	**[attName = value] or [attName = “value”]**
Description	*Selects element which matches attribute name and value*
Example	`cy.get('[class=inventory_list]').click()`

MOST USED PATTERNS

Pattern 5: Multiple Attributes

Syntax	**[attName1 = value1] [attName2 = value2]**
Description	*Selects element(s) which matches this combination* *
Example	`cy.get('[name=txtPassword][type=password]')`

*Optionally, the element name/tagname can be added

OTHER PATTERNS

Pattern	Syntax	Desc
6	Tagname(id/class) e.g div.p or div#username	Combination of tag and id/class
7	parent>child	Selects the direct child
8	[attName*=value]	Attributes contains given substring
9	[attName^=value]	Attributes starts with given string
10	[attName$=value]	Attributes ends with given string
11	:eq(index)	Selects the specific index (starts from 0)
12	tagname	Selects the elemement(s) with given tagname
13	(selector1, selector 2, selector n)	Multiple valid selectors

* Note: cy.contains() covers text based search

CY COMMANDS TO FIND AN ELEMENT/ELEMENTS

- cy.
  1. get()
  2. contains()
  3. root()

On existing DOM Element

1. contains()
2. find()
3. filter()
4. not()
5. children()
6. first() , last()
7. next(), nextUntil()
8. parent(), parents(), parentsUntil()
9. Prev(), prevAll(), prevUntil()
10. siblings()
11. window()
12. within()

REFERENCE LINKS

- jQuery: https://api.jquery.com/category/selectors/