REPORT ON INTERNSHIP

Quality Assurance Engineer

OCTOBER 3, 2018

UPSTAR LABS
KATALON TEAM

Report on Internship

MTH10549

Prepared By:
Ta Hoang Thao Vy - 1511353

Submission Date:

October 3, 2018

Letter of Transmittal

October 03, 2018

Dr. Tran Anh Tuan

Faculty of Mathematics and Computer Science

University of Science

Subject: **Letter of Transmittal**

Dear Sir:

I am pleased to submit the Internship Report that you had asked. I have been working as an Intern at ‘UpStar Labs’ this semester as a part of our course, MTH10549.

This report contains my experience in the company. It is my immense pleasure in presenting you this report based on my observation and experience during my internship period, starting from July 03, 2018 to October 03, 2018. During this period, I worked under the supervision of Mr. Ngo Minh Quoc Dung, Project Manager, UpStar Labs - KMS Technology.

I hope that the report will reflect my learning during the internship program and you will find it in order.

Sincerely yours,

Ta Hoang Thao Vy

Roll No: 1511353

Class: 15TTHTN (Honor program)

Faculty of Mathematics and Computer Science

University of Science

Letter of Endorsement

To Whom It May Concern

Subject: Approval of the Report

This letter is to certify that, all the information mentioned in this document is true and not confidential to the company. The projects mentioned here have had successful involvement of Ta Hoang Thao Vy, University of Science.

Internship Supervisors

Mr. Ngo Minh Quoc Dung

Project Manager

UpStar Labs
KMS Technology

Mr. Nguyen Phu Vinh

Senior Quality Assurance engineer

UpStar Labs
KMS Technology

Acknowledgement

First of all, I would like to thank my Faculty, Faculty of Mathematics and Computer Science, for arranging the internship program for me. I am also grateful to UpStar Labs – KMS Technology for recruiting me as an intern.

I take this opportunity to express my profound gratitude and deep regards to my supervisor – Mr.Ngo Minh Quoc Dung and Mr. Nguyen Phu Vinh for his exemplary guidance, monitoring and constant encouragement throughout the course of this internship. The blessing, help and guidance given by him time to time shall carry me a long way in the journey of life on which I am about to embark.

I would like to express my heartfelt gratitude to Dr. Tran Anh Tuan, Faculty of Mathematics and Computer Science, University of Science for his kind support and inspiration which has immensely strengthened my confidence during my internship program.

I also take this opportunity to express a deep sense of gratitude to Ms. Phan Tran Minh Ngoc for her cordial support, valuable information and guidance, which helped me in completing this task through various stages.

I am obliged to all my Team members, for the valuable information provided by them in their respective fields. I am grateful for their cooperation during the period of my internship.

I'm thankful to them for their continual constructive criticism and invaluable suggestions and help, which benefited me a lot at my intern.

Contents

CHAPTER 1

1. Introduction

1.1 Preamble

Internship is the process of on-the-job training, which particularly beneficial for students with major in technical courses.

Faculty of Mathematics and Computer Science (FMC) provides that glorious opportunity to their students of having an internship within their bachelor program.

FMC always emphasize on industry orientation in academic study. For these purpose industry people are invited to FMC to talk about their companies and experiences, often some technical courses are entirely conducted by them. The three month internship program is another, possibly most effective, way of achieving industry orientation.

Internship helps the students to link-up their academic experience with industry practices. I have tried my best to combine the both together. I hope I am successful, the future semesters of my degree will prove the fact of success and failure.

The company I was sent for internship is UpStar Labs – KMS Technology. It is one of the leading software companies in Viet Nam.

1.2 Objective

This report has been prepared as a requirement of the internship program. The report is intended to reflect my achievements, project involvements and professional growth during the intern period.

1.3 Scope

This report gives an insight of the experience that I faced in my workplace at UpStar Labs – KMS Technology. As well as it also provides a brief description of UpStar Labs – KMS Technology for students who are interested about

UpStar Labs – KMS Technology for their professional growth.

CHAPTER 2

2. Company’s Profile

2.1 About UpStar Labs – KMS Technology

KMS Technology is a leading provider of software development, testing services, and consulting. Based out of Atlanta, GA with offices in California and Vietnam, KMS works exclusively with ISV's to accelerate the delivery of innovative software solutions and make offshore outsourcing easier and more effective.

As KMS Technology's Incubator, UpStar Labs (UPS) is started to help founders and developers build and launch great software in the global market. UPS invest in tech startups and provide the necessary support and infrastructure for them to be successful.

Figure 2-1 Logo of UpStar Labs

2.2 Location and Physical Layout

UPS has two address.

• Atlanta

550 Pharr Road NE

Suite 525

Atlanta, GA 30305

Phone: (678) 813-1KMS

• Ho Chi Minh City

290/26 Nam Ky Khoi Nghia,

Ward 8, District 3

Phone: (+84)028 3848 0001

Figure 2-2 Office building of UPS

2.3 Industry Experience

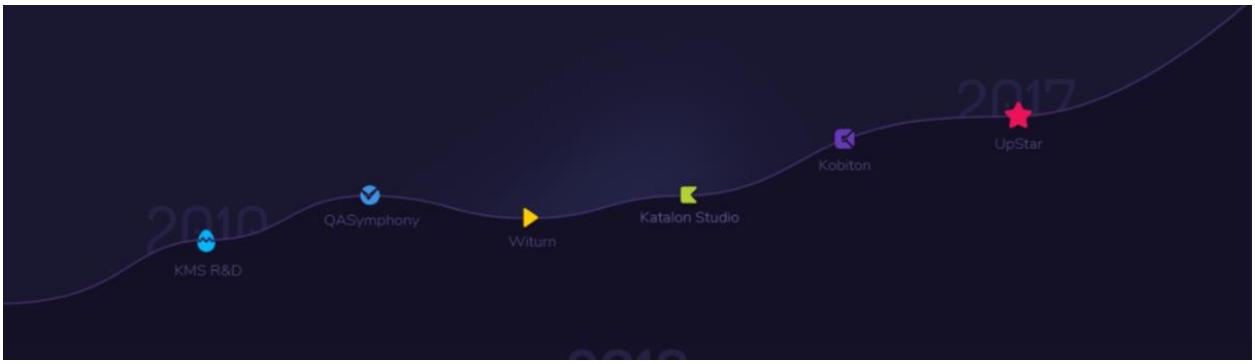


Figure 2-3 UPS Product

2010: KMS Technology funded R&D

2011: QASymphony

A modern software testing platform built for agile teams to help deliver high quality software at a rapid pace. With over 400 customers and 10,000 users, QASymphony is widely recognized as one of the leading agile testing solutions.

For more detail, please visit: qasymphony.com

2012: Witurn

Witurn is the first and most popular Massively Multiplayer Online "mystery" chess game in Vietnam.

For more detail, please visit: witurn.com

2015: Katalon Studio

Katalon Studio is a simple and powerful test automation solution which offers features comparable to popular commercial solutions while eliminating the hassle of creating tests based on Selenium and Appium.

For more detail, please visit: katalon.com

2016: Kobiton

A modern mobile cloud platform that enables developers and testers to access to hundreds of real devices to perform manual or automation tests.

For more detail, please visit: kobiton.com

2017: Upstar Labs is founded.

2.4 Facilities for Employees

- Working in one of the Best Places to Work in Vietnam
- Building large-scale & latest technology software products
- Working & Developing with Passionate & Talented Team
- Attractive Salary and Benefits
- Flexible working time
- Premium health care insurance for employees and their loved ones
- Company trip in every summer, big annual year-end party every year, team building, etc.
- Fitness & sports activities: football, tennis, table-tennis, badminton, yoga, swimming…
- Joining community development activities: 1% Pledge, charity every quarter, blood donation, public seminars, career orientation talks…
- Free in-house entertainment facilities (football, ping pong, boxing, gym…), coffee (latte, cappuccino, espresso) and snack (instant noodles, cookies, candies…)

CHAPTER 3

3. Project Katalon

3.1 Overview

Test Automation becomes more and more crucial to any organization and the challenge to find an affordable automation solution, simple to setup and use, and comprehensive enough to meet a variety of automation needs. To address these challenges, UPS initially created Katalon Studio as a viable alternative to both open-source and commercial test automation solutions. Now, UPS have expanded their range to a variety of tools that will assist user's automation testing needs.

