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UNIVERSITY OF TECHNOLOGY  
FACULTY OF COMPUTER SCIENCE AND ENGINEERING



Software Testing (CO3015)

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## Project 3: Web Automation Testing

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## 1 Workload

No.	Name	Student ID	Task	Contribution
1	Phạm Mạnh Dũng	1952633	2, 4.1, 4.2	100%
2	Bùi Quang Tiên	1953018	3, 4.7, 4.8	100%
3	Bùi Vĩnh Trung	1953046	4.5, 4.6	100%
4	Ngô Quang Nguyên	2053276	4.3, 4.4	100%

## 2 Introduction

### 2.1 What is Selenium IDE

Selenium IDE (Integrated Development Environment) is primarily a record/run tool that a test case developer uses to develop Selenium Test cases. Selenium IDE is an easy-to-use tool from the Selenium Test Suite and can even be used by someone new to developing automated test cases for their web applications. One does not require any special setup to get started with Selenium IDE. You just need to add the extension of your specific browser. Selenium IDE provides you with a GUI (Graphical User Interface) for easily recording your interactions with the website. [1]

Selenium IDE allows a user or a test case developer to create the test cases and test suites and edit it later as per their requirements. The development environment also provides the capability of converting test cases to different programming languages, which makes it easier for the user and does not mandate the need for knowing a specific programming language.

The screenshot below indicates how the Selenium IDE on Chrome appears after the project name and base URL is entered.

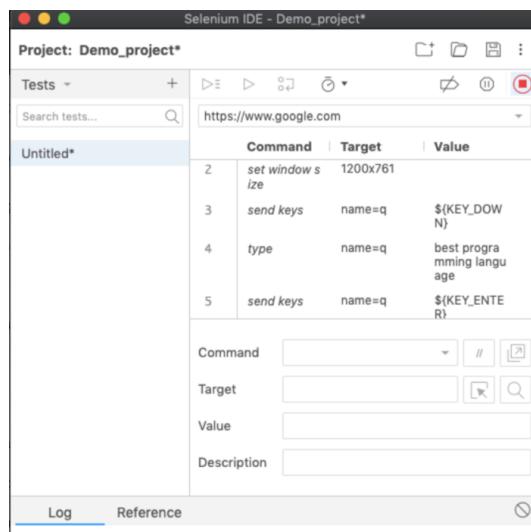


Figure 1: Selenium IDE

After entering the base URL for the project, the recording begins, and all the interactions with the website are recorded and categorized into three main categories as shown in the above Screenshot:

- Command
- Target
- Value



## 2.2 Features of Selenium IDE

There are several features provided in the IDE under the toolbar, using which one can control the execution of test cases:

- Speed Control – Helps control the speed of test cases.
- Run All – Allows execution of the entire Test Suite.
- Run – Runs the currently selected test.
- Pause/Resume – Allows a user to pause and resume a particular test case.
- Step – Helps step into each specific command in the test script.
- Rollup – Helps group all the Selenese Commands together and make them execute as a single operation.

The features keep on getting eliminated or added depending on the usage of different versions of Selenium IDE extensions.

## 2.3 Benefits of Using Selenium IDE

- Provides the capability of automatically recording your test cases based upon the interactions with the browser.
- Gives developers greater flexibility in executing the test cases. Either the test developer can run the entire test suite consisting of multiple test cases or execute a single test case.
- Operates on the basis of the rich set of Selenese commands, which helps the IDE understand what needs to be done
- Allows the test developers to set breakpoints for the purpose of debugging particular test cases
- Test cases can be re-used using the run command.
- Use of multiple-locators for each element in the IDE ensures successful execution.

### 3 How to apply

- Installing Selenium IDE

Open Firefox(or Chrome), download the IDE from the SeleniumHQ downloads page. After installing the add-on, we need to restart the browser. After Firefox reboots we find the Selenium-IDE listed under the Firefox Tools menu.

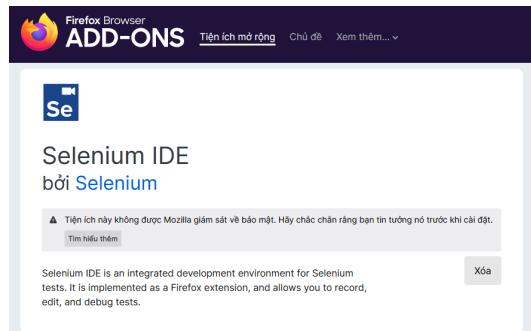
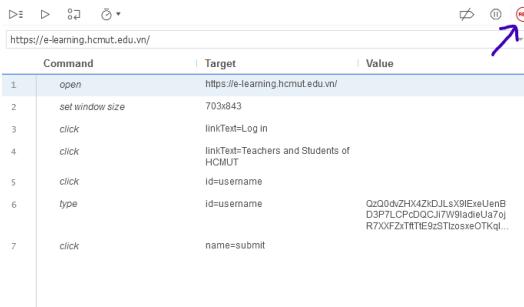


Figure 2: Selenium extension

- Recording Test

To start recording, click the “Start Recording” button and go through the steps of your application . The IDE automatically insert commands in the test case based on our actions. We can view the list of commands in the test case panel. After we gone through steps in testing, we close the browser and click "Stop Recording". We also can reorder the commands or edit the values in the test case.



Command	Target	Value
1 open	https://e-learning.hcmut.edu.vn/	
2 set window size	703x943	
3 click	linkText:Log In	
4 click	linkText:Teachers and Students of HCMUT	
5 click	id=username	
6 type	id=username	QzD00uZBk4ZLULx9IE-eUaB D3PTLCPd3OCJnT9ladiUJa7qj R70xFzTRTE9cSTtoseOTKql...
7 click	name=submit	

Figure 3: Recording Button

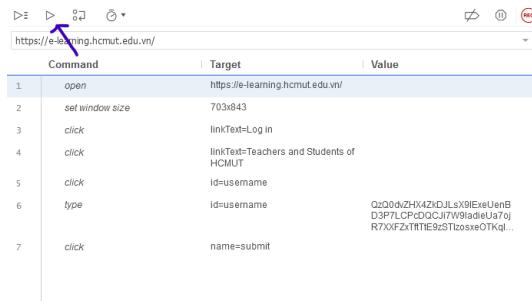
- Running Test

The Base URL field at the top of the Selenium-IDE window is very useful for allowing test cases to be run across different domains. By changing the URL to point to beta or prod environments, the tester can playback the same test on respective environments.

