Cypress Framework Exploration

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# Main Goal

The main goal of this work is to explore Cypress framework[1] and create some web test scenarios with this framework which are focused on user experience and user interface.

For experimental use of Cypress I decided to use demo of open-source eCommerce platform called https://www.opencart.com/. Official plus demo link. In this demo website I decided to create simple test scenarios for login page, use of e-shop and use of navigation, where I found some errors in UI that are explained in next sections.

From these scenarios and also from Cypress framework I describe some of the advantages and limitations. Also, from research I will try to explain best-practices that I did not applied practically in my project and differences between Selenium and Cypress.

# Achievements

In this section I will try to explain scenarios and their achievements, that I separated in 4 parts containing scenarios of Login page, Ordering item in E-shop, Navigation and Not Found Page

## Test Scenario of Login Page

Testing of login page ended up very well as all asserts were successful, but from the view of user experience I think this login page can be slightly improved that I explain later.

When I started testing with Login page for the first, I had to check if I’m on correct subpage with correct heading information. Also, I considered that user maybe not have account, therefore login page should have link to register page.

Next, I tried to consider all possible error messages that alert user about incorrectly entered inputs and there I found out that website should use basic validation of empty inputs in frontend. Instead, developers chose to do all validations in server side and just with one exactly same alert message in different situation, that in my opinion this is lazy option, and I am considering it as not best practices.

Last after login I checked if login page redirect user to account page, which turned out successfully.

## Test Scenario of Ordering Item in E-Shop

At test of the ordering items, I found first errors, after you visit subpage with categories and after that some product that is *out-of-stock*, it should not be enabled to put this product to shopping cart. Developers did check of out-of-stock items inside shopping cart, but I think it’s wrong as you can’t proceed checkout before removing those items. In my opinion is better to disable adding this product to shopping cart or allow showing date of next availability so you can do checkout, but you will receive item later.

Another error is input with number of items that have possibility to add there zero or minus value, without saying any alert or warning before it. Only alert is just saying that item was successfully added to cart, it especially weird when you put there minus value and removing items. Developers should consider removing this input at all from products that don’t need inserting value. People usually buy just one computer vice versa when you are buying cables it is common that you will buy more than just one meter.

Last error is in shopping cart where you can remove item from shopping cart without any warning if you want to proceed delete. Developers should use at least lazy version and write alert with message that item was removed and put there link to reverse this state back.

## Test Scenario of Navigation

From the first moment when I used navigation, I found that navigation have weird behavior. When you click on any button from navigation you should be redirected to another subpage, but there is nothing happening. Also is weird that after click on dropdown buttons they lock their visibility. That should be working just and only with hover effect when you mouse over the button and without locking visibility.

After some examination of navigation, I tried to understand why it does not redirect, even when there is a link element with correct address and I did not find it out as I don’t see all the code before production compilation.

## Test Scenario of Not Found Page

After above scenarios I also thought it should be good to test if the website is secured with Not Found Page and it seems that it works perfectly. I tried to change slug of categories to some invalid values and it ended up in custom *category not found page*.

Next, I tried to change route to invalid and also there was custom not found page, and at last I tried totally invalid base from routes and it works fine with 404 status page.

Maybe the last option, developers should consider to use some link in 404 status page so user can return easily to homepage or back to subpage from history.

# Advantages

This section I will more focus on advantages of Cypress as scenarios advantages are practically clear from last section. With this testing scenarios we are trying to catch user experience and interface errors to improve product usability and safety. For example in login page as you saw I was trying to catch alerts of invalid or empty inputs and this part is more or less important for user when he want to login.

Now I will explain more about advantages of Cypress as in my opinion this framework is really good for website testing. Firstly, as Cypress is a framework it is ready to use which I mean the framework is already set up for you. You do not need to install any libraries or tools to make it work with testing, like for example you can try testing with Selenium, but Selenium needs another libraries to properly test websites. Cypress implemented an automatic wait technique, so it waits for a specific element to load and to be ready before performing any actions. Also, Cypress provides multiple ways to debug using logs, dev tools, and dedicated commands for debug and really nice interface where you can see and debug errors also with Screen Snapshots that takes a screen capture of every step, which helps to navigate back to previous steps and know the status and analyze them.

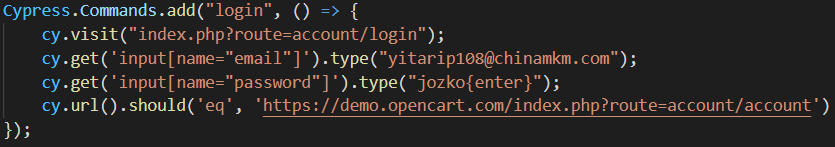
From documentations and experience with project I liked, that each test can be isolated in structure so you can organize tests scenarios in data model object structure in folders see in Fig. 1 below.

Graphical user interface, application

Description automatically generated

1. Structure of Test Scenarios in Cypress

We can make own custom Cypress method using commands.js file located in support folder and also index.js file. For example, we can create login command that we can call from different test scenarios in situations when we need to be logged in to do some operations, see in Fig. 2 below



1. Login Command Example

Also there are improvements of login command where you can use just API to get key and cache it in memory of invoked browser as you can see in Fig. 3 This way logging-in will be much faster but if you need to test login page you still have to use previous method.

Text

Description automatically generated

1. Login Command Example Using Request

In Cypress you can also use configuration file, that can help you with setting up your project to your specific request. For example, you can globally set base url of website where you will run tests so in you test scenarios you don’t need to write full address of websites, but just the routes. You can also change folders paths, define browser, set the viewport of browser and many more. Complete information about configuration is on Cypress documentation [1]

# Limitations

The biggest problem or limitation for me was doing test scenarios on website from which I don’t have code before compiling into production. On the same site I tried to examine code, but I got into one problem with navigation where I could not find hover effect of buttons.

From limitations in Cypress, I think the worst is that there are some missing features, for example usage of XPath, so you must install third party plugins or just stay satisfied with available features.

Next problem I found in scenario, where I wanted to mouse over button to show on hover effect dropdown. But from advice in documentation nothing worked and from my research I think that this problem is well known and developers probably working on it.

# Conclusion

From exploration of Cypress, I considering it as a really good tool to write test scenarios. I deduced above some advantages of Cypress that can make you some brief preview.

From the scenarios on demo website, I found various bugs that developers might consider fixing. I especially not like login page alerts and adding items to cart should be reworked to not allow adding zero or minus items to cart.

##### References

1. Brian Mann, Cypres.io, Available online: <https://www.cypress.io/>