Product	Description
Katalon Studio	A simple and powerful automation solution built for testers everywhere.
Katalon Recorder	Selenium IDE-compatible replacement on latest Chrome and Firefox that helps record, play, debug, manage automated tests, and export to C#, Java, Ruby, Python, Groovy, or Robot Framework.
Katalon Analytics (Beta)	A cloud-based application provides in-depth views of test execution reports through powerful visualization including charts, graphs, and metrics.

Katalon Studio is a free automation testing solution developed by Katalon LLC. The software is built on top of open-source automation frameworks Selenium, Appium with a specialized IDE interface for API, Web and Mobile testing. Its first public release was in September 2016.

To download, just visit: https://www.katalon.com/.

3.2 Approach

The test automation framework provided within Katalon Studio was developed with the keyword-driven approach as the primary test authoring method with data-driven functionality for test execution. The user interface is a complete integrated development environment (IDE) implemented on Eclipse rich client platform (RCP). The keyword libraries are a composition of common actions for web, API, and mobile testing. External libraries written in Java can be imported into a project to be used as native functions. The main scripting language is Groovy, Java, and JavaScript and can be executed against all modern browsers, iOS, and Android applications supported by Selenium and Appium. Katalon Studio monthly release includes the up-to-date open-source drivers matching the latest web and mobile environments to reduce the project maintenance cost and configuration efforts.

3.3 Product

Katalon Studio provides a dual interchangeable interface for scripting: a recording-tabular editor for the less technical users and a scripting IDE geared toward experienced testers to author automation tests with syntax highlight and intelligent code completion.

Katalon Studio follows the Page Object Model pattern. GUI elements and API methods can be captured using the recording utility and stored into the Object Repository which is accessible and reusable across different test cases.

Test planning can be structured using test suites with environment variables. Test execution can be parameterized and parallelized using profiles.

The remote execution can be triggered by CI systems via Docker container or command line interface (CLI).

Debug information and Test reports can be viewed with Katalon Studio, exported to JUnit format, or analyzed by Katalon Analytics - Katalon cloud test reporting service.

3.4 Integration

Git for version control system and team collaboration.

Jira BBD plugins for BDD practices and bug submission.

Slack/email integration for notification and reports.

qTest integration for Test management.

Kobiton /Browserstack/Sauce Labs integration for cloud test environments.

3.5 Katalon Studio vs other Automated Testing Tools

Below are two comparison tables of four recommended automated testing tools (Katalon Studio**,** Selenium**,** UFT**,** TestComplete).

Table 1: Features supported.

Table 2: Strengths and weaknesses.

There is no one-size-fits-all tool for automated testing. But after reading this article, I hope you will have enough information to evaluate these tools and pick one that best meet your automated testing needs.

Table 1: Key features

Features	Katalon Studio	Selenium	UFT	TestComplete
Test development platform	Cross-platform	Cross-platform	Windows	Windows
Application under test	Web and mobile apps	Web apps	Windows desktop, Web, mobile apps	Windows desktop, Web, mobile apps
Scripting languages	Java/Groovy	Java, C#, Perl, Python, JavaScript, Ruby, PHP	VBScript	JavaScript, Python, VBScript, JScript, Delphi, C++, and C#
Programming skills	Not required. Recommended for advanced test scripts	Advanced skills needed to integrate various tools	Not required. Recommended for advanced test scripts	Not required. Recommended for advanced test scripts
Learning curves	Medium	High	Medium	Medium
Ease of installation and use	Easy to setup and run	Require installing and integrating various tools	Easy to setup and run	Easy to setup and run
Script creation time	Quick	Slow	Quick	Quick

Object storage and maintenance	Built-in object repository, XPath, object re-identification	XPath, UI Maps	Built-in object repository, smart object detection and correction	Built-in object repository, detecting common objects
Image-based testing	Built-in support	Require installing additional libraries	Built-in support, image-based object recognition	Built-in support
DevOps/ALM integrations	Many	No (require additional libraries)	Many	Many
Continuous integrations	Popular CI tools (e.g. Jenkins, TeamCity)	Various CI tools (e.g. Jenkins, Cruise Control)	Various CI tools (e.g. Jenkins, HP Quality Center)	Various CI tools (e.g. Jenkins, HP Quality Center)
Test Analytics	Katalon Analytics	No	No	No
Product support	Ticketing support, community, dedicated staff (third-party support services)	Open source community	Dedicated staff, community	Dedicated staff, community
License type	Freeware	Open source (Apache 2.0)	Proprietary	Proprietary
Cost	Free	Free	License and maintenance fees	License and maintenance fees

Table 2: Strengths and weaknesses

Tools	Strengths	Limitations
Katalon Studio	• No licensing and maintenance fees required (paid dedicated support services is available if needed). • Integrating necessary frameworks and features for quick test cases creation and execution. • Built on top of the Selenium framework but eliminating the need for advanced programming skills required for Selenium.	• Emerging solution with a quickly growing community. • The feature set is still evolving. • Lack of choices for scripting languages: only Java/Groovy is supported.
Selenium	• Open source, no licensing and maintenance fees. • Large and active development and user community to keep pace with software technologies. • Open for integration with other tools and frameworks to enhance its capability	• Testing teams need to have good programming skills and experience to set up and integrate Selenium with other tools and frameworks. • New teams need to invest time upfront for setup and integration. • Slow support from the community.

UFT	• Mature, comprehensive automated testing features integrated into a single system. • Dedicated user support plus an established large user community. • Requiring only basic programming skills to get started with test creation and execution.	• Costly solution: license and maintenance fees are considerably high. • Possible high costs for upgrades and additional modules. • Supporting only VBScript.
TestComplete	• Mature, comprehensive automated testing features integrated into a single system. • Many scripting languages to choose from. • Only basic programming skills needed.	• Like UFT, considerable licensing and maintenance fees needed for TestComplete. • Additional fees for extra modules and add-ons.

CHAPTER 4

4. My Project Involvement

4.1 Manual Testing

Manual Testing is a process of finding out the defects or bugs in a software program. In this method the tester plays an important role of end user and verifies that all the features of the application are working correctly. The tester manually executes test cases without using any automation tools**.** The tester prepares a test plan document which describes the detailed and systematic approach to testing of software applications. Test cases are planned to cover almost 100% of the software application. As manual testing involves complete test cases it is a time consuming test.

4.1.1 Responsibilities

- Develop, maintain and execute manual test cases for major projects, maintenance, and emergency releases
- Design and implement automation tests scripts, debug and define corrective actions
- Identify, analyze and report test results
- Report, track, and monitor defects in the defect tracking system
- Investigate defect reports from production support and isolate their causes
- Prepare test documentation and review with development team
- Work closely with development team to design testing strategies
- Work on the interpretation of quality assurance issues and problems for technical and non-technical users.

4.1.2 Manual Testing Process

Figure 4-1Manual Testing Process

4.1.3 Regression Check List

As Katalon Studio supporting, users can approach many features useful for them.

As Manual QA, I need to regression Katalon as the Check List below and create test cases.

Because of following company security laws, I cannot give any Test Cases I created for Katalon Studio in this report. However, I can describe it as some components below.

Components
Test Project
Main Perspective
Web Spy
Web Record
Test Case

4.2 Automation Testing

If Manual Testing is performed by a human sitting in front of a computer carefully executing the test steps, Automation Testing means using an automation tool to execute your test case suite.

Automated testing or test automation is a method in software testing that makes use of special software tools to control the execution of tests and then compares actual test results with predicted or expected results. All of this is done automatically with little or no intervention from the test engineer. Automation is used to to add additional testing that may be too difficult to perform manually.

Katalon Studio is a simplify API, Web, Mobile Automation Tests. As a result, I can use Katalon Studio to learn automaton testing basically.

4.2.1 Responsibilities

- Design, build, test and deploy effective test automation solutions.
- Use Katalon Studio to:

✓ Create and execute test plan, test case, test suite to verify Katalon Studio website: https://www.katalon.com/

✓ Create and execute test plan, test case, test suite to verify Katalon Analytics website: https://analytics.katalon.com/

✓ Make sure that Sign up, Sign in and some flows workaround Services work normally.

✓ Maintain these tests when UI change.

