

Pruebas con VS sin Headless

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Pruebas con webdriver sin Headless

A continuación, las 5 pruebas más representativas realizadas con Webdriver sin headless

The screenshot shows a Windows desktop environment. In the background, a web browser window is open at the URL <https://losestudiantes.co>. A task manager window is open in the foreground, displaying a list of running applications and their resource usage. The task manager window has tabs for 'Procesos', 'Rendimiento', 'Historial de aplicaciones', 'Inicio', 'Usuarios', 'Detalles', and 'Servicios'. The 'Procesos' tab is selected, showing a list of applications with columns for 'Nombre', 'CPU', 'Memoria', 'Disco', and 'Red'. The applications listed include 'Explorador de Windows (2)', 'Google Chrome', 'Microsoft Word', 'Procesador de comandos de Windows', 'Task Manager', and 'Visual Studio Code'. The 'Google Chrome' process is highlighted. Below the task manager window, a document is visible with the heading 'Bienvenido' and a list of three points. The taskbar at the bottom shows several open applications, including 'C:\Prueba...', 'C:\Users\E...', 'Símbolo d...', 'wdio.conf...', 'Administr...', 'Pruebas C...', and 'Los Estudi...'. The system clock in the bottom right corner shows the date '12/11/2017' and the time '21:18'.

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	52% CPU	34% Memoria	31% Disco	0% Red
Aplicaciones (7)				
Explorador de Windows (2)	0,3%	53,1 MB	0 MB/s	0 Mbps
Google Chrome	6,2%	19,1 MB	0,6 MB/s	0,1 Mbps
Microsoft Word	0,2%	105,7 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,5 MB	0 MB/s	0 Mbps
Task Manager	1,0%	24,8 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	23,6 MB	0 MB/s	0 Mbps
Procesos en segundo plano (108)				
64-bit Synaptics Pointing Enhance Service	0%	0,5 MB	0 MB/s	0 Mbps
Adobe Acrobat Update Service (32 bits)	0%	0,4 MB	0 MB/s	0 Mbps
Aislamiento de gráficos de dispositivo de audio de Windows	0%	7,0 MB	0 MB/s	0 Mbps
AMD External Events Client Module	0%	1,0 MB	0 MB/s	0 Mbps
AMD External Events Service Module	0%	0,5 MB	0 MB/s	0 Mbps

Menos detalles Finalizar tarea

Bienvenido

Este proyecto es una iniciativa...

Con el proyecto se tienen 3 pro...

1. Darle a los estudiantes un...
2. Facilitarle a los profesores...
3. Hacer que las universidades...

Procesando la solicitud...

C:\Prueba... C:\Users\E... Símbolo d... Símbolo d... wdio.conf... Administr... Pruebas C... Los Estudi...

ESP 21:18 LAA 12/11/2017

data: No seguro | data:

Un software de prueba automatizado está controlando Chrome.

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	63% CPU	34% Memoria	12% Disco	0% Red
Aplicaciones (7)				
Explorador de Windows (2)	2,2%	54,0 MB	0 MB/s	0 Mbps
Google Chrome	14,1%	16,7 MB	0,3 MB/s	0 Mbps
Microsoft Word	0%	84,4 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,5 MB	0 MB/s	0 Mbps
Task Manager	4,0%	24,7 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	23,6 MB	0 MB/s	0 Mbps
Procesos en segundo plano (109)				
64-bit Synaptics Pointing Enhance Service	0%	0,5 MB	0 MB/s	0 Mbps
Adobe Acrobat Update Service (32 bits)	0%	0,4 MB	0 MB/s	0 Mbps
Aislamiento de gráficos de dispositivo de audio de Windows	0%	7,0 MB	0 MB/s	0 Mbps
AMD External Events Client Module	0%	1,0 MB	0 MB/s	0 Mbps
AMD External Events Service Module	0%	0,5 MB	0 MB/s	0 Mbps

Finalizar tarea

Los Estudiantes | Empe... X

Seguro | https://losestudiantes.co

Los Estudiantes

Busca Un Profesor O Materia

CREA UNA NUEVA CUENTA

Nombre

Apellido

Correo

Universidad de los Andes

Selecciona tu departamento...

Contraseña

☐ Acepto los términos y condiciones y la de privacidad.