To play/run the test, simply click the “Run” button. We can control the speed of the test by adjusting the speed control slider. As soon as the test starts running, we can see the commands getting executed in orderly fashion. When the test is running, we also can pause/stop the test at any step and start playing again.



We can see error and information messages showing the progress in the Log pane automatically. These messages are often useful for test case debugging.



The screenshot shows the browser's developer tools with the 'Log' pane open. The URL in the address bar is 'https://e-learning.hcmut.edu.vn/'. The log table has three columns: Command, Target, and Value. The log entries are:

Command	Target	Value
1	open	https://e-learning.hcmut.edu.vn/
2	set window size	703x843
3	click	linkText=Log in
4	click	linkText=Teachers and Students of HCMUT
5	click	id=username
6	type	id=username QzQ0dVZH4ZxDJLsX9lExeUenB D3P7LCPdQCJl7V9adieUa70j R7XFZxYtME9zSTtzoaxeOTKqI...
7	click	name=submit

Figure 4: Running Test Case Button

## 4 Test results



## 4.1 Search

### 4.1.1 Search 0 Char

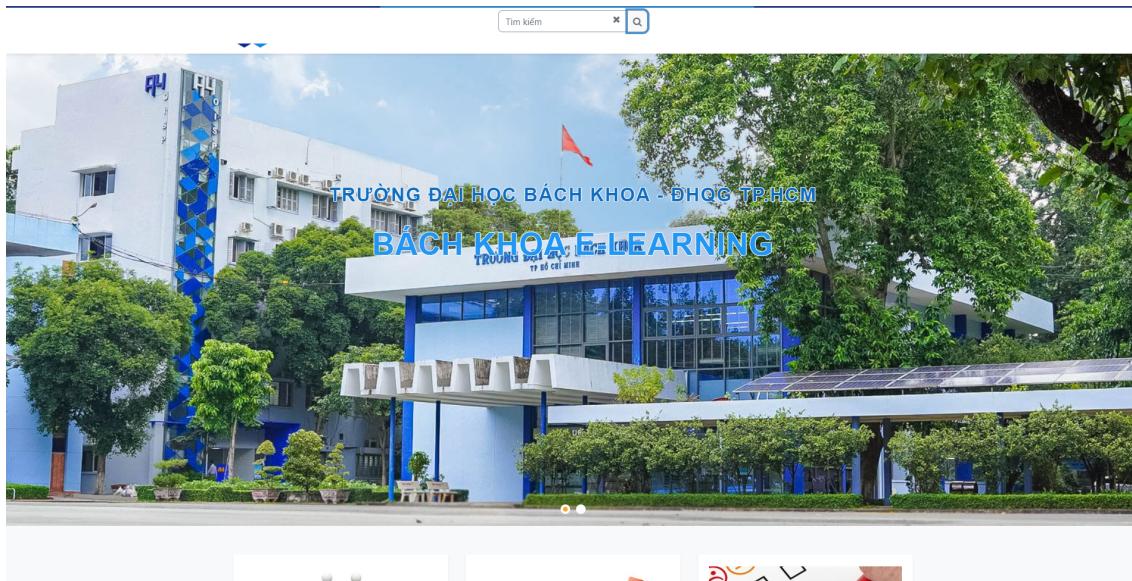


Figure 5: Search 0 Char



#### 4.1.2 Search 1 Char

The screenshot shows the 'GLOBAL SEARCH' page. At the top, there is a search bar with the placeholder 'No results'. Below the search bar, there is a section titled 'Tim kiếm' (Search) with a dropdown menu. Inside the dropdown, there is a search input field containing the letter 'a', a help icon, and a question mark icon. To the right of the search input field is a 'Search within' dropdown set to 'Everywhere you can access'. Below this section is a 'Filter' button. Further down, there is a note about required fields and a 'Tim kiếm' (Search) button. At the bottom of the search interface, there are four filter tabs: 'All', 'Course content', 'Courses', and 'Users', with 'All' being the selected tab.

Figure 6: Search 1 Char

#### 4.1.3 Search 2 Char

The screenshot shows the 'GLOBAL SEARCH' page. At the top, there is a search bar with the placeholder 'No results'. Below the search bar, there is a section titled 'Tim kiếm' (Search) with a dropdown menu. Inside the dropdown, there is a search input field containing the letters 'aa', a help icon, and a question mark icon. To the right of the search input field is a 'Search within' dropdown set to 'Everywhere you can access'. Below this section is a 'Filter' button. Further down, there is a note about required fields and a 'Tim kiếm' (Search) button. At the bottom of the search interface, there are four filter tabs: 'All', 'Course content', 'Courses', and 'Users', with 'All' being the selected tab.

Figure 7: Search 2 Char



#### 4.1.4 Search 30 Char

The screenshot shows the 'GLOBAL SEARCH' interface. At the top, there is a search bar containing the text 'ssdukjyjzpulnkqbgodgth'. Below the search bar, there are two dropdown menus: 'Search within' set to 'Everywhere you can access' and a filter section with a 'Tim kiếm' button. At the bottom, there is a navigation bar with tabs: All, Course content, Courses, and Users. The 'Course content' tab is currently selected.

Figure 8: Search 30 Char

#### 4.1.5 Search 2048 Char

The screenshot shows the 'GLOBAL SEARCH' interface. At the top, there is a search bar containing the text 'efvigmccetibexwykagekkn'. Below the search bar, there are two dropdown menus: 'Search within' set to 'Everywhere you can access' and a filter section with a 'Tim kiếm' button. At the bottom, there is a navigation bar with tabs: All, Course content, Courses, and Users. The 'All' tab is currently selected.