4.2.2 Automation Testing Process

Eventually, when all the preliminary preparations are done, testers can begin automated test development. A regular process of providing new automated tests includes the following points:

- Selection of manual test case according to the stated priorities
- Code writing for the automated test
- Adding the automated test to the debug test execution
- Adding automated test to the test execution for newly created builds

4.2.3 Sample Web Automation Test Project using Katalon Studio

Starting a new automation project for a website can be complicated and requires a steep learning curve, especially to those who are new to automation testing. The following tutorial will help you ease that process using Katalon Studio.

4.2.3.1 Test Scenario

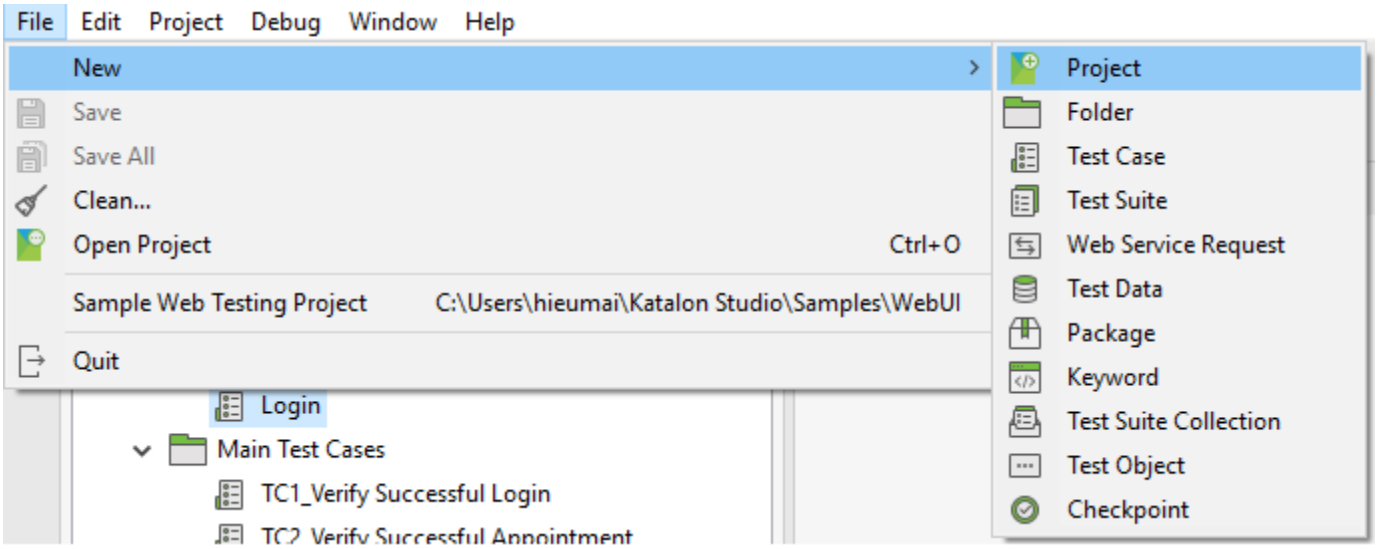
For this tutorial, we are using Katalon Studio to test the dummy web app (CURA) accessible at http://demoaut.katalon.com. CURA is a simple health care service that allows patients to book appointments with doctors.

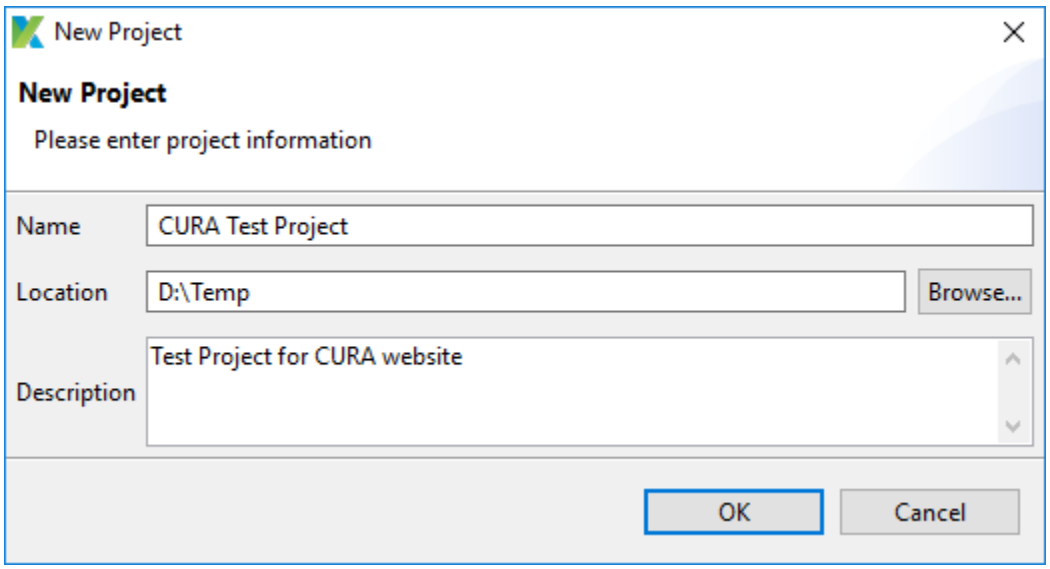
In this tutorial, we create a test case to test the following flow:

- Login
- Book an appointment
- Check if the appointment is booked successfully
- Logout

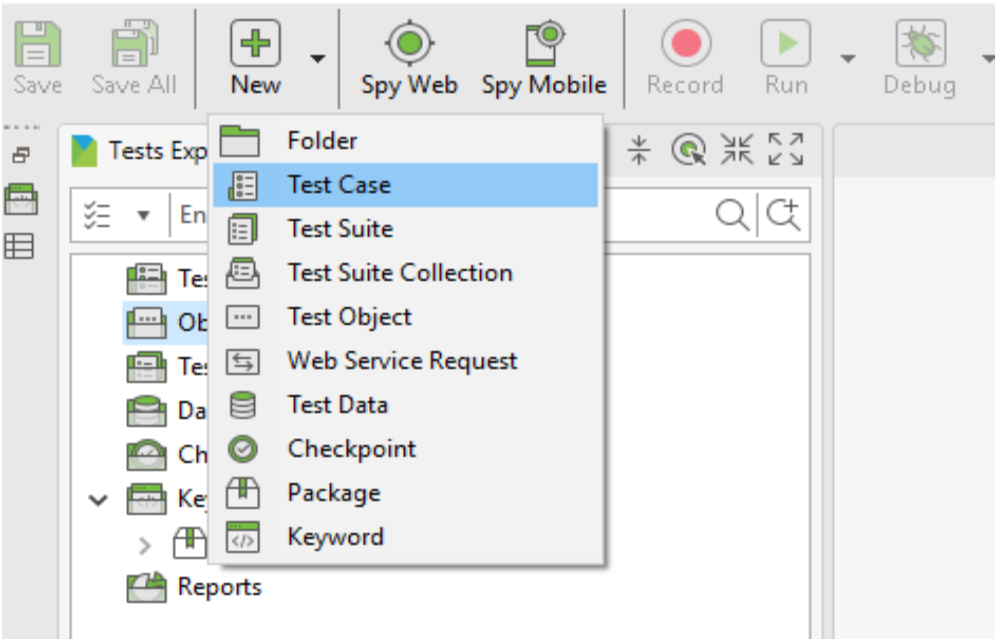
Get Started

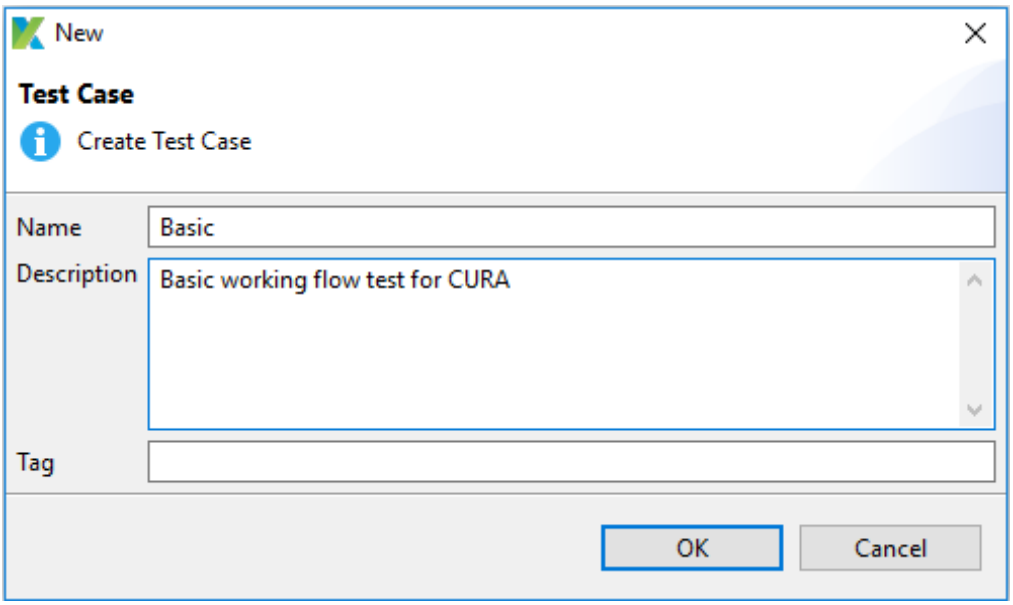
1. Create an automation testing project in Katalon Studio as below:





2. Create a test case, where all of your necessary test steps of the scenario will be written:



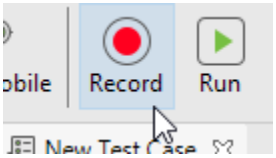


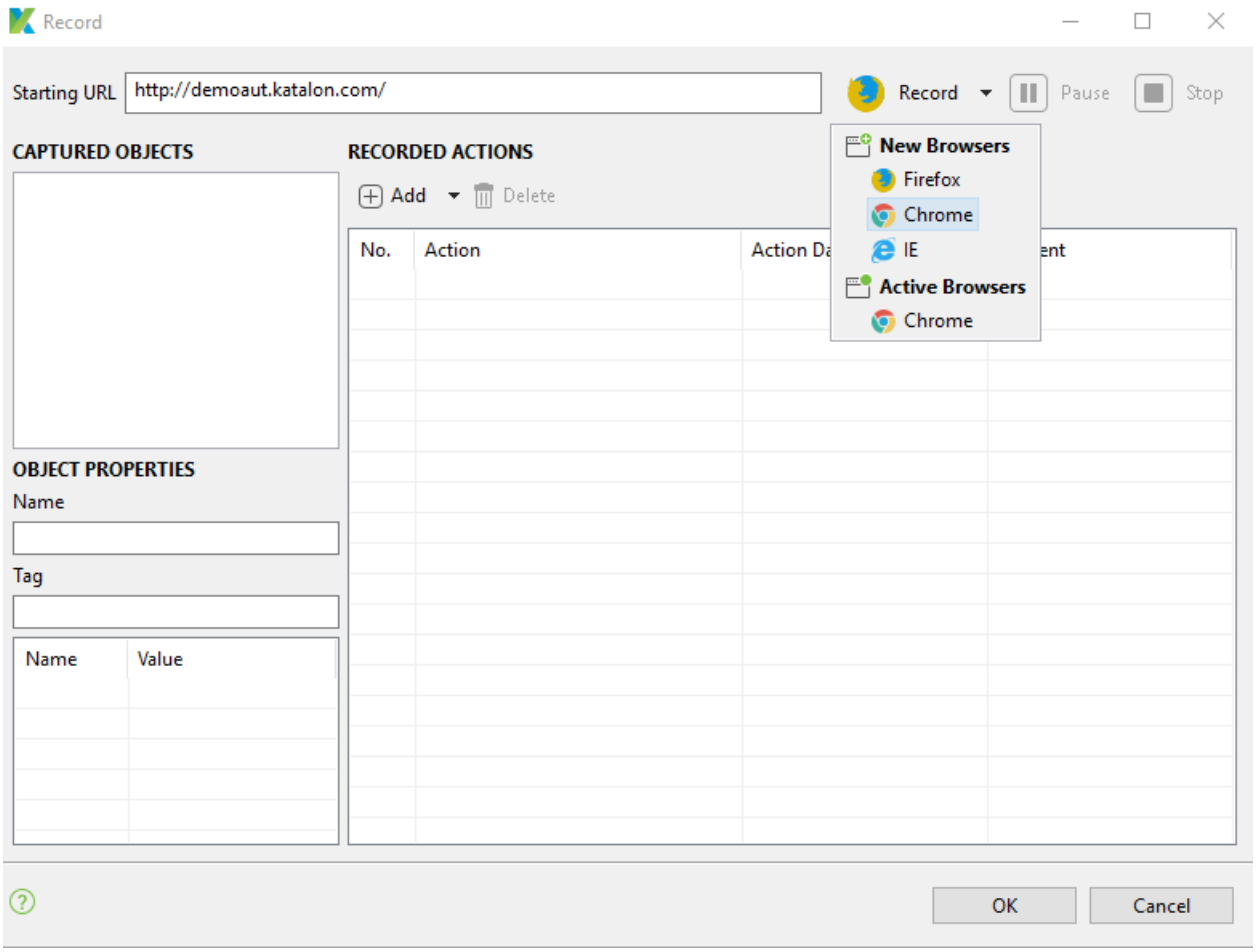
The newly created test case is generated in form of a Groovy language script file (also called test script) which can be viewed and edited in Katalon Studio by one of two view modes: Manual View and Script View.

3. Composing automation test case

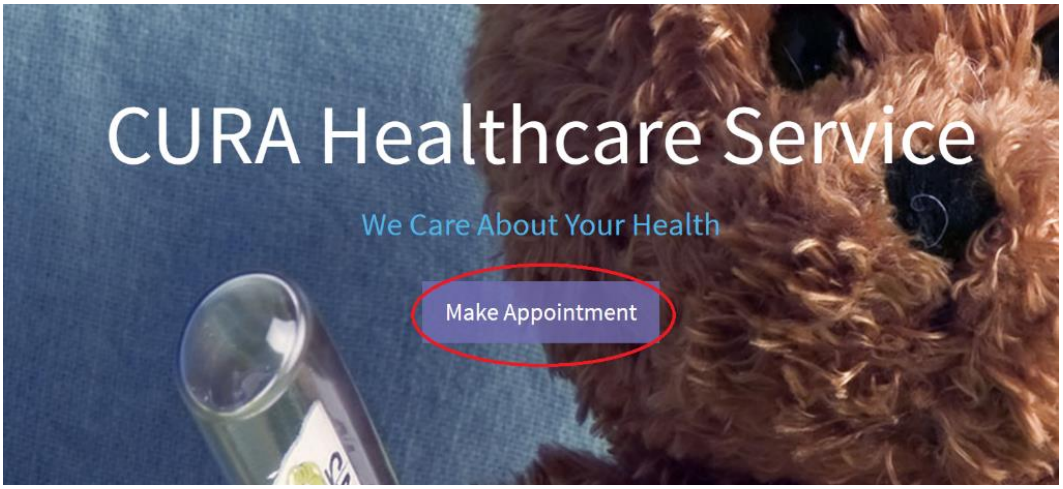
Please refer to the Test Design page for detailed instructions to compose test steps in various modes using different utilities. For a starter, we recommend using the Record – Playback function to get familiar with the scripting process. Katalon Studio is capable of generating test steps quickly.

- Click on the Record Toolbar button to open the Record dialog, then enter "http://demoaut.katalon.com" for the URL field and select Chrome on the dialog to start recording.