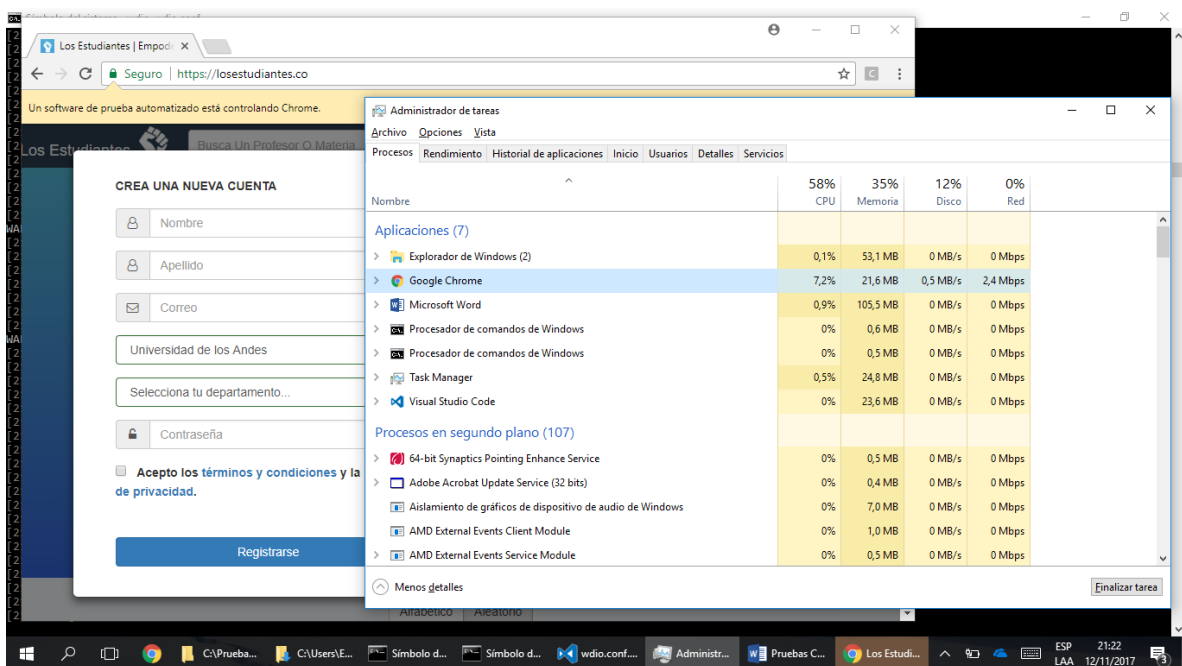
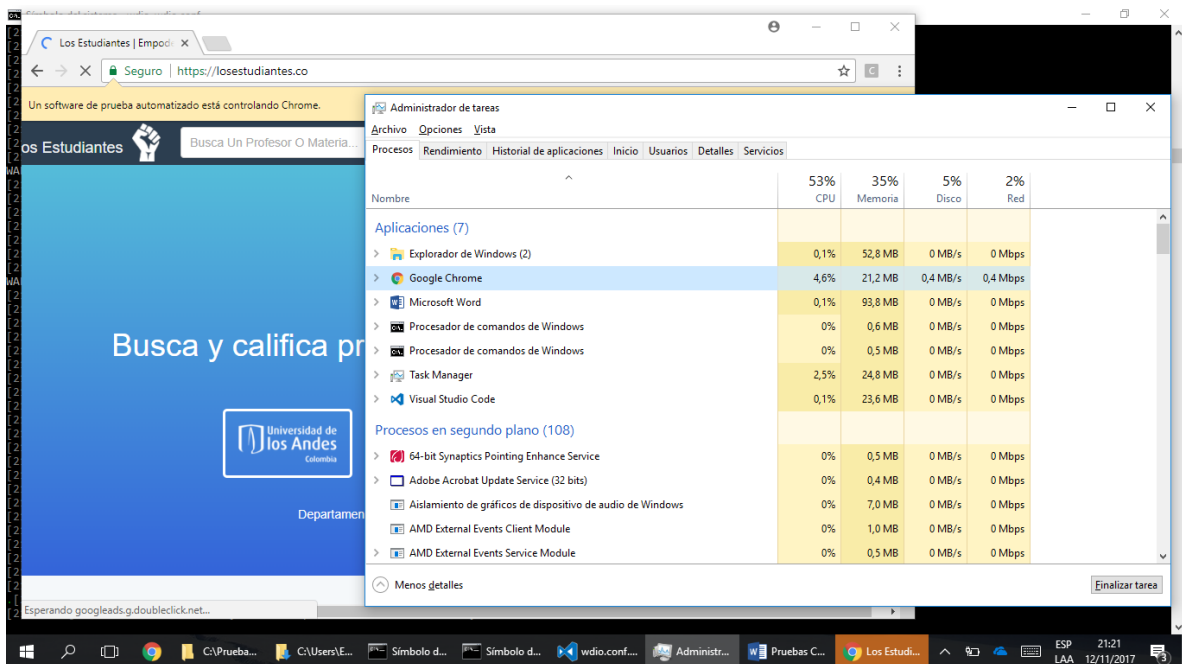
Registrarse

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	59% CPU	35% Memoria	7% Disco	1% Red
Aplicaciones (7)				
Explorador de Windows (2)	0%	52,8 MB	0 MB/s	0 Mbps
Google Chrome	7,0%	20,6 MB	0,4 MB/s	4,4 Mbps
Microsoft Word	0,1%	76,3 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,5 MB	0 MB/s	0 Mbps
Task Manager	0,8%	24,8 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	23,6 MB	0 MB/s	0 Mbps
Procesos en segundo plano (107)				
64-bit Synaptics Pointing Enhance Service	0%	0,5 MB	0 MB/s	0 Mbps
Adobe Acrobat Update Service (32 bits)	0%	0,4 MB	0 MB/s	0 Mbps
Aislamiento de gráficos de dispositivo de audio de Windows	0%	7,0 MB	0 MB/s	0 Mbps
AMD External Events Client Module	0%	1,0 MB	0 MB/s	0 Mbps
AMD External Events Service Module	0%	0,5 MB	0 MB/s	0 Mbps