Figure 9: Search 2048 Char



#### 4.1.6 Search 4095 Char

The screenshot shows the 'GLOBAL SEARCH' page. At the top, there is a search bar containing the text 'rzszzffajttweqwogxfzgvulja'. Below the search bar, there are two dropdown menus: 'Search within' set to 'Everywhere you can access' and a filter dropdown also set to 'Everywhere you can access'. A blue button labeled 'Tim kiếm' (Search) is located below these fields. At the bottom of the search bar area, there is a note: 'Các trường bắt buộc theo biểu mẫu này được đánh dấu \*.' Below this note, there are four tabs: 'All' (selected), 'Course content', 'Courses', and 'Users'.

Figure 10: Search 4095 Char

#### 4.1.7 Search 4096 Char

The screenshot shows the 'GLOBAL SEARCH' page. At the top, there is a search bar containing the text 'rzszzffajttweqwogxfzgvulja'. Below the search bar, there are two dropdown menus: 'Search within' set to 'Everywhere you can access' and a filter dropdown also set to 'Everywhere you can access'. A blue button labeled 'Tim kiếm' (Search) is located below these fields. At the bottom of the search bar area, there is a note: 'Các trường bắt buộc theo biểu mẫu này được đánh dấu \*.' Below this note, there are four tabs: 'All' (selected), 'Course content', 'Courses', and 'Users'.

Figure 11: Search 4096 Char



#### 4.1.8 Search 4097 Char

The screenshot shows the 'GLOBAL SEARCH' page. At the top, there is a search bar containing the text 'rzszzffqjttweqwogxfzgvulja'. Below the search bar, there are two dropdown menus: 'Search within' set to 'Everywhere you can access' and 'Filter' set to 'All'. A blue button labeled 'Tim kiếm' (Search) is located below the filter dropdown. To the right of the search bar, there is a link 'Mở rộng tất cả' (Expand all). At the bottom of the search bar, there is a note: 'Các trường bắt buộc theo biểu mẫu này được đánh dấu \*'.

Figure 12: Search 4097 Char

#### 4.1.9 Search 4100 Char

The screenshot shows the 'GLOBAL SEARCH' page. At the top, there is a search bar containing the text 'ssdukjyzpulnkqbgozdygth'. Below the search bar, there are two dropdown menus: 'Search within' set to 'Everywhere you can access' and 'Filter' set to 'All'. A blue button labeled 'Tim kiếm' (Search) is located below the filter dropdown. To the right of the search bar, there is a link 'Mở rộng tất cả' (Expand all). At the bottom of the search bar, there is a note: 'Các trường bắt buộc theo biểu mẫu này được đánh dấu \*'.

