

Automated Web Testing Using a Restricted Natural Language

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```
const { Builder, Browser, By } = require("selenium-webdriver");

const driver = await new Builder()
    .forBrowser(Browser.CHROME)
    .build();

const emailInput = await driver.findElement(By.id("email_input"));
await emailInput.sendKeys("email@example.com");

const passwordInput = await driver.findElement(By.className("input"));
await passwordInput.sendKeys("secretpassword");

const loginButton = await driver.findElement(By.id("login_btn"));
await loginButton.click();
```

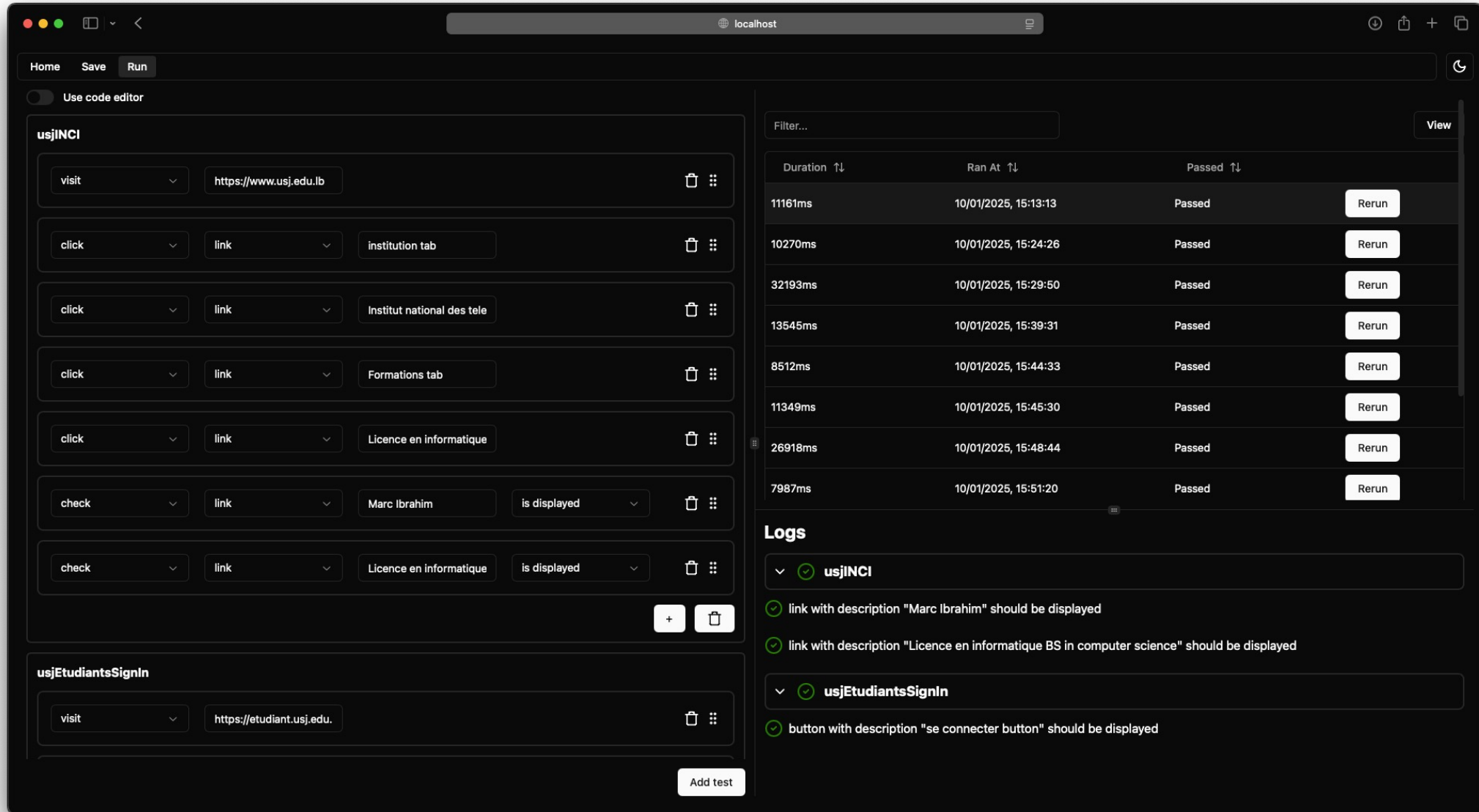
Automated Web Testing Using a Restricted Natural Language

