

## **Caso study QA engineer role**

### **Scenario**

You are working on a product team which is developing new features for an e-commerce tool for a retail company.

### **Team**

Inside a product team squad, you are working following Scrum methodology with 1 week sprint duration. Each squad has different profiles for many disciplines and roles. You are working as QA engineer role.

- 1 product owner
- 1 project manager
- 1 delivery manager
- 5 IOS developers
- 5 Android developers
- 4 backend developers
- 5 QA engineers: you are one of these coworkers

### **Your main tasks**

- Definition of the acceptance criteria for each US defined by the PO
- Writing the test case for this acceptance criteria set in BDD Cucumber Gherkin language
- Manual execution of the test cases defined on the previous step

### **The new HU**

We need to develop this HU on this sprint:

“Modify the login process so that in addition to username and password it is mandatory to accept a privacy policy check before to click the submit button”

According to the attached previous info, we need to:

1. Definition of the acceptance criteria of the HU defined a few lines above.

Purposes of the AC.	Scenarios description	
❖ Making the feature scope more detailed	1: Establish the scope	<ul style="list-style-type: none"> <li>• This US will cover existing and active users</li> <li>• New users and disabled users are outside the scope.</li> <li>• All the existing scenarios related to modify login should be updated and they should all be linked to the US. Also linked are the Unit Tests, Test Cases and Automation Script results.</li> </ul>
❖ Describing negative scenarios	2: System user signs in with valid credentials and Privacy Policy is unchecked.	<ul style="list-style-type: none"> <li>• As a registered user, I want to log in with my username, password but the privacy policy isn't checked so that the system can't authenticate me and I can't trust it and an error message is displayed.</li> </ul>
❖ Setting communication ❖ Clear and concise	3: System user signs in with valid credentials and Privacy Policy is checked.	<ul style="list-style-type: none"> <li>• As a registered user, I want to log in with my username, password and with privacy policy checked so that the system can authenticate me and I can trust it.</li> </ul> MockUp: <a href="https://confluence/">https://confluence/</a> mockup
	4: System allows me to open and close Privacy Policy.	<ul style="list-style-type: none"> <li>• As a registered user, I want to read the privacy policy before checking it and when the system opens a privacy policy window, then the system allows me to close the privacy policy window without any problem, so the login page is displayed.</li> </ul> Mockup: <a href="https://confluence/mockup/PrivacyPolicy">https://confluence/mockup/PrivacyPolicy</a>

❖ Capturing performance specifications.	5: <i>System user signs in with valid credentials and Privacy Policy checked is loaded in less than eight seconds.</i>	<ul style="list-style-type: none"> <li>As a registered user, I want to log in with my username, password and privacy policy checked so that the system can authenticate me and I can trust it in less than eight seconds.</li> </ul>
❖ Capturing security specifications.	6: <i>Security action on unsuccessful attempt to login on the user.</i>	<ul style="list-style-type: none"> <li>As a registered user, I want to be notified if there have been three unsuccessful login attempts against my username so that I can take action to secure my account.</li> </ul>
	7: <i>Cookies aren't stored in browser for password and Privacy Police checkbox</i>	<ul style="list-style-type: none"> <li>As a registered user and I am logged out, I want to go to the login page, the following field must be displayed: username. Remember the user password field must be empty and displayed below the username field and below the password field must be displayed the checkbox for Privacy Police which is unchecked followed by the Privacy Policy link name, so the Submit button is disabled</li> </ul>

## 2. Writing the BDD Gherkin test cases to validate that HU

Scenarios description		BDD annotation
1: Establish the scope	<ul style="list-style-type: none"> <li>This US will cover existing and active users</li> <li>New users and disabled users are outside the scope.</li> <li>All the existing scenarios related to modify login should be updated and they should all be linked to the US. Also linked are the Unit Tests, Test Cases and Automation Script results.</li> </ul>	<b>No BDD for bondering features</b>

<p>2: System user signs in with valid credentials and Privacy Policy is unchecked.</p>	<ul style="list-style-type: none"> <li>As a registered user, I want to log in with my username, password but the privacy policy isn't checked so that the system can't authenticate me and I can't trust it and an error message is displayed.</li> </ul>	<p><b>2.Scenario: System user signs in with valid credentials and Privacy Policy unchecked.</b></p> <p><i>Given that I am a registered user and I am a logged-out system user and I'm on the Login page. When I fill in the "Username" and "Password" fields with my authentication credentials and I don't check on Privacy Police checkbox and I click on the Submit button. Then the system must display "Privacy Policy must be accepted" message.</i></p>
<p>3: System user signs in with valid credentials and Privacy Policy is checked.</p>	<ul style="list-style-type: none"> <li>As a registered user, I want to log in with my username, password and with privacy policy checked so that the system can authenticate me and I can trust it.</li> </ul> <p>MockUp: <a href="https://confluence/">https://confluence/</a> mockup</p>	<p><b>3:Scenario: System user signs in with valid credentials and Privacy Policy is checked.</b></p> <p><i>Given that I am a registered user and I am a logged-out system user and I am on the Login page When I fill in the "Username" and "Password" fields with my authentication credentials and I check on Privacy Police checkbox and I click the Submit button Then the system signs me in</i></p>
<p>4: System allows me to open and close Privacy Policy.</p>	<ul style="list-style-type: none"> <li>As a registered user, I want to read the privacy policy before checking it and when the system opens a privacy policy window, then the system allows me to close the privacy policy window without any problem, so the login page is displayed.</li> </ul> <p>Mockup: <a href="https://confluence/mockup/PrivacyPolicy">https://confluence/mockup/PrivacyPolicy</a></p>	<p><b>4 Scenario: System let me open and close terms and conditions for the Privacy Policy.</b></p> <p><i>Given that I am a registered user and I am a logged-out system user and I'm on the Login page When I open PrivacyPolicy on a new window Then the system allows me to read the term and condition from the Privacy Policy</i></p>