Figure 13: Search 4100 Char



## 4.2 Message

### 4.2.1 Message 0 Char

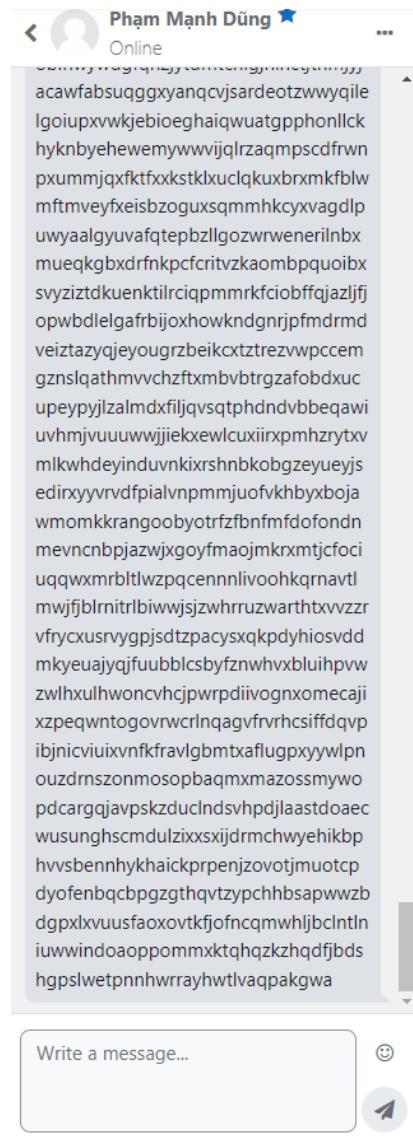


Figure 14: Message 0 Char



#### 4.2.2 Message 1 Char



Figure 15: Message 1 Char

#### 4.2.3 Message 2 Char



Figure 16: Message 2 Char

#### 4.2.4 Message 30 Char



Figure 17: Message 30 Char



#### 4.2.5 Message 2048 Char

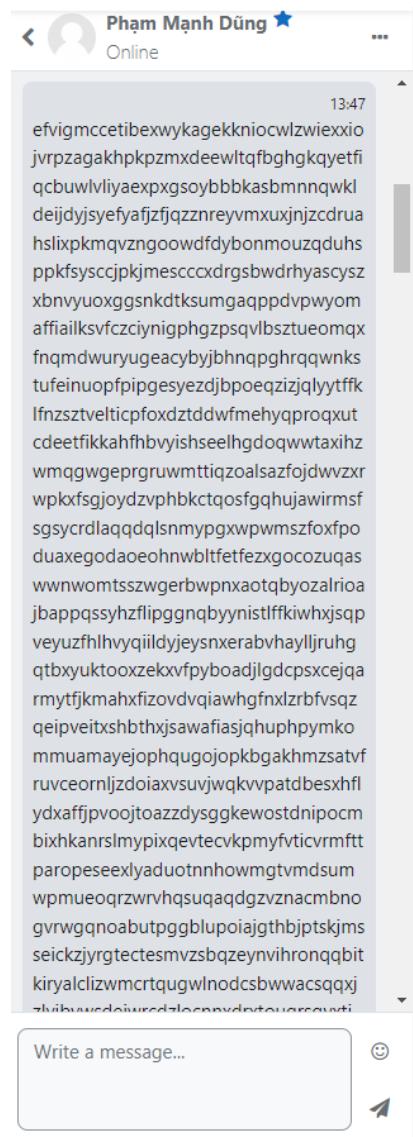


Figure 18: Message 2048 Char



#### 4.2.6 Message 4095 Char

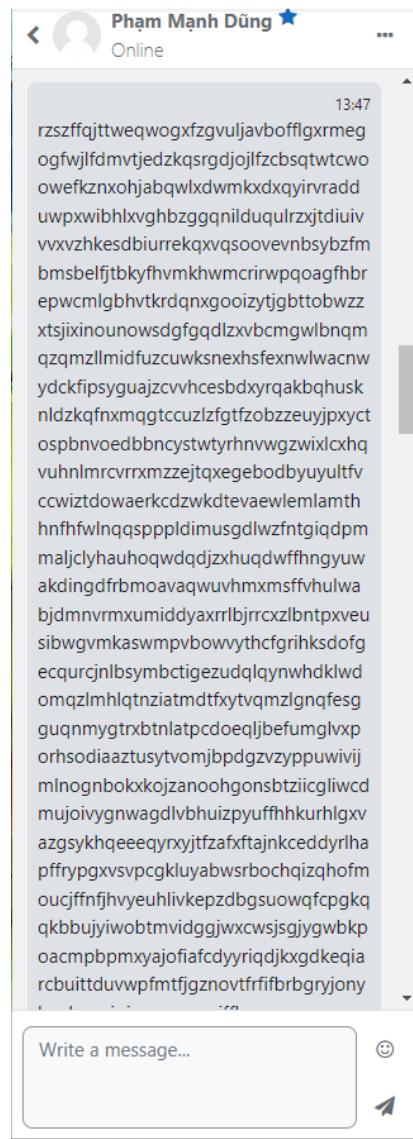


Figure 19: Message 4095 Char



#### 4.2.7 Message 4096 Char

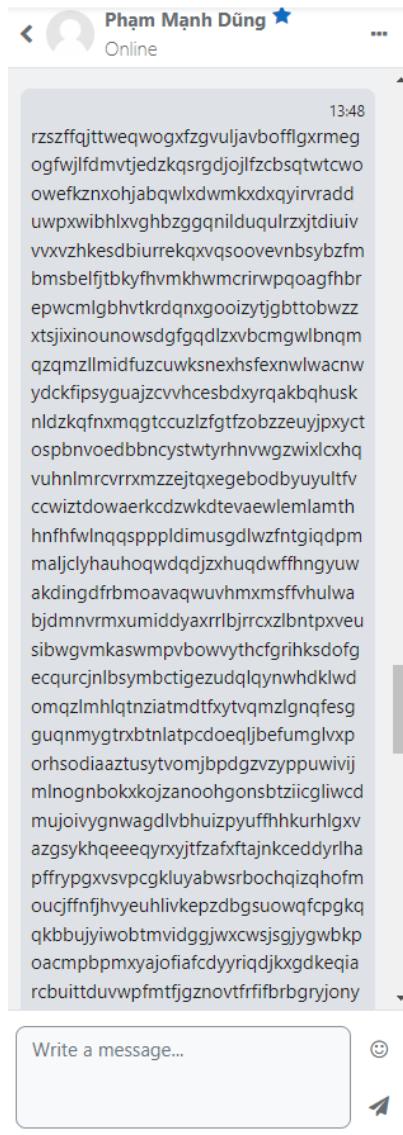


Figure 20: Message 4096 Char



#### 4.2.8 Message 4097 Char

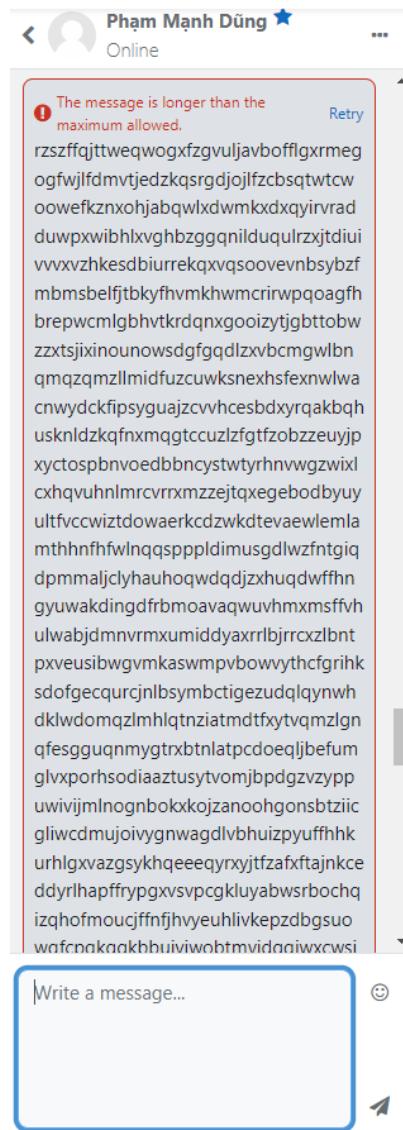


Figure 21: Message 4097 Char



#### 4.2.9 Message 4100 Char

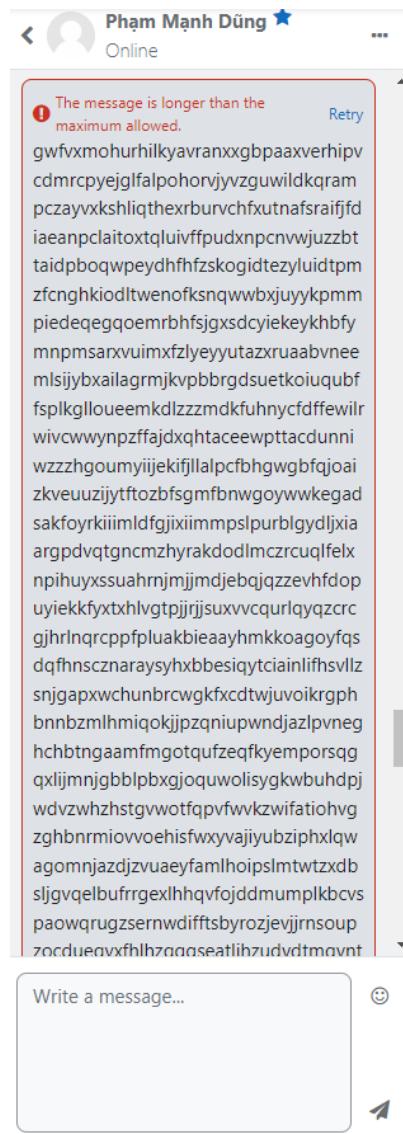


Figure 22: Message 4100 Char



## 4.3 Watch Video

### 4.3.1 Basic flow

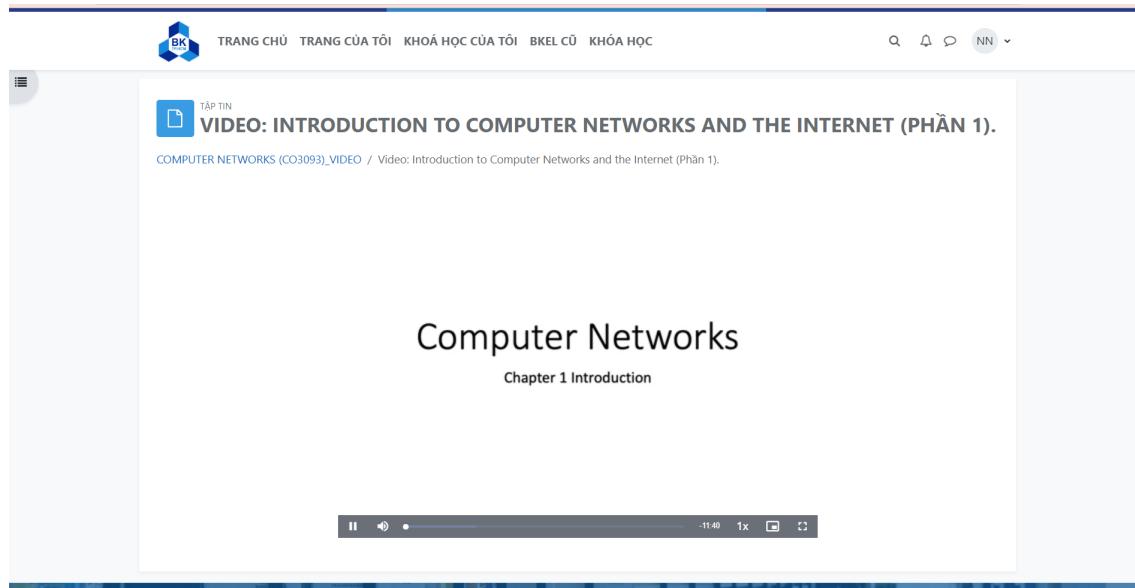


Figure 23: Basic flow

This is when a student clicks on a video to watch.



#### 4.3.2 Alternative flow

The screenshot shows a web page titled "COMPUTER NETWORKS (CO3093)\_VIDEO". At the top, there is a navigation bar with links: TRANG CHỦ, TRANG CỦA TÔI, KHOÁ HỌC CỦA TÔI, BKEL CỦ, KHÓA HỌC, and a search bar. Below the navigation bar, there are tabs: Khoa học, Danh sách thành viên, Điểm, and Competencies. A dropdown menu for "CO3093: Computer Networks (Computer Communications and Networking)" is open, showing two sections: "TRANG Description" and "TRANG Books and references". The "Description" section contains a brief course introduction and a list of topics. The "Books and references" section lists required and other textbooks.

Figure 24: Alternative flow

This is when he or she wants to go back to the video page.



## 4.4 Security

### 4.4.1 Basic flow



Figure 25: Basic flow

This is when a student enters username and password correctly, the system lets them in.



#### 4.4.2 Wrong password

The screenshot shows the Central Authentication Service login page. At the top, there is a blue header bar with the BK logo and the text "Central Authentication Service". Below the header, there is a message box with a red exclamation mark icon and the text: "The credentials you provided cannot be determined to be authentic." The main form area has fields for "Username" (containing "hguyen.ngoquang111") and "Password". To the right of the form, there are sections for "Languages" (Vietnamese, English), "Please note" (explaining single sign-on), "Technical support" (with email and phone number), and a checkbox for "Warn me before logging me into other sites". At the bottom left, there is copyright information: "Copyright © 2011 - 2012 Ho Chi Minh University of Technology. All rights reserved. Powered by Jasig CAS 3.5.1".