Finalizar tarea

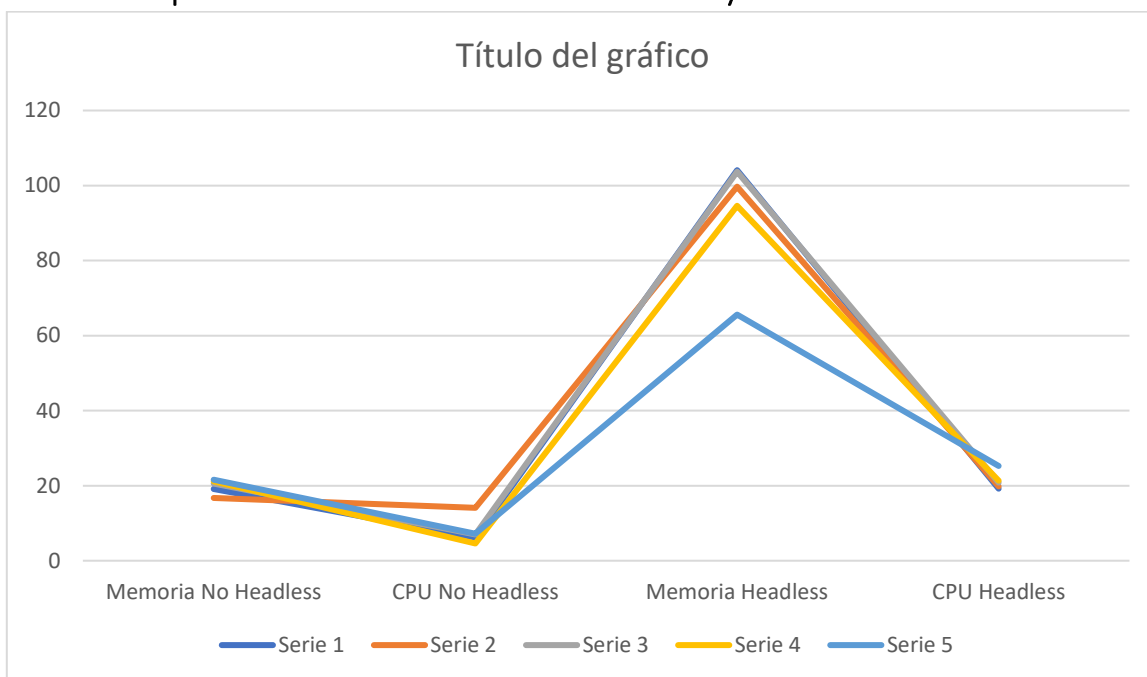


Al momento de iniciar la ejecución de estas pruebas no se tiene ningún navegador abierto. El navegador Google Chrome es levantado por webdriver y se toman screenshots del uso de los recursos realizado.

Pruebas con webdriver en modo Headless

The screenshot shows two windows side-by-side. The left window is a terminal running Selenium WebDriver commands. It shows a warning about the deprecated "keys" command, followed by several POST requests to "/wd/hub/session/4f4bF48a27a34663a03ec222a4293fa5/keys". The right window is the Windows Task Manager application, specifically the Performance tab. It displays various system metrics: CPU at 1.0%, Memory at 5.0 MB, Disk at 0 MB/s, and Network at 0 Mbps. Below these are detailed views for each resource, listing processes like chromedriver, COM Surrogate, Commons Daemon Service Runner, Configuración, CyberLink YouCam Service, Device Association Framework Provider Host, Dropbox Service, eBAP Core Process module, Fusion Utility Service, Google Chrome, HD Audio Background Process, and HP CoolSense.

Grafica comparativa de recursos con Webdriver con y sin Headless



Pruebas con Protractor sin Headless

The screenshot shows a web browser window with the URL `localhost:49152/dashboard`. The page displays the "Tour of Heroes" application with a "Dashboard" tab selected. A message at the top states: "Un software de prueba automatizado está controlando Chrome." The "Hero Search" section is visible. Overlaid on the browser is the Windows Task Manager window, showing the "Procesos" (Processes) tab. The table lists running applications and their resource usage.