```
usjEtudiantsSignIn {  
  visit "https://etudiant.usj.edu.lb"  
  type "123456" on input with description "student id field"  
  type "password" on input with description "password field"  
  type "423943" on input with description "captcha field"  
  check if button with description "se conncter" is displayed  
  click button with description "se connecter"  
}
```

```
it("usjEtudiantsSignIn", async function () {  
  await driver.get("https://etudiant.usj.edu.lb");  
  await typeNode("matricule input field", "matricule");  
  await typeNode("mot de passe input field", "password");  
  await typeNode("captcha input field", "423943");  
  assert.equal(await checkNode("button", "se connecter button", true), true);  
  await clickNode("se connecter button");  
});
```

```
async function clickNode(description) {  
  const [x, y] = await getCoordinates(description);  
  const actions = driver.actions({ async: true });  
  await actions.move({ x, y }).click().perform();  
}  
  
async function typeNode(description, content) {  
  const [x, y] = await getCoordinates(description);  
  const actions = driver.actions({ async: true });  
  await actions.move({ x, y }).click().sendKeys(content).perform();  
}
```

The Platform



The screenshot displays a web testing platform interface. The top navigation bar includes 'Home', 'Save', and 'Run' buttons. A toggle switch for 'Use code editor' is present. The main area is divided into two sections: 'usjINCI' and 'usjEtudiantsSignIn'.

usjINCI Test Cases:

- visit: <https://www.usj.edu.lb>
- click: link, institution tab
- click: link, Institut national des tele