		<i>and allows me to close the window and I can see the login page</i>
<i>5: System user signs in with valid credentials and Privacy Policy checked is loaded in less than eight seconds.</i>	<ul style="list-style-type: none"> <li>As a registered user, I want to log in with my username, password and privacy policy checked so that the system can authenticate me and I can trust it in less than eight seconds.</li> </ul>	<p><b>5: System user signs in with valid credentials and Privacy Policy checked is loaded in less than eight seconds.</b></p> <p><i>Given that I am a registered user and I am a logged-out system user and I'm on the Login page When I fill in the "Username" and "Password" fields with my authentication credentials and I check on Privacy Policy checkbox and I click the Submit button Then the system signs me in in less than eight seconds.</i></p>
<i>6.Security action on unsuccessful attempt to login on the user.</i>	<ul style="list-style-type: none"> <li>As a registered user, I want to be notified if there have been three unsuccessful login attempts against my username so that I can take action to secure my account.</li> </ul>	<p><b>6:Security action on unsuccessful attempts to login on the user.</b></p> <p><i>Given that I am a registered user and I am a logged-out system user and I'm on the Login page When I fill in the "Username" and "Password" fields with my authentication credentials for a second time and I uncheck on Privacy Policy checkbox and I click the Submit button Then the system shows me an error saying: "it is your last attempt if you continue and you are not sure please contact your administrator or your user will be blocked"</i></p>

<p>7: Cookies aren't stored in browser for password and Privacy Police checkbox</p>	<ul style="list-style-type: none"> <li>As a registered user and I am logged out, I want to go to the login page, the following field must be displayed: username. Remember the user password field must be empty and displayed below the username field and below the password field must be displayed the checkbox for Privacy Police which is unchecked followed by the Privacy Policy link name, so the Submit button is disabled</li> </ul>	<p><b>7:Scenario: Cookies aren't stored in the browser.</b></p> <p><i>Given that I am a registered user and I am a logged-out system user and I am on the Login page When I check the "Username" field it should remember the user and the "Password" field must be empty and displayed below the username and the Privacy Policy checkbox is unchecked followed by the Privacy Policy link name Then Submit button is disabled</i></p>
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3. Taking into account that this HU has implementation of both Web, iOS, Android and backend, comment on what tools you would use to validate this HU in each discipline in a manual way.

**Frontend:** I will use different approaches according to the timeframe and methodology of the company:

- Unit Test : I will run the smaller portion of the testing code for each scenario.
- Integration Testing: I will check how the components of the system work together and the communication between the interface of the user and the API.
- Regression visual Testing
- Test between the browsers: I will check the compatibility between browsers and in different operative system
- Performance testing
- Aceptan test
- Pruebas E2E.

**Backend:** I will use Postman-Newman, especially on Integration Testing to guarantee an efficient communication between the interfaces of the user and the APIs to improve the user experience.

**Mobile** : I will execute a test on a mobile phone that has Android, another that has iOS and on a tablet.

4. As a QA engineer within a Scrum team, share with us what ceremonies and meetings you think will exist during the week of the sprint.

- ❖ **Preplaning:** where the PO, the technical leader and the QA leader meet to decide which US will be included in the sprint.

- ❖ **Planning:** all the team is involved and we use it to estimate the US and assign them to the developers.
- ❖ **Standups:** Not all the companies work with this approach. Some projects have one “daily meeting” on Friday or on Monday to organize the week and another project to understand what you are working on, if you are blocked in a task and other team members can help you or you will be informed what will be your next task.
- ❖ **Three amigos:** it is a meeting of 10 minutes where the PO, the developer and the QA meet to dispel doubts so that we are all on the same plate.
- ❖ **Retrospective:** It is good practice to hold this meeting but there is not always time to carry it out especially with a 1 week sprint.

5. As a final step, we would like to incorporate validation of this new use case into our automatic regression plan.

a. Which tools would you use to automate the Web, iOS, Android, and backend platform?

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#### Frontend:

In my experience there is no absolute answer regarding which Framework is best, since it is necessary to evaluate the characteristics and particularities of each project, in order to successfully determine the best automation strategy.