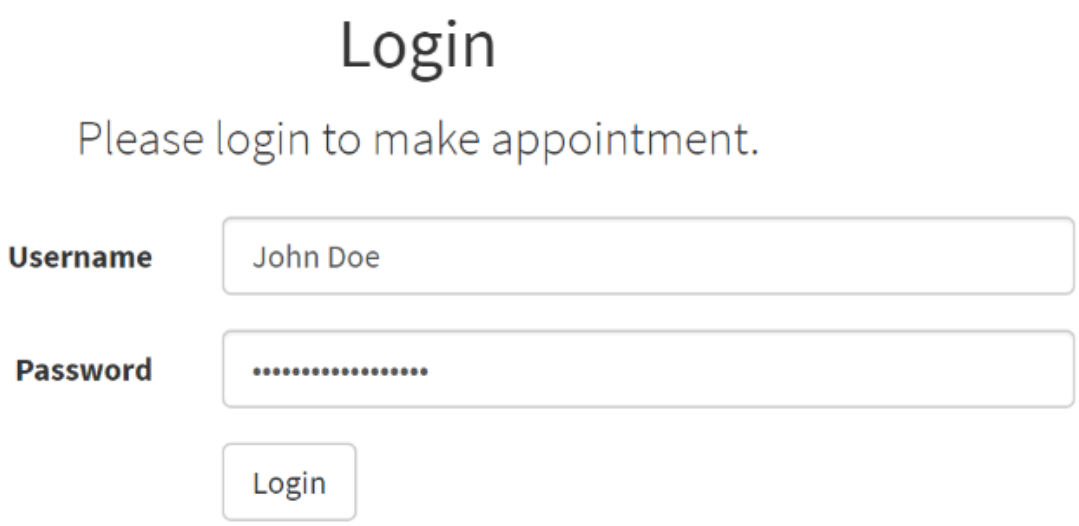




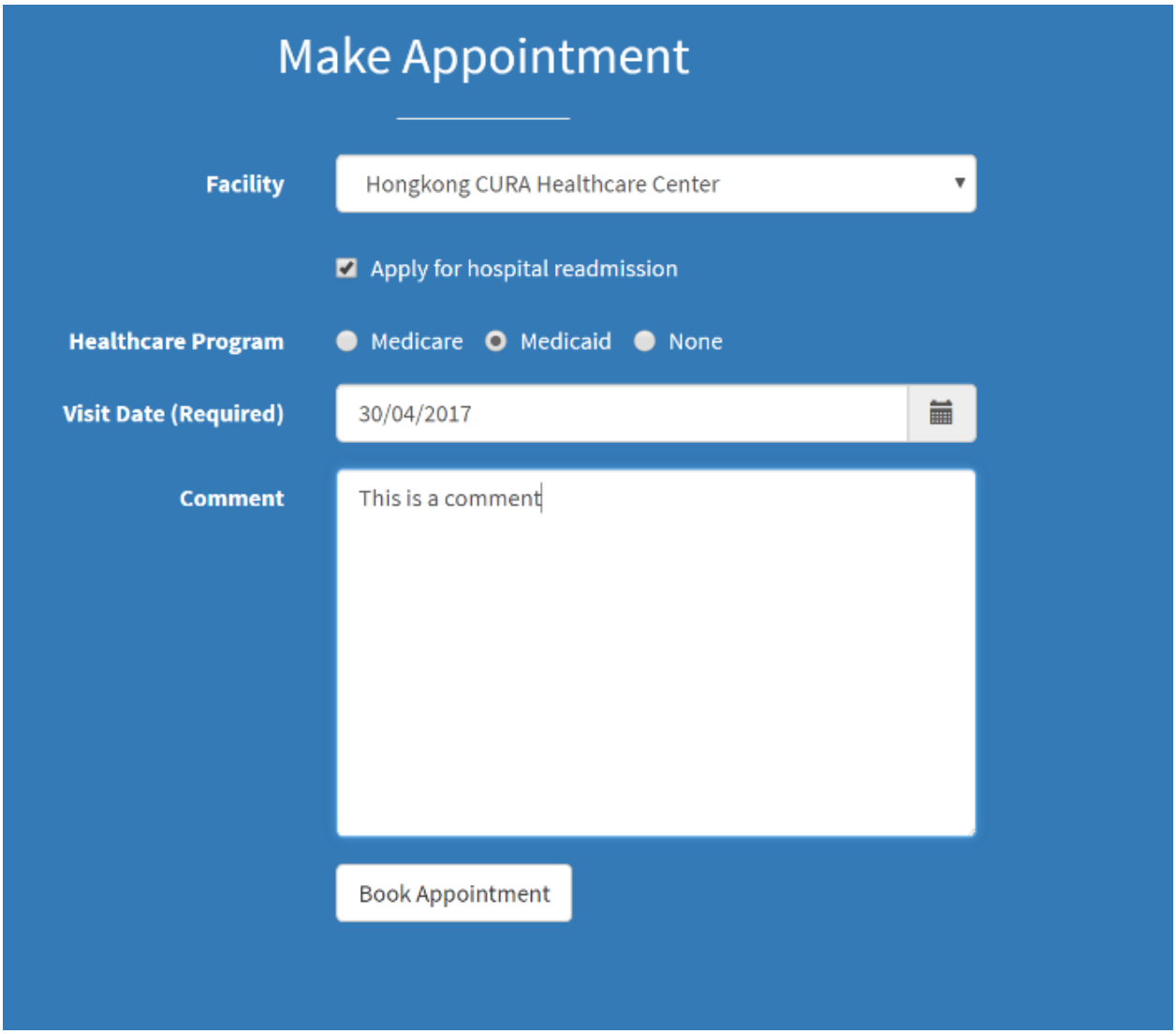
- A new Chrome browser instance with the CURA website will be activated. Click on Make Appointment.



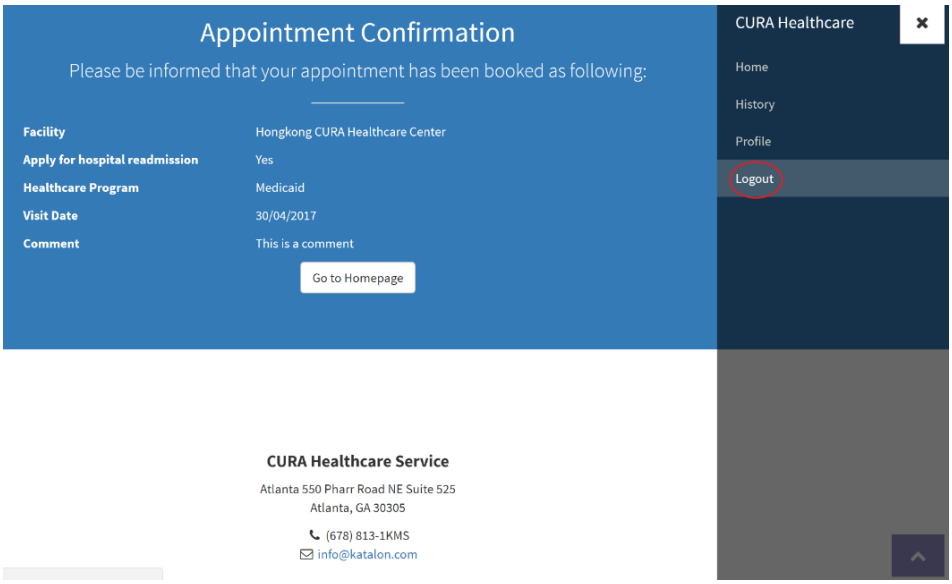
- Enter “John Doe” for username and “ThisIsNotAPassword” for password on the login page.