- click: link, Formations tab
- click: link, Licence en informatique
- check: link, Marc Ibrahim, is displayed
- check: link, Licence en informatique, is displayed

usjEtudiantsSignIn Test Cases:

- visit: <https://etudiant.usj.edu.>

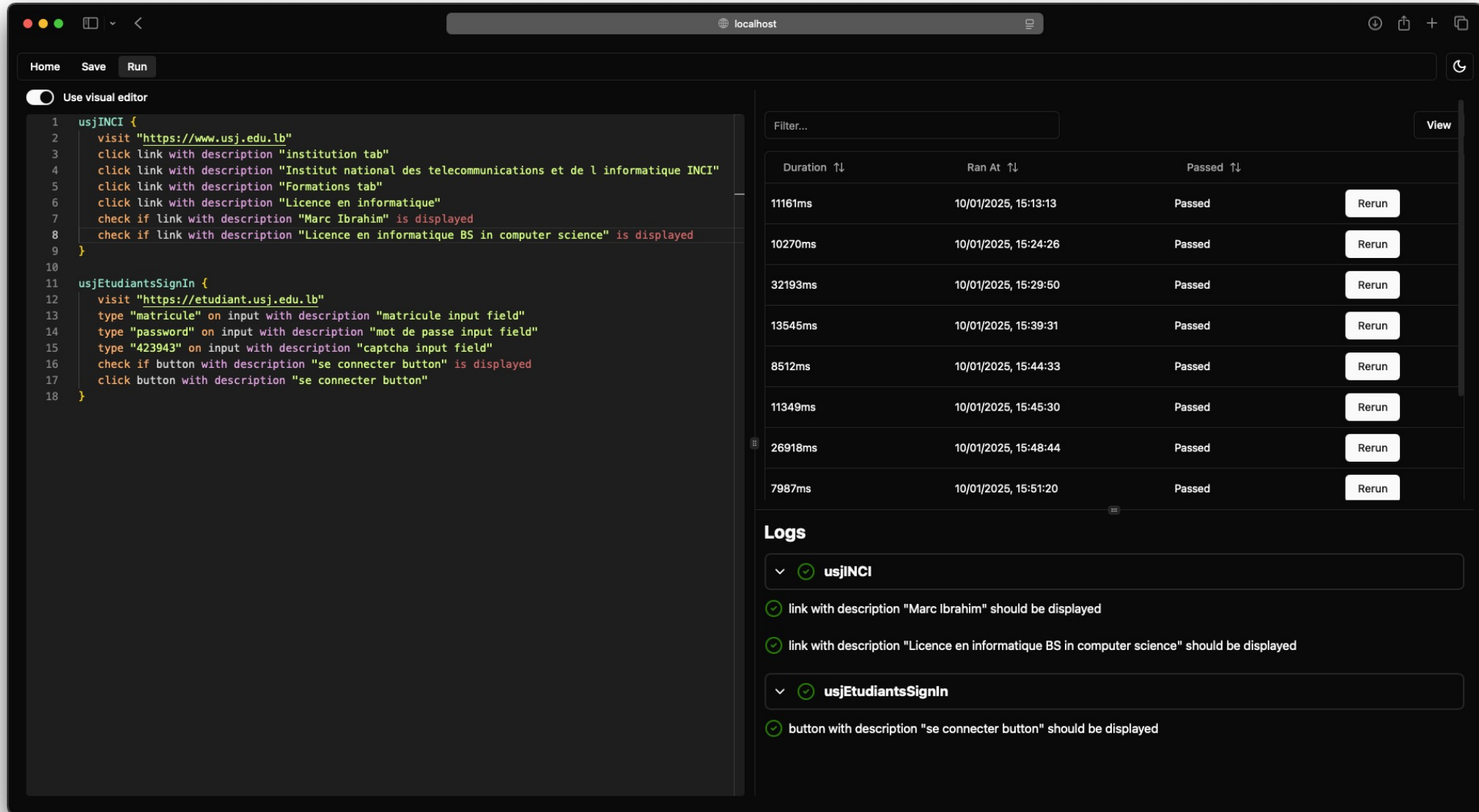
Test Results Table:

Duration ↑↓	Ran At ↑↓	Passed ↑↓	
11161ms	10/01/2025, 15:13:13	Passed	Rerun
10270ms	10/01/2025, 15:24:26	Passed	Rerun
32193ms	10/01/2025, 15:29:50	Passed	Rerun
13545ms	10/01/2025, 15:39:31	Passed	Rerun
8512ms	10/01/2025, 15:44:33	Passed	Rerun
11349ms	10/01/2025, 15:45:30	Passed	Rerun
26918ms	10/01/2025, 15:48:44	Passed	Rerun
7987ms	10/01/2025, 15:51:20	Passed	Rerun

Logs:

- usjINCI
 - link with description "Marc Ibrahim" should be displayed