Figure 26: Wrong password

When entering wrong password, the system does not let them in.



#### 4.4.3 Wrong username

The screenshot shows a web browser window for the "HCMUT – Central Authentication" service at [sso.hcmut.edu.vn/cas/login?service=https%3A%2F%2Fe-learning.hcmut.e...](https://sso.hcmut.edu.vn/cas/login?service=https%3A%2F%2Fe-learning.hcmut.e...). The page title is "Central Authentication Service". On the left, there is a form for entering a Username and Password. The Username field contains "nguyen.ngoquang222". A red warning box is displayed above the form, stating: "The credentials you provided cannot be determined to be authentic." To the right of the form, there is a "Languages" section with links to Vietnamese and English. Below that is a "Please note" section with text about single sign-on and login requirements. At the bottom right, there is a "Technical support" section with email and phone number information.

Figure 27: Wrong username

When entering wrong username, the system does not let them in.



#### 4.4.4 Wrong password and username

The screenshot shows a web browser window for the "HCMUT – Central Authentication" service at the URL [sso.hcmut.edu.vn/cas/login?service=https%3A%2F%2Fe-learning.hcmut.e...](https://sso.hcmut.edu.vn/cas/login?service=https%3A%2F%2Fe-learning.hcmut.e...). The page title is "Central Authentication Service". On the left, there is a red warning box containing a speech bubble icon with an exclamation mark, and the text "The credentials you provided cannot be determined to be authentic.". Below this is a form for "Enter your Username and Password". The "Username" field contains "hguyen.ngoquang222". The "Password" field is empty. To the right of the form, under "Languages", are links for Vietnamese and English. A section titled "Please note" provides instructions for single sign-on and security best practices. At the bottom, there are "Login" and "Clear" buttons, and a link to "Change password?".

Figure 28: Wrong password and username

When enters wrong password and username, the system does not let them in.