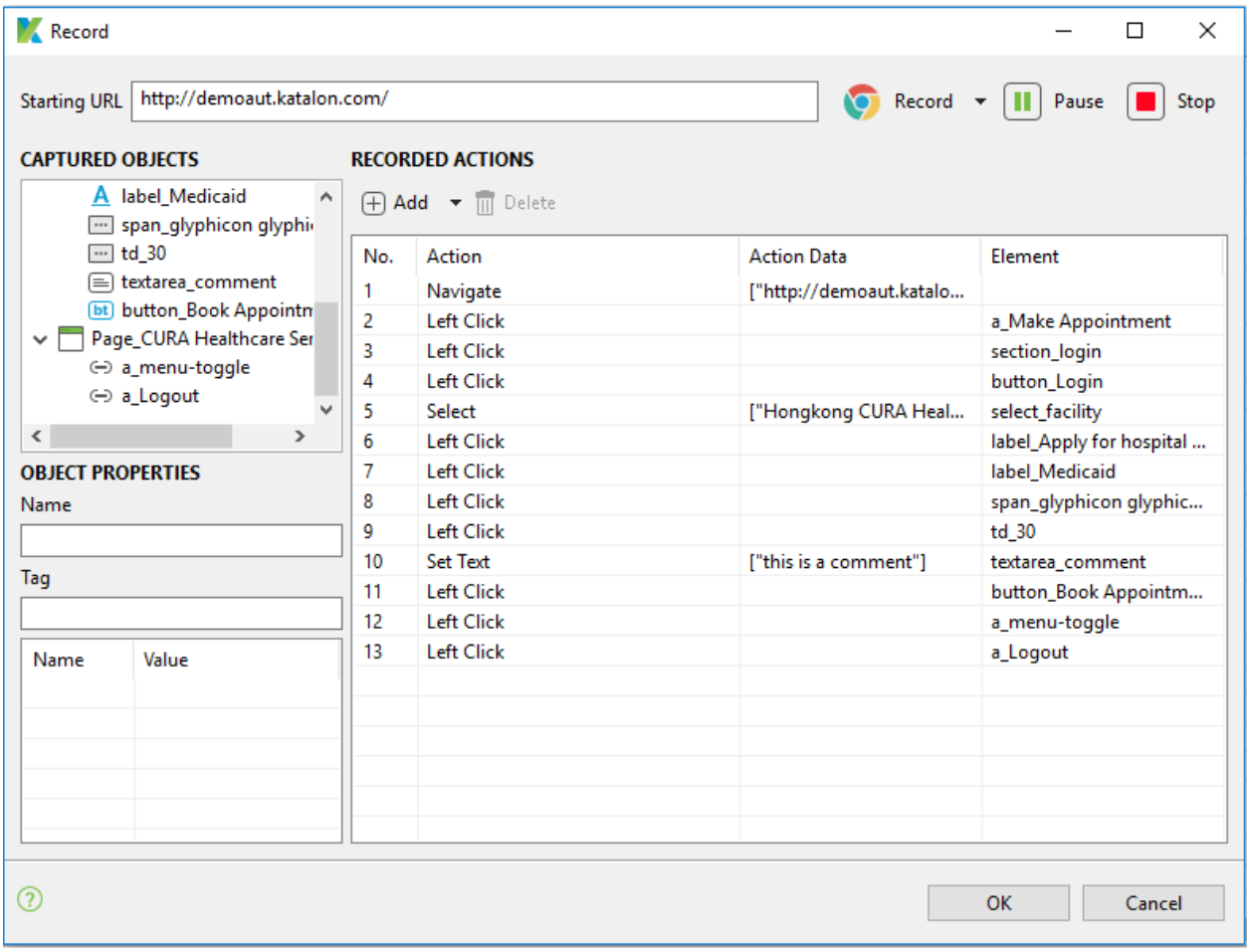
- On the Make Appointment page, fill in necessary appointment information and click on the Book Appointment button to book an appointment.



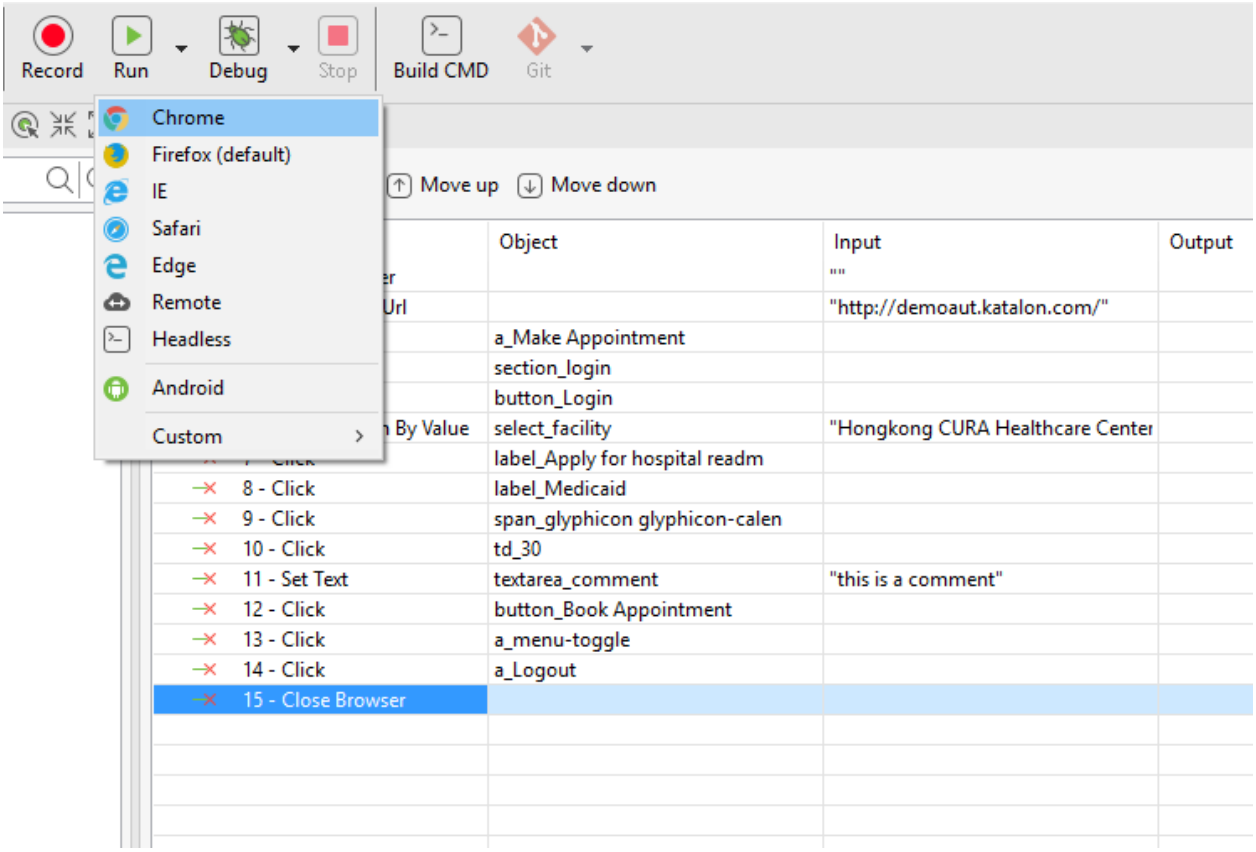
- The Appointment Confirmation page will show up. Click the Logout button to complete the recorded session.



- Switch back to Katalon Studio Record dialog and you can see all the actions and web elements recorded. Click on OK to finish the recording and generate necessary test steps and test scripts.



- The recorded test scripts can be playback instantly. Click the Run button with a preferred browser to start running your test case.

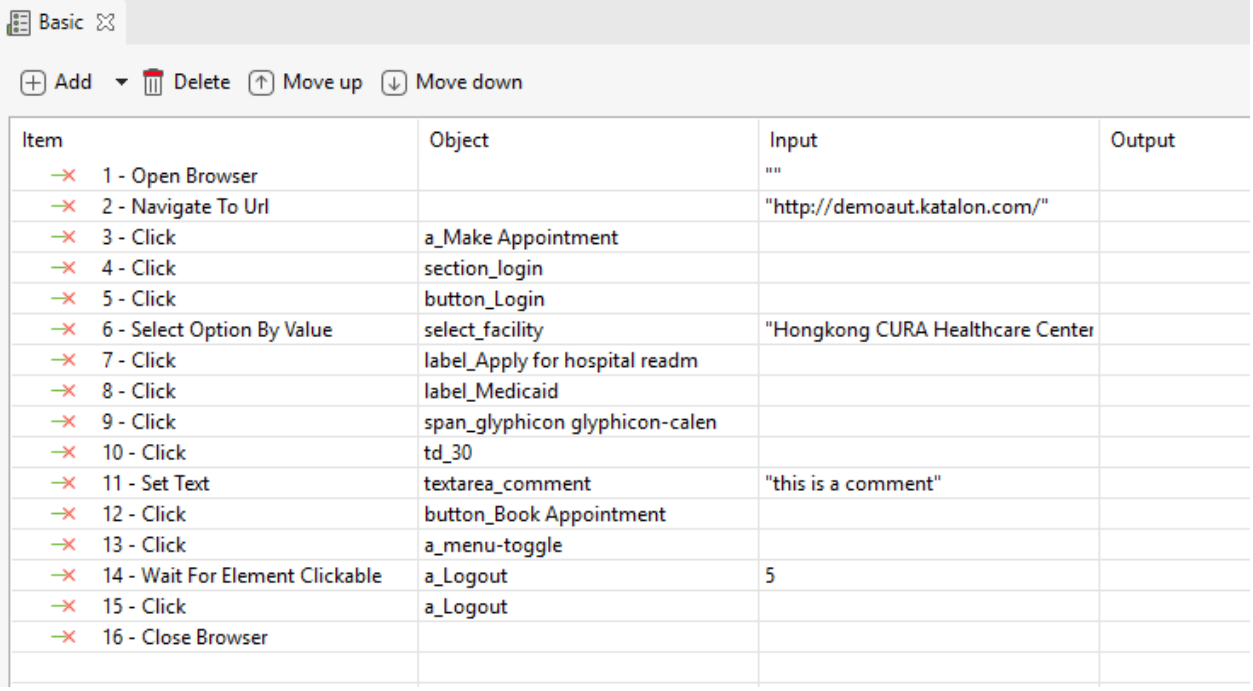


- The recorded test scripts should run smoothly, but you will notice the test fails at Step 14 (Click on "a_Logout" element) with the error message "Unable to click on object 'Object Repository/Page CURA Healthcare Service (3)/a Logout'". Don't worry, this can be fixed using the following steps.