The main thing is to build an automation that is easy to understand and maintain, so that this does not turn into a manual test execution. Therefore, the following questions must be asked:

1. Is the project in JavaScript?

2. Can I develop in Javascript?

3. Do the QA and Development teams have good communication?

- ☐ If the answer is Yes to the first two questions, then Cypress is an excellent option, since by integrating the application code with the Automation Script in a single repository, it increases communication and support between team members, obtaining greater speed of response to errors.
- ☐ Now if the answer to 2 was No, it is better to opt for Selenium and take advantage of a language in which you are comfortable, know it, and fit your automation project.
- ☐ If you see the following table you can see Selenium is a bit better in comparison with Cypress, and in my opinion Selenium can use the power that the language programming provides to it.

Characteristics	Selenium	Cypress
All (although the most common and used by Cypress are used) Cross	Cross Browser	Web Chrome , Firefox and Edge

Installation	Complex, with specific releases according to the language to install	Easy installation and setup
Management of tabs and alerts if very complex	yes	complex
Wait on the elements Automatic and manual handling	explicit and implicit manual handling	Automatic and manual handling
Running speedfast Smart Locators yes yes	lower than Cypress	fast
Smart Locators	yes	yes
Documentacion	Documentation centralized and community	documentation centralized
complex request for specific services	very complex depending on the chosen tool	simple using cy.request()
Reports	screenshots and personalized documentation	screenshots, videos and documentation
open source	yes	yes ( limited)
Programing language	If we combine the power of a programming language like Java with the extended functionality that the Selenium framework provides, it makes a big difference	Javascript
Why Selenium?	8 green marks	7 green marks

**Backend:** if the main programming language is Java, it is perfectly possible to use Java to implement testing in API and microservice.

**Mobile :** I will use Appium that is coming from Selenium family



b. Which CI/CD tools do you think could be used to schedule the regression launch in a planned and manual way?

I will use Jenkins to run the regressions for automation and Jira with Xray to run the regression manually from Jenkins with a test execution.

Another alternative is use GitHub Actions

- ❖ So again the decision is dependent on the strategy of the company.
- ❖ Open Source: it aligns with your project's goals.  
Build Environment Compatibility: You should reveal whether the tool is compatible with your project's environment and programming languages
- ❖ Hosted and Cloud-Based Options: You should consider whether the tool offers both cloud-based options and hosted solutions and choose what fits your project needs.
- ❖ Version Control System Compatibility: You should check if the CI\CD tool can be integrated with your chosen version control system or source control platform to manage the source code as seamlessly and hassle-free as possible.
- ❖ Testing Integration: You should evaluate how the tool integrates with testing frameworks or test management systems.
- ❖ Ease of Configuration/Setup: You should opt for a CI\CD tool with a user-friendly interface and easy-to-understand configuration, reducing setup complexities.
- ❖ Learning Curve: learning curve for developers to make it easy for them to set up and configure their build and deployment workflows.

Category	Jenkins	Github Actions
Environment	Linux/MacOS/Windows	Linux/MacOS/Windows
Configuration as CodeGitOps	yes	yes
Installation	Required	Not required
Parallelism	yes	yes
Branching Support	yes	yes
Authentication	Github	Github
Asynchronous Integration	No	yes
Ease of use and Setup	Medium	Easy to use
Serverless	No	yes
Status Visibility	Yes	yes
Ad Hoc Workflow	Yes	no
Cost/ Hosting	Based on cloud provider	Based on cloud provider
Scalability	Highly scalable	Limited by GitHub's infrastructure
Control	Doesn't provide full control over CI\CD pipelines	Full control over CI\CD pipelines

Paid plan details	Free to use, requires a dedicated administrator	Both free and paid plans with varying features and usage limits
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Only by taking these factors into account can you make an informed decision that maximizes the benefits of CI\CD adoption. Furthermore, it ultimately contributes to more efficient development, better code quality, and successful software releases.

6. Imagine that our PO tells us on Thursday morning that we have to put a new HU in this sprint that closes Friday at noon, and you still lack 1 development of this HU to receive from the developers and try it.

Could you share any alternative to try to achieve the POs goal?

- ❖ First, I am going to read the US to see if the requirements are clear and that it is really possible to implement and test that US in that sprint, since perhaps it wasn't considered when adding the US, permissions, environments, complexity, etc.
- ❖ I'm going to ask which developer is in charge of implementing that in the US.
- ❖ If I know who is the developer assigned to that US: I will work with him/her closely, offering my support:
  - Complete the US with all the information collected.
  - Leaving a list of possible TCs to be carried out so that the developer has more visibility to implement the requirements of that US.
  - Testing locally their previous US and creating Unit Tests if applicable, allowing him or her to continue with the new US.
- ❖ If I don't know who the developer is because it hasn't been assigned, I'll talk to the manager to find out if the pending US can be passed onto the next sprint or if it's possible to break the US into small modifications, prioritizing the most relevant one.