 - link with description "Licence en informatique BS in computer science" should be displayed
- usjEtudiantsSignIn
 - button with description "se connecter button" should be displayed

The Platform

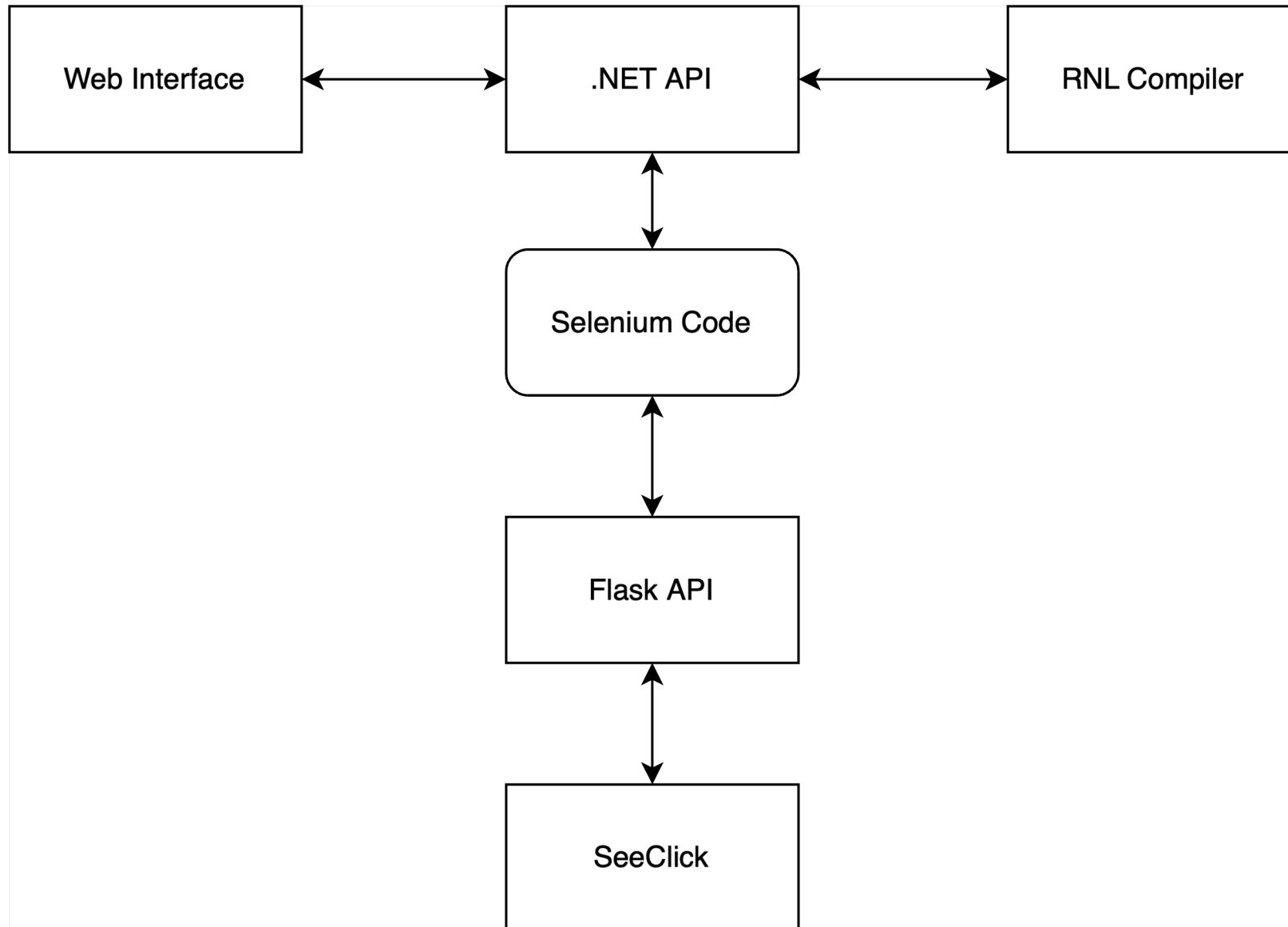


The screenshot displays a web testing platform interface. On the left, a code editor shows two test scripts: `usjINCI` and `usjEtudiantsSignIn`. The `usjINCI` script includes steps like visiting the USJ website, clicking on the INCI tab, and checking for the display of specific links. The `usjEtudiantsSignIn` script includes steps like visiting the student login page, filling in fields, and clicking the login button.

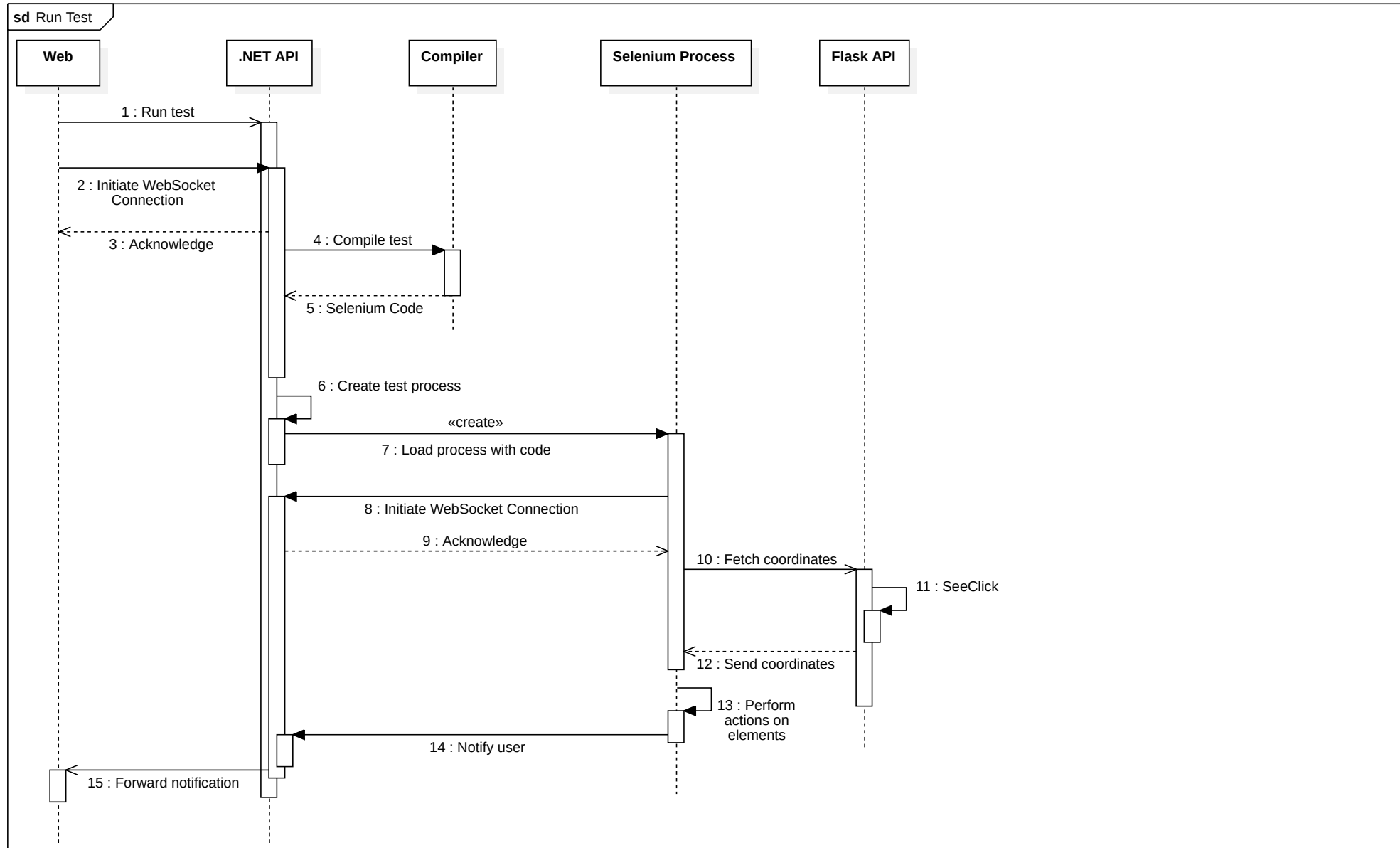
On the right, a table displays the execution results for the `usjINCI` script. The table has columns for Duration, Ran At, Passed, and a Rerun button. All tests passed successfully.