4. Complete your first test case

If you investigate to the failed message of the test execution, it includes the message "org.openqa.selenium.WebDriverException: unknown error: Element is not clickable at point".

It happens because when the Side Menu of CURA website is open, the animation causes the Logout element to appear slowly and so Katalon Studio's playback is unable to recognize it. To fix this issue, we need to include a *Wait* step right before the logout step using the keyword *waitForElementClickable*, use "a_Logout" element as the object and change the timeout input to 5 seconds.



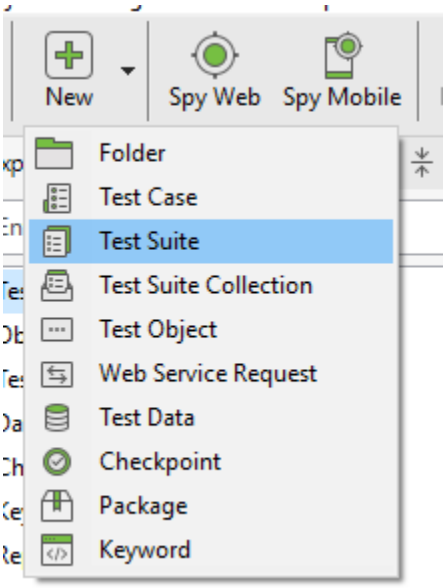
Item	Object	Input	Output
1 - Open Browser		""	
2 - Navigate To Url		"http://demoaut.katalon.com/"	
3 - Click	a_Make Appointment		
4 - Click	section_login		
5 - Click	button_Login		
6 - Select Option By Value	select_facility	"Hongkong CURA Healthcare Center	
7 - Click	label_Apply for hospital readm		
8 - Click	label_Medicaid		
9 - Click	span_glyphicon glyphicon-calen		
10 - Click	td_30		
11 - Set Text	textarea_comment	"this is a comment"	
12 - Click	button_Book Appointment		
13 - Click	a_menu-toggle		
14 - Wait For Element Clickable	a_Logout	5	
15 - Click	a_Logout		
16 - Close Browser			

Run the test case again, you will see the Log out button is found and the step passes.

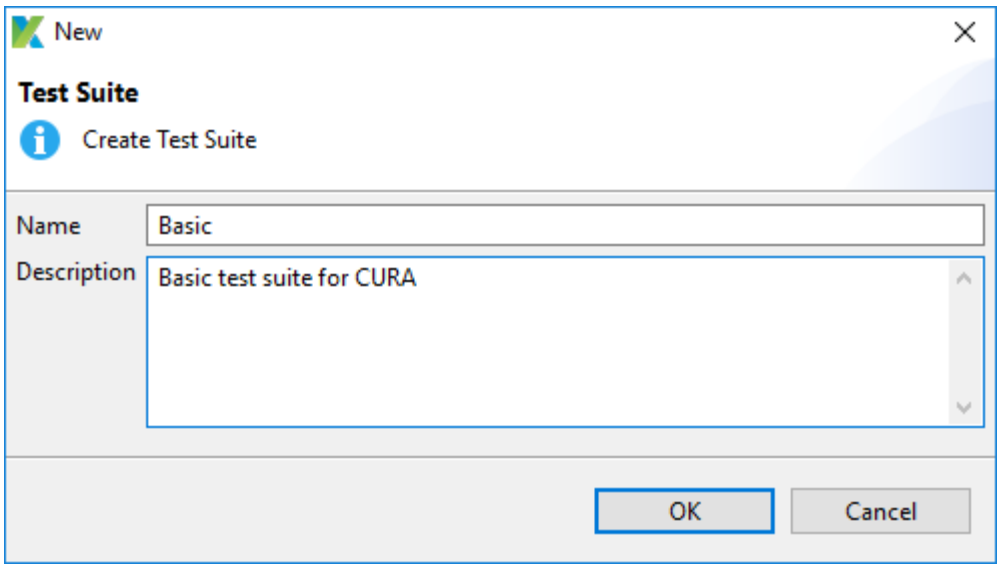
5. Generate a report

To generate test reports, we need to have a test suite. A test suite in Katalon Studio is where you group test cases to run them together.

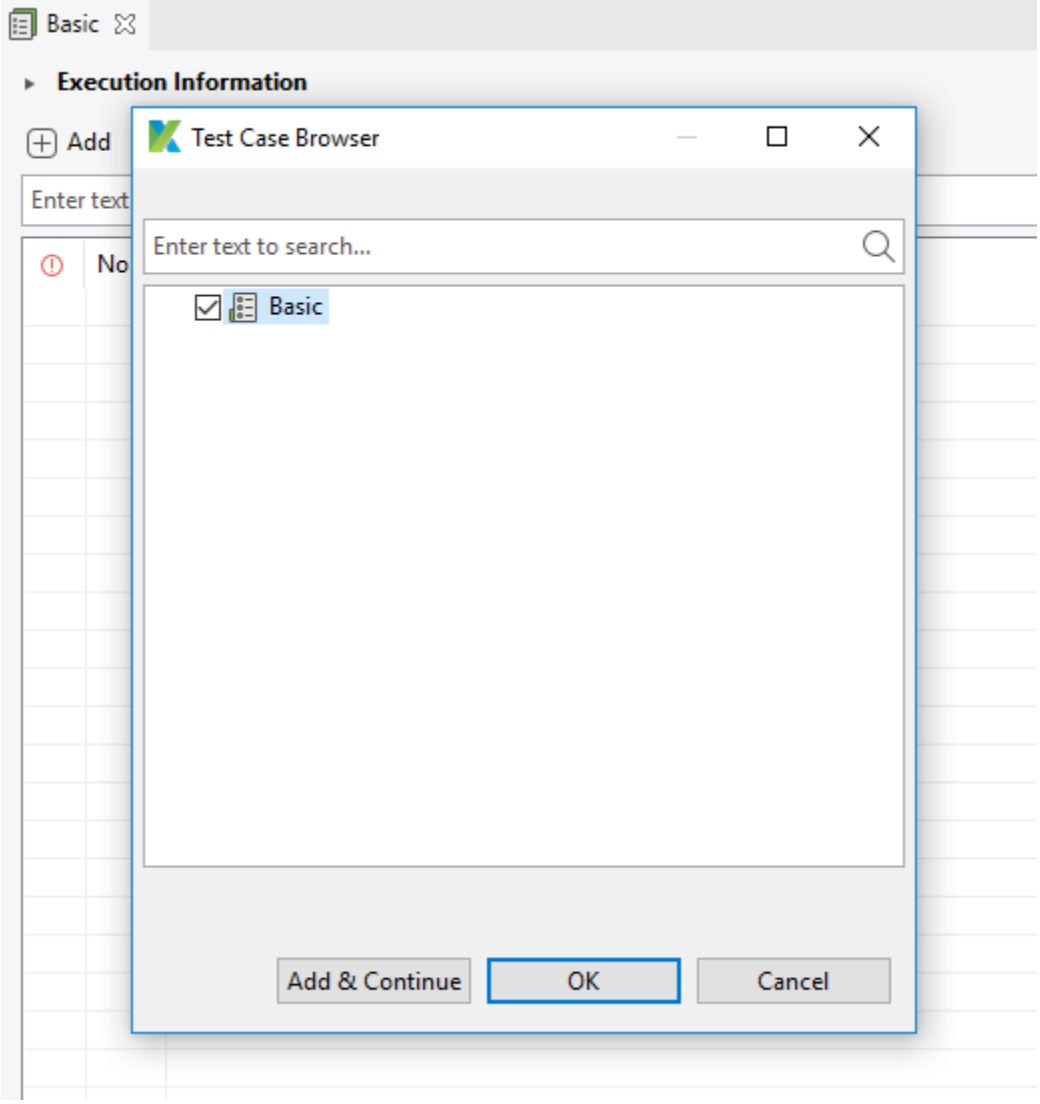
- To create a test suite, click on the New toolbar button and select the New Test Suite item.