Nombre	CPU	Memoria	Disco	Red
Aplicaciones (7)				
Explorador de Windows (2)	0,3%	53,9 MB	0 MB/s	0 Mbps
Google Chrome	5,3%	19,7 MB	0,1 MB/s	0 Mbps
Microsoft Word	0%	82,8 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Task Manager	0,7%	25,7 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	24,9 MB	0 MB/s	0 Mbps
Procesos en segundo plano (102)				
64-bit Synaptics Pointing Enhance Service	0%	0,5 MB	0 MB/s	0 Mbps
Adobe Acrobat Update Service (32 bits)	0%	0,4 MB	0 MB/s	0 Mbps
AMD External Events Client Module	0%	1,0 MB	0 MB/s	0 Mbps
AMD External Events Service Module	0%	0,5 MB	0 MB/s	0 Mbps
Aplicación de subsistema de cola	0%	1,9 MB	0 MB/s	0 Mbps

The screenshot shows the same web browser window, but the "Heroes" tab is now selected, displaying the "Top Heroes" section. The "Hero Search" section remains. The Windows Task Manager window is still overlaid, showing the same list of processes.

Nombre	CPU	Memoria	Disco	Red
Aplicaciones (7)				
Explorador de Windows (2)	0,1%	52,1 MB	0 MB/s	0 Mbps
Google Chrome	5,6%	19,8 MB	0,1 MB/s	0 Mbps
Microsoft Word	0%	111,8 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,5 MB	0 MB/s	0 Mbps
Task Manager	0,8%	25,7 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	24,9 MB	0 MB/s	0 Mbps

TourOfHeroes

localhost:49152/heroes

Un software de prueba automatizado está controlando Chrome.

Tour of Heroes

Dashboard Heroes

My Heroes

Hero name: Add

- 0 Zero
- 11 Mr. Nice
- 12 Narco
- 13 Bombasto
- 14 Celeritas
- 15 Magneta
- 16 RubberMan
- 17 Dynama

localhost:49152/heroes

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	35% CPU	46% Memoria	2% Disco	0% Red
Aplicaciones (7)				
Explorador de Windows (2)	0,3%	52,0 MB	0 MB/s	0 Mbps
Google Chrome	2,2%	19,3 MB	0,4 MB/s	0 Mbps
Microsoft Word	0%	79,7 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,5 MB	0 MB/s	0 Mbps
Task Manager	0,4%	25,7 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	24,9 MB	0 MB/s	0 Mbps

Menos detalles Finalizar tarea

TourOfHeroes

localhost:49152/heroes

Un software de prueba automatizado está controlando Chrome.

My Heroes

Hero name: Add

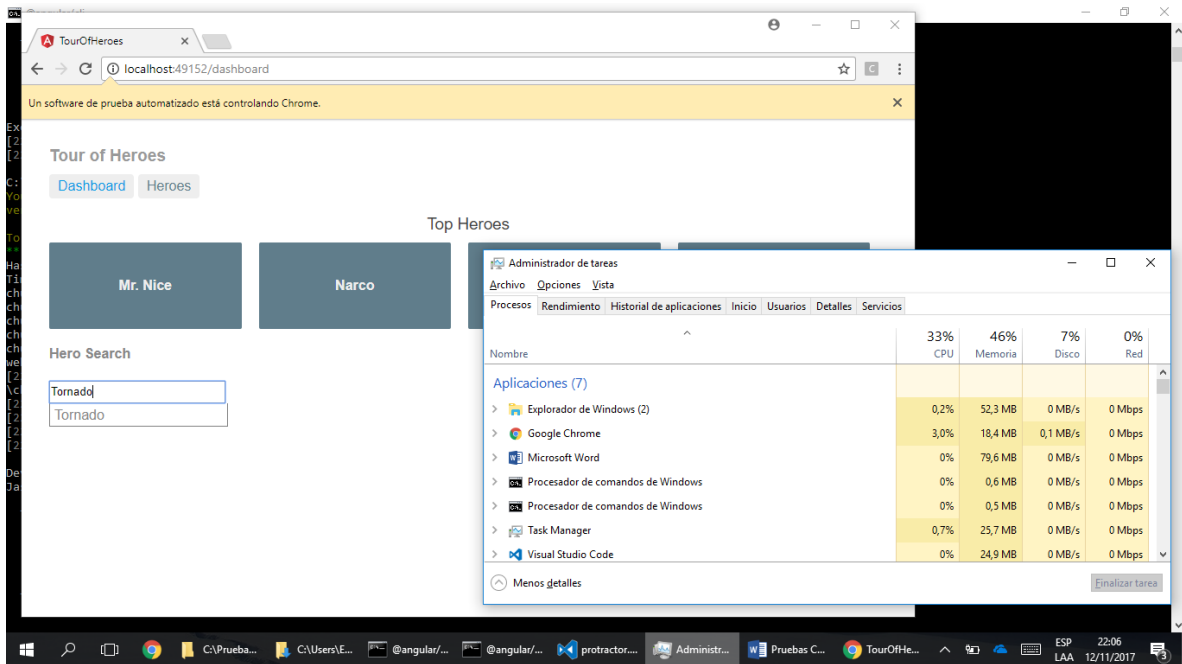
- 0 Zero
- 11 Mr. Nice
- 12 Narco
- 13 Bombasto
- 14 Celeritas
- 15 Magneta
- 16 RubberMan
- 17 Dynama
- 18 Dr IQ
- 19 Magma
- 20 Tornado