Duration ↑↓	Ran At ↑↓	Passed ↑↓	
11161ms	10/01/2025, 15:13:13	Passed	Rerun
10270ms	10/01/2025, 15:24:26	Passed	Rerun
32193ms	10/01/2025, 15:29:50	Passed	Rerun
13545ms	10/01/2025, 15:39:31	Passed	Rerun
8512ms	10/01/2025, 15:44:33	Passed	Rerun
11349ms	10/01/2025, 15:45:30	Passed	Rerun
26918ms	10/01/2025, 15:48:44	Passed	Rerun
7987ms	10/01/2025, 15:51:20	Passed	Rerun

Below the table, a 'Logs' section shows the execution details for each script. The `usjINCI` script logs show that the links 'Marc Ibrahim' and 'Licence en informatique BS in computer science' were successfully displayed. The `usjEtudiantsSignIn` script logs show that the 'se connecter button' was successfully displayed.



Running a test



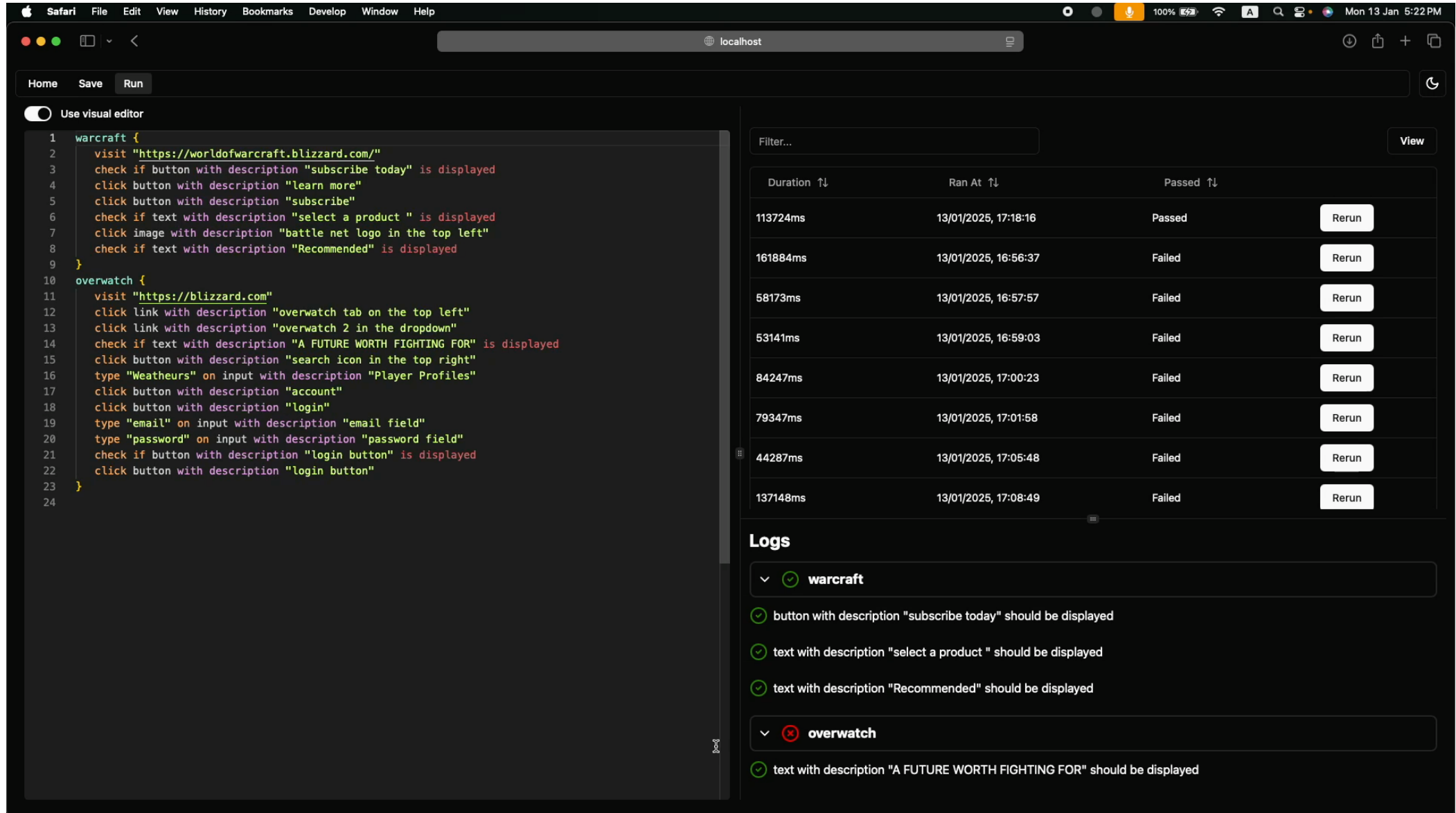
Performance