## 4.5 Course Search

### 4.5.1 Search 0 char

The screenshot shows a web browser displaying the 'THÔNG TIN BKEL' page. At the top, there is a navigation bar with links to 'TRANG CHỦ', 'TRANG CỦA TÔI', 'KHOÁ HỌC CỦA TÔI', 'BKEL CŨ', 'KHOÁ HỌC', and a search icon. Below the navigation bar, the page title 'THÔNG TIN BKEL' is displayed. Underneath the title, there is a breadcrumb trail 'Khoa học / Thông tin BKEL'. A dropdown menu labeled 'Danh mục' is open, showing options like 'Xem thêm ▾'. Below this, there is a search bar with the placeholder 'Thông tin BKEL' and a magnifying glass icon. A smaller search bar below it contains the placeholder 'Tìm kiếm khoa học' and also has a magnifying glass icon. The main content area features several sections: 'KHẢO SÁT SINH VIÊN TỐT NGHIỆP (11-2022)' with teacher information (Phan Thị Mai Hà, Trần Việt Hồng, Nguyễn Cao Trí); 'THÔNG BÁO TUYỂN SINH ĐÀO TẠO SONG NGÀNH' with a message about creating opportunities for students; 'THÔNG TIN KHẢO SÁT Ý KIẾN SINH VIÊN VỀ MÔN HỌC' with a link to update information; and 'HƯỚNG DẪN SỬ DỤNG DÀNH CHO GIÁNG VIÊN'.

Figure 29: Search 0 Char



#### 4.5.2 Search 1 char

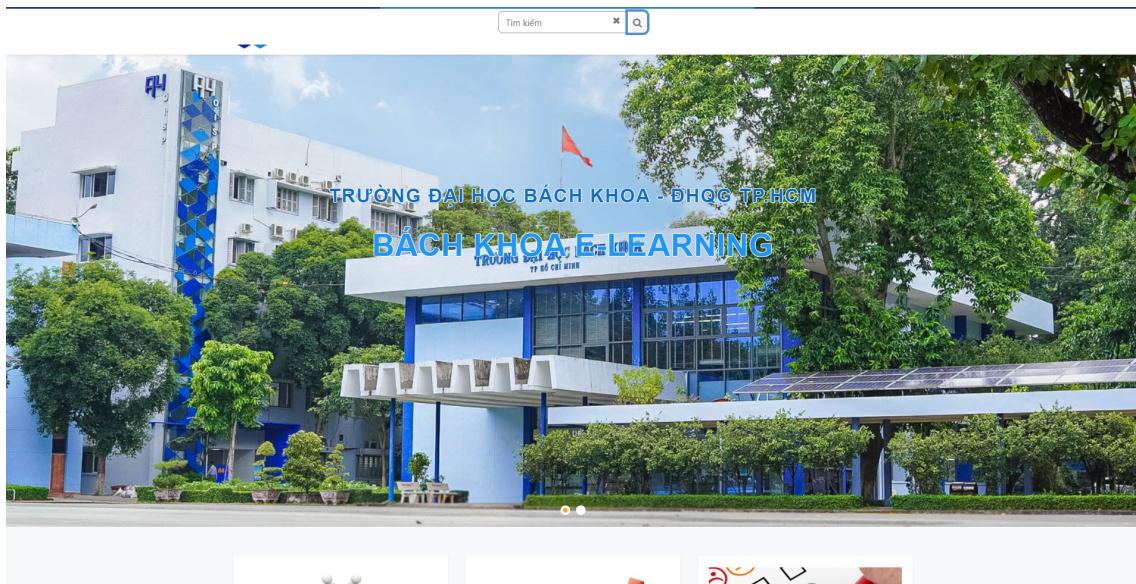


Figure 30: Search 1 Char



#### 4.5.3 Search 2 char

The screenshot shows a web page titled "THÔNG TIN BKEL". At the top, there is a navigation bar with links: TRANG CHỦ, TRANG CỦA TÔI, KHOÁ HỌC CỦA TÔI, BKEL CŨ, and KHOÁ HỌC. To the right of the navigation bar are icons for search, notifications, and a dropdown menu labeled "BT". Below the navigation bar, the page title "THÔNG TIN BKEL" is displayed in bold. Underneath the title, there is a breadcrumb trail: Khoa học / Thông tin BKEL. Below the breadcrumb trail, there are two buttons: "Danh mục" and "Xem thêm ▾". A search bar contains the text "Thông tin BKEL" and a magnifying glass icon. Below the search bar, there is a section titled "KHẢO SÁT SINH VIÊN TỐT NGHIỆP (11-2022)". This section lists several teacher names: Giảng viên (Teacher): Ban đảm bảo Chất lượng, HCMUT\_MTT\_04, Phan Thị Mai Hà, Trần Việt Hồng, Nguyễn Cao Trí. Below this, there is a section titled "THÔNG BÁO TUYỂN SINH ĐÀO TẠO SONG NGÀNH" with a small envelope icon and a note about creating opportunities for students. There is also a section titled "THÔNG TIN KHẢO SÁT Ý KIẾN SINH VIÊN VỀ MÔN HỌC" with a pencil icon and a note about updating information. Finally, there is a section titled "HƯỚNG DẪN SỬ DỤNG DÀNH CHO GIÁNG VIÊN" with a graduation cap icon.

Figure 31: Search 2 Char



#### 4.5.4 Search 2048 char

The screenshot shows a web page titled "THÔNG TIN BKEL". At the top, there is a navigation bar with links: TRANG CHỦ, TRANG CỦA TÔI, KHOÁ HỌC CỦA TÔI, BKEL CŨ, and KHOÁ HỌC. To the right of the navigation bar are icons for search, notifications, and user profile, along with a "BT" button.

Below the navigation bar, the page displays a breadcrumb trail: Khoa học / Thông tin BKEL. There are also links for "Danh mục" and "Xem thêm".

A search bar contains the text "Thông tin BKEL". Below the search bar is a search button with a magnifying glass icon.