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	31% CPU	46% Memoria	4% Disco	0% Red
Aplicaciones (7)				
Explorador de Windows (2)	0,2%	52,0 MB	0 MB/s	0 Mbps
Google Chrome	3,2%	18,7 MB	0,1 MB/s	0 Mbps
Microsoft Word	0%	108,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,5 MB	0 MB/s	0 Mbps
Task Manager	0,3%	25,7 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	24,9 MB	0,1 MB/s	0 Mbps

Menos detalles Finalizar tarea



Realizando pruebas con Protractor en modo no Headless podemos observar que el consumo de recursos es generalmente bajo: 3% y 5% aproximadamente de CPU y 18 a 19 MB de Memoria

Pruebas con Protractor en modo Headless

The screenshot shows a Windows desktop with a terminal window and the Windows Task Manager. The terminal window displays the output of a Protractor test run for a 'Tour of heroes' application. The test passes all 8 specs in 20 seconds. The Task Manager window shows the running processes, including Chrome instances used for the tests.

Terminal Output:

```
Tour of heroes, heroes page
  ✓ should add a new hero
[1112/221020.518:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)
  ✓ should search an hero (DP1)
  ✓ should delete an hero (DP2)
  ✓ should navigate to an hero (DP5)

Executed 8 of 8 specs SUCCESS in 20 secs.
[22:10:35] I/launcher - 0 instance(s) of WebDriver still running
[22:10:35] I/launcher - chrome #01 passed

C:\Pruebas_automaticas\Taller2\Protractor\tour-of-heroes>ng e2e
Your global Angular CLI version (1.3.2) is greater than your local
version (1.2.6). The local Angular CLI version is used.

To disable this warning use "ng set --global warnings.versionMismatch=false".
** No live Development Server is listening on localhost:49152, open your browser on http://localhost:49152 **
Hash: dff1af93a9b1a69a1325
Time: 41522ms
chunk (0) polyfills.bundle.js, polyfills.bundle.js.map (polyfills) 177 kB [4] [initial] [rendered]
chunk (1) main.bundle.js, main.bundle.js.map (main) 28.4 kB [3] [initial] [rendered]
chunk (2) styles.bundle.js, styles.bundle.js.map (styles) 10.8 kB [4] [initial] [rendered]
chunk (3) vendor.bundle.js, vendor.bundle.js.map (vendor) 2.85 MB [initial] [rendered]
chunk (4) inline.bundle.js, inline.bundle.js.map (inline) 0 bytes [entry] [rendered]
webpack: Compiled successfully.
[22:11:43] I/update - chromedriver: file exists C:\Pruebas_automaticas\Taller2\Protractor\tour-of-heroes\node_modules\protractor\node_modules\webdriver-manager\selenium\chromedriver_2.33.zip
[22:11:43] I/update - chromedriver: unzipping chromedriver_2.33.zip
[22:11:45] I/update - chromedriver: chromedriver_2.33.exe up to date
[22:11:45] I/launcher - Running 1 instances of WebDriver
[22:11:45] I/direct - Using ChromeDriver directly...

DevTools listening on ws://127.0.0.1:12970/devtools/browser/32000071-
Jasmine started
[1112/221151.231:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)

Tour of heroes Dashboard
  ✓ should display top 4 heroes
  ✓ should navigate to heroes
[1112/221155.133:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)
  ✓ should edit an hero (DP3)
  ✓ should navigate to an hero (DP4)

Tour of heroes, heroes page
  ✓ should add a new hero
[1112/221403.768:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)
  ✓ should search an hero (DP1)
  ✓ should delete an hero (DP2)
  ✓ should navigate to an hero (DP5)

Executed 8 of 8 specs SUCCESS in 20 secs.
```

Task Manager Processes:

Nombre	CPU	Memoria	Disco	Red
Dropbox Service	0%	0.4 MB	0 MB/s	0 Mbps
eEBAPI Core Process module (32 bits)	0%	1.0 MB	0 MB/s	0 Mbps
Fusion Utility Service	0%	0.7 MB	0 MB/s	0 Mbps
Google Chrome	13.0%	84.5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.4 MB	0 MB/s	0 Mbps
Google Chrome	1.1%	11.6 MB	0 MB/s	0 Mbps
HD Audio Background Process	0%	1.0 MB	0 MB/s	0 Mbps

The screenshot shows a Windows desktop with a terminal window and the Windows Task Manager. The terminal window displays the output of a Protractor test run for a 'Tour of heroes' application. The test passes all 8 specs in 20 seconds. The Task Manager window shows the running processes, including Chrome instances used for the tests.

