

Prompt 20: Conditional overuse

Smell: **Conditional overuse**

End to End test code without smell

```
// loginTest.cy.js

```js
// File: LoginTest.js
describe('TEST', () => {

 const expectedText = {
 textMenu: 'administrator'
 };

 it('Login Test', { tags: '@smoke' }, () => {

 const username = Cypress.config('username');
 const password = Cypress.config('password');

 cy.visit(Cypress.config('baseUrl') + Cypress.env('loginUrl'), {
 failOnStatusCode: false });

 cy.get('[id="username"]').type(username);
 cy.get('input[type="submit"]').click();
 cy.get('[id="password"]').type(password);

 cy.get('.user-info').should("be.visible").invoke('text').should('include'
 , expectedText.textMenu);
 });
});
```
```

End to End test code with smell

```
// conditionalOveruse.cy.js

```js
// File: loginTest.cy.js

describe('TEST', () => {

 const expectedText = {
 textMenu: 'administrator'
 };

 it('Login Test', { tags: '@smoke' }, () => {

 const username = Cypress.config('username');
 const password = Cypress.config('password');

 cy.visit(Cypress.config('baseUrl') + Cypress.env('loginUrl'), {
 failOnStatusCode: false });
```

```

cy.get('[id="username"]').type(username);
cy.get('input[type="submit"]').click();
cy.get('[id="password"]').type(password);

if(Cypress.config('parameter')){
 cy.get('input[type="submit"]').click();
}
else {
 cy.log('Bad News');
}

cy.get('.user-info').should("be.visible").invoke('text').should('include'
, expectedText.textMenu);
 });
});
...

```

## Full prompt submitted to ChatGPT

Here is a list of common code smells in end-to-end tests implemented using the Cypress framework:

- \* Incorrect use of asserts: using asserts (e.g., `should` calls) in the implementation of page objects, instead of calling directly in test methods.

- \* Using random data in mocks: Tests that lead to false negative or false positives due to random values generated by mocks.

- \* Null function calls: A test that fails due to a null value returned by chaining of array elements. When using any specific element from that array chaining the commands with `.eq()`, `.first()`, `.last()`, etc. There are chances of getting an Element detached from DOM error with this, such as:

```

```js
  cy.get('selector').eq(1).click()
```

```

- \* Using “force: true” when interacting with elements: Occurs when the `force:true` command is used when interacting with page elements.

- \* Using `cy.contains()` without selectors: A test that uses `cy.contains()` to select an element based on the text it contains, e.g., `cy.contains("please click here")`.

- \* Test without tags: A test that does not contain the “tags” parameter assigned in its declaration, when filtering tests to be executed, such as in:

```

```js
  it('Description') , () => {
    ....
  }
```

```

\* Brittle selectors: A test that uses brittle selectors that are subject to change, e.g., `cy.get(["customized id"])` instead of `cy.get(["random id"])`.

\* Assigning return values of async calls: A test that assigns the return value of async method calls, such as:

```
````js
    let x = cy.get('selector');
    x.click();
````
```

\* Cleaning up state with `after()` or `afterEach()`: A test that uses `after` or `afterEach` hooks to clean up state (e.g., to release resources acquired by the test).

\* Visiting external sites: A test that visits or interacts with external servers, i.e., sites that we do not control.

\* Starting Web servers: A test that starts a web server using `cy.exec()` or `cy.task()`.

\* Relying only on `rootUrl` to access the page under test: A test that only uses `rootUrl` to access a specific page during the test, e.g., assuming that `xyz.com` redirects to `xyz.com/login`, which is the page that we need to test.

\* Missing global `BaseUrl`: A test suite that calls `cy.visit()` without setting a `baseUrl`. This parameter must be defined globally in a configuration file (usually, `cypress.config.js`).

\* Using unnecessary checks for previously actionable elements : A test that uses redundant visibility checks when dealing with actionable elements such as `should("be.visible")` or `should("exist")` before actions (click or type), such as in:

```
````js
    cy.get('selector').should('be.visible').click();
````
```

\* Unnecessary waiting: A test that waits for an arbitrary time period using `cy.wait()`.

\* Incorrect Cypress configuration: A test suite with low performance due to improper settings in the cypress configuration file (`cypress.json`), such as `port`, `timeout` or `video`.

\* Duplicated code: When two or more tests share identical code snippets.

\* Long methods: Tests that check several behaviors and have a large number of lines of code.

\* Large classes: Classes with a very high number of end-to-end tests.

\* Conditional overuse: Occurs when there is a condition in the test, i.e., due to a specific event the test may return different values.

Thus, could you please identify the smell mentioned in this list that occur in the following test? The test has 1 source code file: loginTest.cy.js . Each file is delimited using markdown code blocks. A comment in the first line of each file describes its name. Please, in your answer mention at most one smell.

```
```js
// File: LoginTest.js
describe('TEST', () => {

  const expectedText = {
    textMenu: 'administrator'
  };

  it('Login Test', { tags: '@smoke' }, () => {

    const username = Cypress.config('username');
    const password = Cypress.config('password');

    cy.visit(Cypress.config('baseUrl') + Cypress.env('loginUrl'), {
      failOnStatusCode: false });

    cy.get('[id="username"]').type(username);
    cy.get('input[type="submit"]').click();
    cy.get('[id="password"]').type(password);
    if(Cypress.config('parameter')){
      cy.get('input[type="submit"]').click();
    }
    else {
      cy.log('Bad News');
    }

    cy.get('.user-info').should("be.visible").invoke('text').should('include'
, expectedText.textMenu);
  });
});
```
```

## ChatGPT full answer

### (1 attempt)

One code smell that occurs in the given test is:

**\*\*Conditional Overuse\*\***

The code smell is evident in this part of the test:

```
```js
if(Cypress.config('parameter')){
  cy.get('input[type="submit"]').click();
}
else {
  cy.log('Bad News');
}
```
```

The test contains a condition (`if-else`) where the behavior of the test may vary based on the value of `Cypress.config('parameter')`. Depending on the value of this configuration parameter, the test either clicks on an input element with `type="submit"` or logs the message "Bad News". This conditional overuse makes the test more complex and harder to understand, potentially leading to different test outcomes based on configuration, which could make the test results less reliable.

Conditional statements in tests should generally be avoided or kept to a minimum. Tests should have predictable and deterministic behavior, regardless of the configuration settings. Introducing complex conditional logic in tests can make it difficult to reason about their correctness and can increase the chances of false negatives or positives.

To improve this, the test should ideally have a straightforward, deterministic flow without relying on conditional checks. If there are different scenarios to be tested, it is better to create separate test cases for each scenario to keep the tests clear and maintainable.