The main content area features several sections:

- KHẢO SÁT SINH VIÊN TỐT NGHIỆP (11-2022)**  
Giảng viên (Teacher): Ban đảm bảo Chất lượng  
**HCMUT\_MTT\_04**  
Giảng viên (Teacher): Phan Thị Mai Hà  
Giảng viên (Teacher): Trần Việt Hồng  
Giảng viên (Teacher): Nguyễn Cao Trí
- THÔNG BÁO TUYỂN SINH ĐÀO TẠO SONG NGÀNH**  
Nhằm tạo điều kiện cho sinh viên các Trường thành viên DHQG-HCM mở rộng cơ hội học tập, phát triển năng lực cá nhân và cơ hội nghề nghiệp trong tương lai;
- THÔNG TIN KHẢO SÁT Ý KIẾN SINH VIÊN VỀ MÔN HỌC**  
Cập nhật thông báo, thông tin, hướng dẫn khảo sát môn học.
- HƯỚNG DẪN SỬ DỤNG DÀNH CHO GIÁNG VIÊN**

Figure 32: Search 2048 Char



#### 4.5.5 Search 4095 char

The screenshot shows a web page titled "THÔNG TIN BKEL". At the top, there is a navigation bar with links: TRANG CHỦ, TRANG CỦA TÔI, KHOÁ HỌC CỦA TÔI, BKEL CŨ, and KHOÁ HỌC. To the right of the navigation bar are icons for search, notifications, and user profile, along with a "BT" button.

The main content area has a breadcrumb navigation: Khoa học / Thông tin BKEL. Below it are two buttons: "Danh mục" and "Xem thêm ▾".

A search bar contains the text "Thông tin BKEL". To its right is a magnifying glass icon. Below the search bar is a section titled "KHẢO SÁT SINH VIÊN TỐT NGHIỆP (11-2022)". It lists several teacher names: Giảng viên (Teacher): Ban đảm bảo Chất lượng, HCMUT\_MTT\_04, Phan Thị Mai Hà, Trần Việt Hồng, Nguyễn Cao Trí.

Below this is a section titled "THÔNG BÁO TUYỂN SINH ĐÀO TẠO SONG NGÀNH". It features a red mailbox icon with the text "Thông báo" and a message about creating opportunities for students.

Further down is a section titled "THÔNG TIN KHẢO SÁT Ý KIẾN SINH VIÊN VỀ MÔN HỌC". It includes a pencil icon and a message about updating information.

The bottom of the page features a section titled "HƯỚNG DẪN SỬ DỤNG DÀNH CHO GIÁNG VIÊN".

Figure 33: Search 4095 Char



#### 4.5.6 Search 4096 char

The screenshot shows a web page titled "THÔNG TIN BKEL". At the top, there is a navigation bar with links: TRANG CHỦ, TRANG CỦA TÔI, KHOÁ HỌC CỦA TÔI, BKEL CŨ, and KHOÁ HỌC. To the right of the navigation bar are icons for search, notifications, and a dropdown menu labeled "BT". Below the navigation bar, the page title "THÔNG TIN BKEL" is displayed in bold. Underneath the title, there is a breadcrumb trail: Khoa học / Thông tin BKEL. Below the breadcrumb trail, there are two buttons: "Danh mục" and "Xem thêm ▾". A search bar contains the text "Thông tin BKEL" and a magnifying glass icon. Below the search bar, there is a section titled "KHẢO SÁT SINH VIÊN TỐT NGHIỆP (11-2022)". This section includes information about the teacher: Giảng viên (Teacher): Ban đảm bảo Chất lượng, HCMUT\_MTT\_04, Phan Thị Mai Hà, Trần Việt Hồng, Nguyễn Cao Trí. Below this, there is a section titled "THÔNG BÁO TUYỂN SINH ĐÀO TẠO SONG NGÀNH" with a red envelope icon and a message about creating opportunities for students. There is also a section titled "THÔNG TIN KHẢO SÁT Ý KIẾN SINH VIÊN VỀ MÔN HỌC" with a pencil icon and a message about updating information. Finally, there is a section titled "HƯỚNG DẪN SỬ DỤNG DÀNH CHO GIÁNG VIÊN" with a graduation cap icon.

Figure 34: Search 4096 Char



#### 4.5.7 Search 4097 char

The screenshot shows a web page titled "THÔNG TIN BKEL". At the top, there is a navigation bar with links: TRANG CHỦ, TRANG CỦA TÔI, KHOÁ HỌC CỦA TÔI, BKEL CŨ, and KHOÁ HỌC. To the right of the navigation bar are icons for search, notifications, and user profile, along with a "BT" button.

The main content area has a breadcrumb navigation: Khoa học / Thông tin BKEL. Below it are two buttons: "Danh mục" and "Xem thêm ▾".

A search bar contains the text "Thông tin BKEL". To its right is a magnifying glass icon for search.

Below the search bar, there is a section titled "KHẢO SÁT SINH VIÊN TỐT NGHIỆP (11-2022)". It lists several teacher names:

- Giảng viên (Teacher): Ban đảm bảo Chất lượng
- HCMUT\_MTT\_04
- Giảng viên (Teacher): Phan Thị Mai Hà
- Giảng viên (Teacher): Trần Việt Hồng
- Giảng viên (Teacher): Nguyễn Cao Trí

Below this is a section titled "THÔNG BÁO TUYỂN SINH ĐÀO TẠO SONG NGÀNH". It features a red mailbox icon and a message about creating opportunities for students.

Further down is a section titled "THÔNG TIN KHẢO SÁT Ý KIẾN SINH VIÊN VỀ MÔN HỌC". It includes a pencil icon and a message about updating information.

The bottom of the page features a section titled "HƯỚNG DẪN SỬ DỤNG DÀNH CHO GIÁNG VIÊN".