Terminal Output:

```
Tour of heroes, heroes page
  ✓ should add a new hero
[1112/221020.518:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)
  ✓ should search an hero (DP1)
  ✓ should delete an hero (DP2)
  ✓ should navigate to an hero (DP5)

Executed 8 of 8 specs SUCCESS in 20 secs.
[22:10:35] I/launcher - 0 instance(s) of WebDriver still running
[22:10:35] I/launcher - chrome #01 passed

C:\Pruebas_automaticas\Taller2\Protractor\tour-of-heroes>ng e2e
Your global Angular CLI version (1.3.2) is greater than your local
version (1.2.6). The local Angular CLI version is used.

To disable this warning use "ng set --global warnings.versionMismatch=false".
** No live Development Server is listening on localhost:49152, open your browser on http://localhost:49152 **
Hash: dff1af93a9b1a69a1325
Time: 43038ms
chunk (0) polyfills.bundle.js, polyfills.bundle.js.map (polyfills) 177 kB [4] [initial] [rendered]
chunk (1) main.bundle.js, main.bundle.js.map (main) 28.4 kB [3] [initial] [rendered]
chunk (2) styles.bundle.js, styles.bundle.js.map (styles) 10.8 kB [4] [initial] [rendered]
chunk (3) vendor.bundle.js, vendor.bundle.js.map (vendor) 2.85 MB [initial] [rendered]
chunk (4) inline.bundle.js, inline.bundle.js.map (inline) 0 bytes [entry] [rendered]
webpack: Compiled successfully.
[22:13:44] I/update - chromedriver: file exists C:\Pruebas_automaticas\Taller2\Protractor\tour-of-heroes\node_modules\protractor\node_modules\webdriver-manager\selenium\chromedriver_2.33.zip
[22:13:44] I/update - chromedriver: unzipping chromedriver_2.33.zip
[22:13:46] I/update - chromedriver: chromedriver_2.33.exe up to date
[22:13:46] I/launcher - Running 1 instances of WebDriver
[22:13:46] I/direct - Using ChromeDriver directly...

DevTools listening on ws://127.0.0.1:12512/devtools/browser/e62a9e2c-
Jasmine started
[1112/221351.867:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)

Tour of heroes Dashboard
  ✓ should display top 4 heroes
  ✓ should navigate to heroes
[1112/221355.780:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)
  ✓ should edit an hero (DP3)
  ✓ should navigate to an hero (DP4)

Tour of heroes, heroes page
  ✓ should add a new hero
[1112/221403.768:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152/vendor.bundle.js (51218)
  ✓ should search an hero (DP1)
  ✓ should delete an hero (DP2)
  ✓ should navigate to an hero (DP5)

Executed 8 of 8 specs SUCCESS in 20 secs.
```

Task Manager Processes:

Nombre	CPU	Memoria	Disco	Red
Dropbox Service	0%	0.4 MB	0 MB/s	0 Mbps
eEBAPI Core Process module (32 bits)	0%	1.0 MB	0 MB/s	0 Mbps
Fusion Utility Service	0%	0.7 MB	0 MB/s	0 Mbps
Google Chrome	7.5%	91.1 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.4 MB	0 MB/s	0 Mbps
Google Chrome	2.1%	12.0 MB	0 MB/s	0 Mbps
HD Audio Background Process	0%	1.0 MB	0 MB/s	0 Mbps

@angular/cli

```
✓ should delete an hero (DP2)
✓ should navigate to an hero (DP5)

Executed 8 of 8 specs SUCCESS in 20 secs.
[22:15:54] I/launcher - 0 instance(s) of WebDriver still running
[22:15:54] I/launcher - chrome #01 passed

C:\Pruebas_automaticas\Taller2\Protractor\tour-of-heroes>ng e2e
Your global Angular CLI version (1.3.2) is greater than your local
version (1.2.6). The local Angular CLI version is used.

To disable this warning use "ng set --global.warnings.versionMismatch=false".
** Ng Live Development Server is listening on localhost:49152, open your browser on http://localhost:49152 **
Hash: dff1af93a9b1a69a1325
Time: 41834ms
chunk (0) polyfills.bundle.js, polyfills.bundle.js.map (polyfills) 177 kB {4} [initial] [rendered]
chunk (1) main.bundle.js, main.bundle.js.map (main) 28.4 kB {3} [initial] [rendered]
chunk (2) styles.bundle.js, styles.bundle.js.map (styles) 10.8 kB [initial] [rendered]
chunk (3) vendor.bundle.js, vendor.bundle.js.map (vendor) 2.85 MB [initial] [rendered]
chunk (4) inline.bundle.js, inline.bundle.js.map (inline) 0 bytes [initial] [rendered]
webpack: Compiled successfully.
[22:17:24] I/update - chromedriver: file exists C:\Pruebas_automaticas\chromedriver_2.33.zip
[22:17:24] I/update - chromedriver: unzipping chromedriver_2.33.zip
[22:17:25] I/update - chromedriver: chromedriver_2.33.exe up to date
[22:17:25] I/launcher - Running 1 instances of WebDriver
[22:17:25] I/direct - Using ChromeDriver directly...

DevTools listening on ws://127.0.0.1:12367/devtools/browser/105990e1-1-
Jasmine started
[1112/221731.592:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152
/vendor.bundle.js (51218)

Tour of heroes Dashboard
✓ should display top 4 heroes
✓ should navigate to heroes
[1112/221735.484:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152
/vendor.bundle.js (51218)
✓ should edit an hero (DP3)
[1112/221738.055:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152
/vendor.bundle.js (51218)
✓ should navigate to an hero (DP4)
```