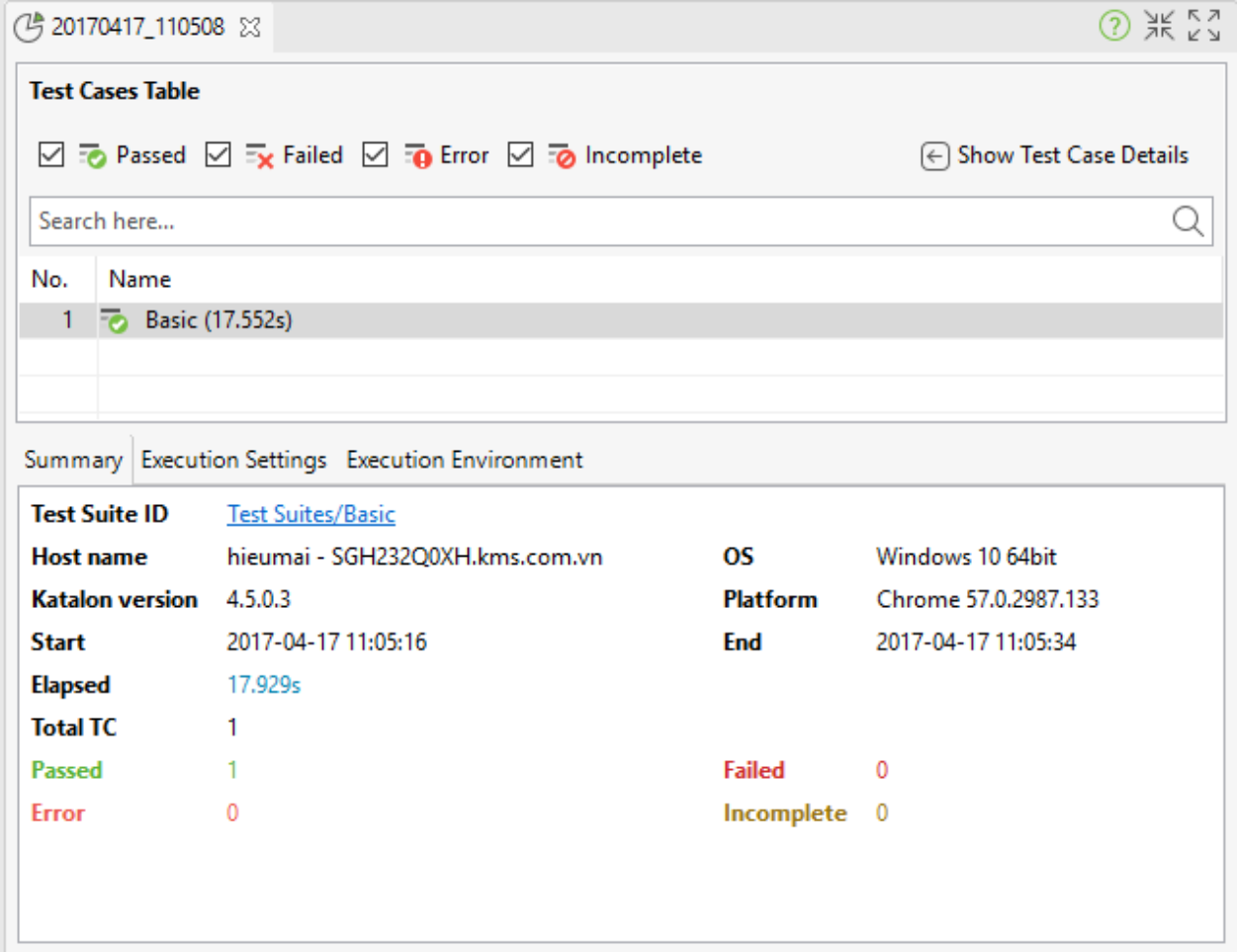
- In the New Test Suite dialog, enter the required name and an optional description about your test suite, click OK to create a new test suite:



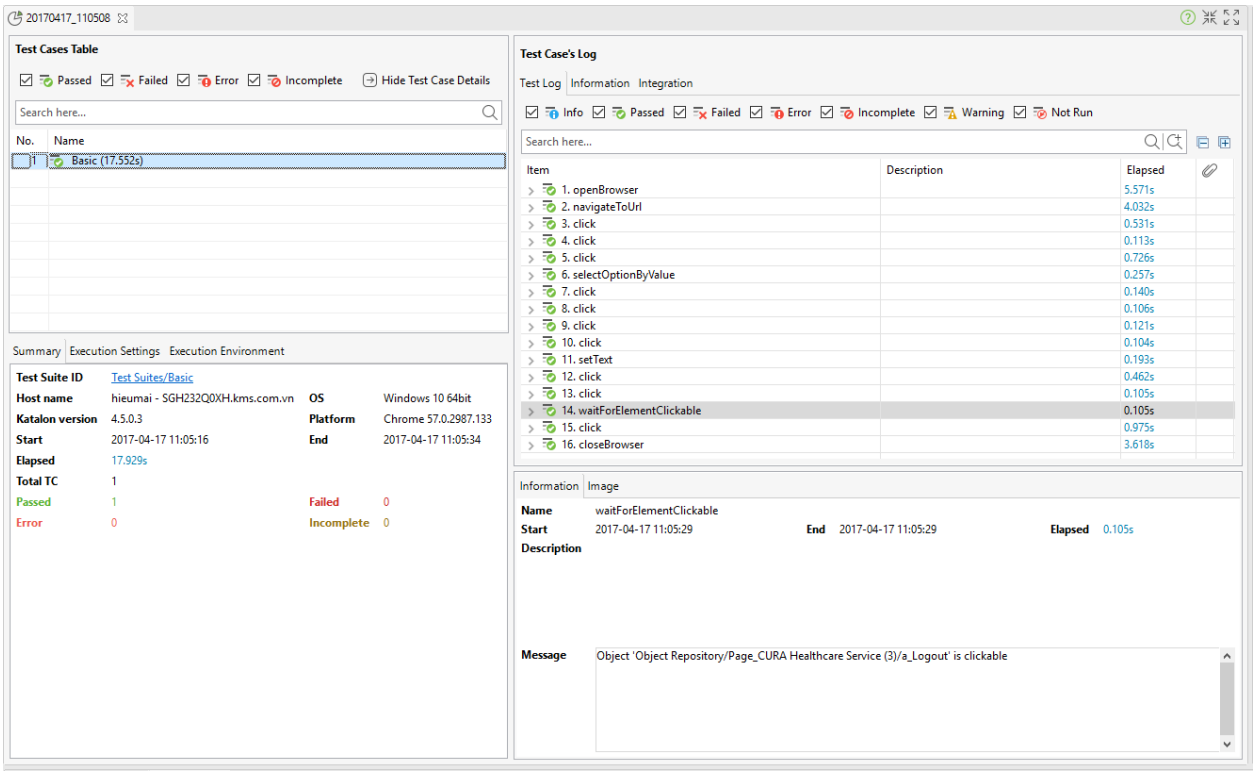
- From the test suite UI, click the Add button and check the “Basic” test case then click OK to add the selected test case to the test suit.



Execute this test suite as we did with the test case by clicking on the Execution toolbar. After the execution, you will notice that a new report folder is generated. In this folder, each of the child items represents an execution with the name indicating the starting time of the execution. Click on the first report item to view. The report is shown as below:



The test report's detail is shown as below (with "Show Test Case Details" selected).



For additional tutorials and guidelines please visit Katalon Studio documentation. If you have any question, feel free to join the Forum and chat with other users.

CHAPTER 5

5. Conclusion

The internship program helped me to gain important knowledge on software industry, their culture, work environment and all about QA Engineer.

Participating in weekly team meeting with Project manager and other team members and discussing on the threats of the projects helped me attain the faith to develop a never give up attitude. At the same time it helped me learning the software life cycle used in software industry and inspired me to be striver, responsible and confident.

The internship program has increased my team work capabilities as well as respect to the team mate's ideas and suggestions. Team discussions like brain storming sessions helped me identify and solve numerous problem issues which would have been impossible to solve otherwise.

I would like to convey my thanks to my supervisor for providing me an opportunity to gain idea of the competitive environment in the professional field. It has certainly lifted my QA skills in terms of design and scripting. I now look forward to facing the upcoming challenges of the world.

CHAPTER 6

6. References

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