Figure 35: Search 4097 Char

## 4.6 Calendar

### 4.6.1 Create new event

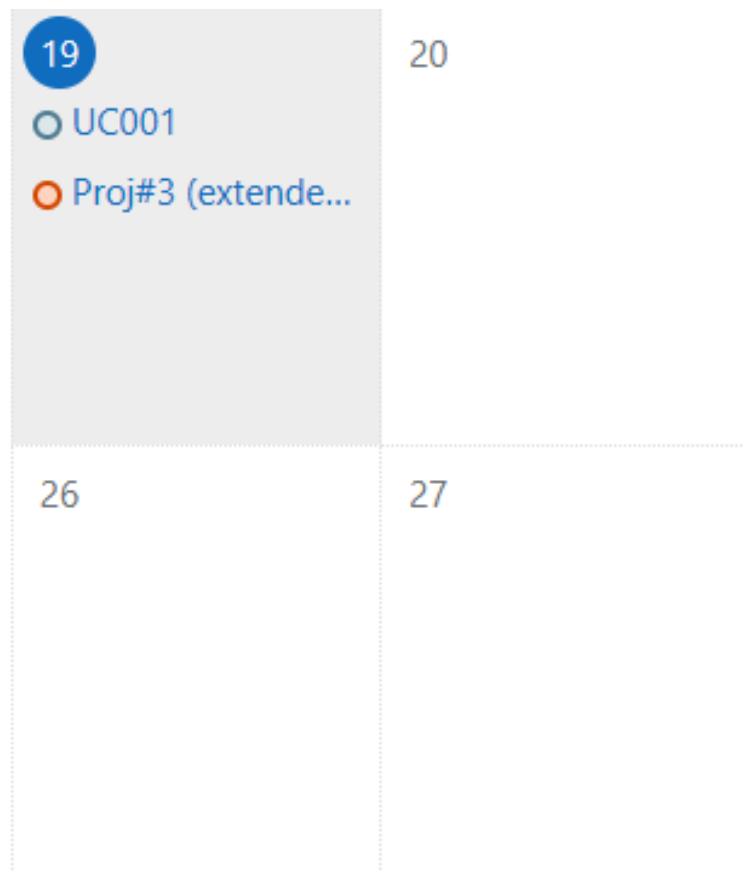


Figure 36: Create new event successfully



#### 4.6.2 Due submission

The screenshot shows a web-based learning management system interface. At the top, there is a navigation bar with links for 'TRANG CHỦ', 'TRANG CỦA TÔI', 'KHOÁ HỌC CỦA TÔI', 'BKEL CŨ', 'KHÓA HỌC', and a search bar. Below the navigation bar, a pink header box displays the title 'BÀI KIỂM TRA VỀ KINH NGHIỆM PHỎNG VẤN TÌM VIỆC' (Practical Exam on Job Interview Experience). Underneath the title, it says 'SINH HOẠT CÔNG DÂN CUỐI KHÓA NĂM HỌC 2022 - 2023 / Bài kiểm tra về kinh nghiệm phỏng vấn tìm việc'. It also shows the 'Opened' date as 'Chủ nhật, 6 Tháng mười một 2022, 11:59 PM' and the 'Closes' date as 'Thứ năm, 22 Tháng mười hai 2022, 11:59 PM'. A message below states: 'Bạn phải làm bài đạt điểm tối đa bài kiểm tra kinh nghiệm phỏng vấn tìm việc thì mới được xem tiếp nội dung'. A blue button labeled 'Làm lại bài kiểm tra' (Retake test) is visible. Below this, there is a table titled 'Tóm tắt của bài làm trước của bạn' (Summary of your previous work). The table has columns for 'Làm bài', 'Tình trạng', 'Điểm / 15,00', 'Điểm / 10,00', and 'Xem lại'. It lists two entries:

Làm bài	Tình trạng	Điểm / 15,00	Điểm / 10,00	Xem lại
1	Đã hoàn thành Đã gửi Thứ tư, 16 Tháng mười một 2022, 1:24 PM	6,00	4,00	Xem lại
2	Đã hoàn thành Đã gửi Thứ tư, 16 Tháng mười một 2022, 1:26 PM	15,00	10,00	Xem lại

A note at the bottom of the table says 'Điểm cao nhất: 10,00 / 10,00.'

Figure 37: Go to due submission



## 4.7 Login

For each test case, I follow steps, type username and password as specified in .xls file. The test result is as expected in all test cases.

The screenshot displays two windows side-by-side. On the left is the 'Selenium IDE - BTEL TESTING' extension in Mozilla Firefox, showing a list of test cases under 'Project: BTEL TESTING'. One test case, 'BV001\*', is selected and expanded, showing its steps: 1. open https://e-learning.hcmut.edu.vn/, 2. setWindowSize 703x843, 3. click linkText:Log in, 4. click linkText:Teachers and Students of HCMUT, 5. click id:username, 6. type id:username with the value QzQ0dVZHX4ZkDlLsx9lEveUenB03P7LCpDQCjI7W9ladieUs7ojR7XXF2xTfTtE9zSTIzoseOTKqICsn7TsWxB8w, and 7. click name=submit. The status bar at the bottom indicates 'BV001 completed successfully'. On the right is a browser window titled 'Central Authentication Service' showing the login page. It has fields for 'Username' (containing a long encoded string) and 'Password', and a 'Login' button. Below the fields are 'Languages' (Vietnamese, English) and a 'Please note' section with text about single sign-on.

Figure 38: Login Testing



## 4.8 Do Quiz

For each test case, i follow steps as specified in .xls file. The test result is as expected in all test cases.

The screenshot displays two windows. On the left is the Selenium IDE interface, showing a list of test cases (DoQuiz and Login) with their corresponding commands, targets, and values. Test case DT001\* is expanded, showing steps 8 through 17. On the right is a browser window titled 'CH7. OTHER ISSUES (DEADLINE SUN 18-DEC 23:00)' from the URL https://e-learning.hcmut.edu.vn/mod/quiz/view.php?id=12824. The browser shows the quiz details, including the deadline, opening and closing times, and a summary table of submitted answers.

Làm bài	Tình trạng	Điểm / 10,00	Xem lại
1	Đã hoàn thành Đã gửi Thứ sáu, 16 Tháng mười hai 2022, 12:08 PM	10,00	Xem lại
2	Đã hoàn thành Đã gửi Thứ sáu, 16 Tháng mười hai 2022, 12:10 PM	9,00	Xem lại

Figure 39: Do Quiz Testing



## References

- [1] BrowserStack. *Getting Started with Selenium IDE*. URL: <https://www.browserstack.com/guide/what-is-selenium-ide>.