Administrador de tareas

Nombre	CPU	Memoria	Disco	Red
Dropbox Service	0%	0.4 MB	0 MB/s	0 Mbps
eBAP Core Process module (32 bits)	0%	1.0 MB	0 MB/s	0 Mbps
Fusion Utility Service	0%	0.7 MB	0 MB/s	0 Mbps
Google Chrome	6.4%	86.9 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.4 MB	0 MB/s	0 Mbps
Google Chrome	1.6%	11.7 MB	0 MB/s	0 Mbps
HD Audio Background Process	0%	1.0 MB	0 MB/s	0 Mbps

@angular/cli

```
/vendor.bundle.js (51218)
✓ should navigate to an hero (DP4)

Tour of heroes, heroes page
✓ should see a new hero
[1112/221743.398:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152
/vendor.bundle.js (51218)
✓ should search an hero (DP1)
✓ should delete an hero (DP2)
✓ should navigate to an hero (DP5)

Executed 8 of 8 specs SUCCESS in 20 secs.
[22:17:49] I/launcher - 0 instance(s) of WebDriver still running
[22:17:49] I/launcher - chrome #01 passed

C:\Pruebas_automaticas\Taller2\Protractor\tour-of-heroes>ng e2e
Your global Angular CLI version (1.3.2) is greater than your local
version (1.2.6). The local Angular CLI version is used.

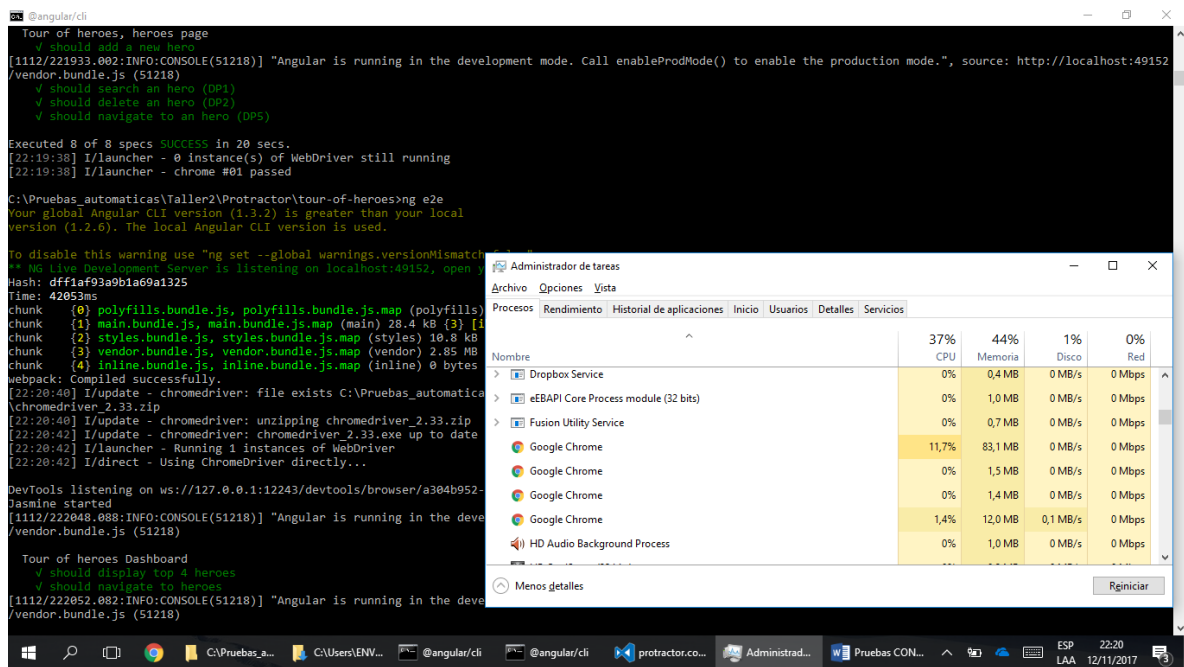
To disable this warning use "ng set --global.warnings.versionMismatch=false".
** Ng Live Development Server is listening on localhost:49152, open your browser on http://localhost:49152 **
Hash: dff1af93a9b1a69a1325
Time: 44194ms
chunk (0) polyfills.bundle.js, polyfills.bundle.js.map (polyfills) 177 kB {4} [initial] [rendered]
chunk (1) main.bundle.js, main.bundle.js.map (main) 28.4 kB {3} [initial] [rendered]
chunk (2) styles.bundle.js, styles.bundle.js.map (styles) 10.8 kB [initial] [rendered]
chunk (3) vendor.bundle.js, vendor.bundle.js.map (vendor) 2.85 MB [initial] [rendered]
chunk (4) inline.bundle.js, inline.bundle.js.map (inline) 0 bytes [initial] [rendered]
webpack: Compiled successfully.
[22:19:12] I/update - chromedriver: file exists C:\Pruebas_automaticas\chromedriver_2.33.zip
[22:19:12] I/update - chromedriver: unzipping chromedriver_2.33.zip
[22:19:14] I/update - chromedriver: chromedriver_2.33.exe up to date
[22:19:14] I/launcher - Running 1 instances of WebDriver
[22:19:14] I/direct - Using ChromeDriver directly...

DevTools listening on ws://127.0.0.1:12292/devtools/browser/2de96d31-1-
Jasmine started
[1112/221920.445:INFO:CONSOLE(51218)] "Angular is running in the development mode. Call enableProdMode() to enable the production mode.", source: http://localhost:49152
/vendor.bundle.js (51218)

Tour of heroes Dashboard
✓ should display top 4 heroes
```