```

Total time for writing image to disk: 0.0009 seconds
Total time for inference: 0.5554 seconds
Total time for reading image metadata: 0.0003 seconds
Total time for cleanup: 0.0001 seconds
10.120.121.254 - - [12/Jan/2025 17:59:52] "POST /coordinates HTTP/1.1" 200 -
Total time for Authentication token: 0.0002 seconds
Total time for parsing JSON data: 3.3303 seconds
Total time for decoding: 0.0025 seconds
Total time for writing image to disk: 0.0030 seconds
Total time for inference: 0.5649 seconds
Total time for reading image metadata: 0.0003 seconds
Total time for cleanup: 0.0003 seconds
10.120.121.254 - - [12/Jan/2025 17:59:57] "POST /coordinates HTTP/1.1" 200 -
Total time for Authentication token: 0.0002 seconds
Total time for parsing JSON data: 0.0167 seconds
Total time for decoding: 0.0000 seconds
Total time for writing image to disk: 0.0004 seconds
Total time for inference: 0.5461 seconds
Total time for reading image metadata: 0.0003 seconds
Total time for cleanup: 0.0001 seconds
10.120.121.254 - - [12/Jan/2025 18:00:47] "POST /coordinates HTTP/1.1" 200 -
Total time for Authentication token: 0.0002 seconds
Total time for parsing JSON data: 0.0362 seconds
Total time for decoding: 0.0000 seconds
Total time for writing image to disk: 0.0004 seconds
Total time for inference: 0.5323 seconds
Total time for reading image metadata: 0.0004 seconds
Total time for cleanup: 0.0001 seconds
10.120.121.254 - - [12/Jan/2025 18:00:49] "POST /coordinates HTTP/1.1" 200 -
Total time for Authentication token: 0.0002 seconds
Total time for parsing JSON data: 0.0190 seconds
Total time for decoding: 0.0000 seconds
Total time for writing image to disk: 0.0004 seconds
Total time for inference: 0.5316 seconds
Total time for reading image metadata: 0.0003 seconds
Total time for cleanup: 0.0001 seconds
10.120.121.254 - - [12/Jan/2025 18:00:50] "POST /coordinates HTTP/1.1" 200 -
Total time for Authentication token: 0.0002 seconds
Total time for parsing JSON data: 3.0992 seconds
Total time for decoding: 0.0025 seconds
Total time for writing image to disk: 0.0022 seconds
Total time for inference: 0.5611 seconds
Total time for reading image metadata: 0.0004 seconds
Total time for cleanup: 0.0004 seconds
10.120.121.254 - - [12/Jan/2025 18:01:34] "POST /coordinates HTTP/1.1" 200 -
Total time for Authentication token: 0.0003 seconds
Total time for parsing JSON data: 3.0707 seconds
Total time for decoding: 0.0025 seconds
Total time for writing image to disk: 0.0017 seconds
Total time for inference: 0.5595 seconds
Total time for reading image metadata: 0.0004 seconds
Total time for cleanup: 0.0004 seconds
10.120.121.254 - - [12/Jan/2025 18:01:39] "POST /coordinates HTTP/1.1" 200 -
^C(myenv) root@C.15893116:~/api$
[ssh_tmux]0:bash*
  
```

"root@C.15893116: ~/ap" 18:02 12-Jan-25

- Scalability and distributed test execution
- Expand the Selenium library
- Support more actions and target frameworks



Home Save Run

☐ Use visual editor

```

1  warcraft {
2    visit "https://worldofwarcraft.blizzard.com/"
3    check if button with description "subscribe today" is displayed
4    click button with description "learn more"
5    click button with description "subscribe"
6    check if text with description "select a product " is displayed
7    click image with description "battle net logo in the top left"
8    check if text with description "Recommended" is displayed
9  }
10 }
11 overwatch {
12   visit "https://blizzard.com"
13   click link with description "overwatch tab on the top left"
14   click link with description "overwatch 2 in the dropdown"
15   check if text with description "A FUTURE WORTH FIGHTING FOR" is displayed
16   click button with description "search icon in the top right"
17   type "Weatheurs" on input with description "Player Profiles"
18   click button with description "account"
19   click button with description "login"
20   type "email" on input with description "email field"
21   type "password" on input with description "password field"
22   check if button with description "login button" is displayed
23   click button with description "login button"
24 }
  
```

Filter... View

Duration ↑↓	Ran At ↑↓	Passed ↑↓	
113724ms	13/01/2025, 17:18:16	Passed	Rerun
161884ms	13/01/2025, 16:56:37	Failed	Rerun
58173ms	13/01/2025, 16:57:57	Failed	Rerun
53141ms	13/01/2025, 16:59:03	Failed	Rerun
84247ms	13/01/2025, 17:00:23	Failed	Rerun
79347ms	13/01/2025, 17:01:58	Failed	Rerun
44287ms	13/01/2025, 17:05:48	Failed	Rerun
137148ms	13/01/2025, 17:08:49	Failed	Rerun

Logs

- ☒ **warcraft**
 - ☒ button with description "subscribe today" should be displayed
 - ☒ text with description "select a product " should be displayed
 - ☒ text with description "Recommended" should be displayed
- ☒ **overwatch**
 - ☒ text with description "A FUTURE WORTH FIGHTING FOR" should be displayed