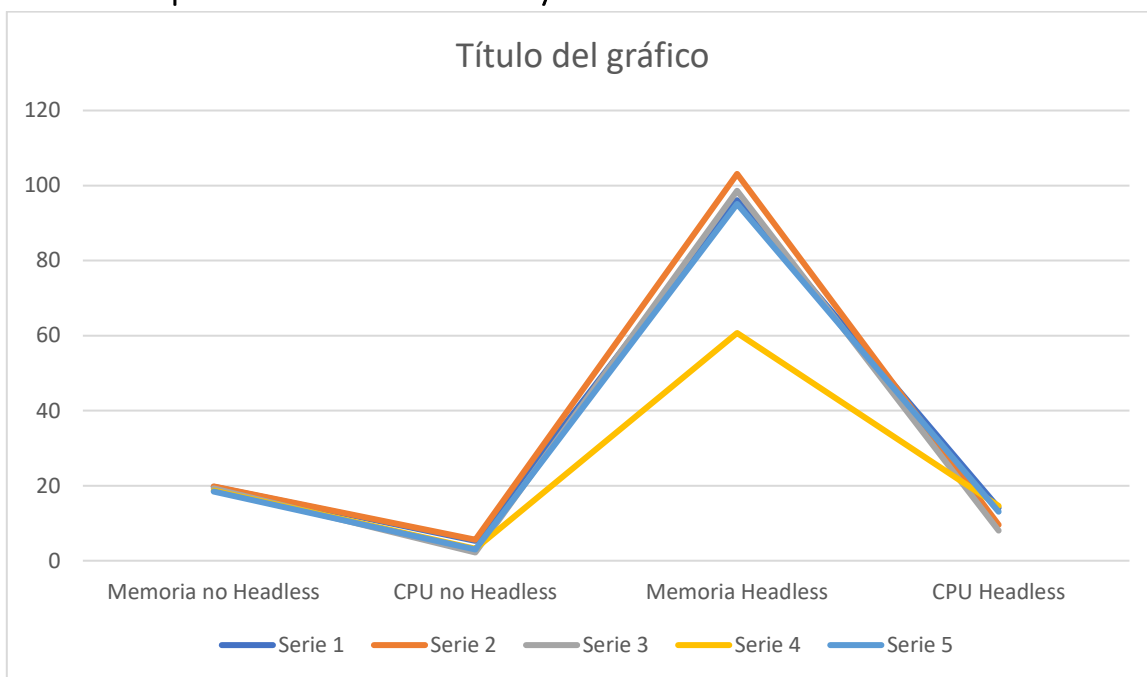
Administrador de tareas

Nombre	CPU	Memoria	Disco	Red
Dropbox Service	0%	0.4 MB	0 MB/s	0 Mbps
eBAP Core Process module (32 bits)	0%	1.0 MB	0 MB/s	0 Mbps
Fusion Utility Service	0%	0.7 MB	0 MB/s	0 Mbps
Google Chrome	12.6%	49.0 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1.4 MB	0 MB/s	0 Mbps
Google Chrome	2.0%	11.7 MB	0.1 MB/s	0 Mbps
HD Audio Background Process	0%	1.0 MB	0 MB/s	0 Mbps



Al ejecutar las pruebas con Protractor en modo headless se identifica un mayor uso de recursos de CPU y Memoria respecto a las pruebas ejecutadas con interface gráfica.

Gráfica comparativa de Protractor con y sin Headless



Pruebas con NightWatch sin Headless

The screenshot shows the Los Estudiantes website in a Chrome browser. The website has a blue header with the text "Los Estudiantes" and a search bar containing "Rubby". Below the header, there is a large blue banner with the text "Busca y califica profesores" and a logo of the University of the Andes. The Task Manager window is open, showing the following data:

Nombre	CPU	Memoria	Disco	Red
Aplicaciones (7)				
Explorador de Windows (2)	0,6%	53,4 MB	0 MB/s	0 Mbps
Google Chrome	2,6%	19,2 MB	0,3 MB/s	0 Mbps
Microsoft Word	0%	108,1 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,7 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Task Manager	0,9%	25,9 MB	0 MB/s	0 Mbps
Visual Studio Code	0,3%	25,0 MB	0 MB/s	0 Mbps

The screenshot shows the Los Estudiantes website with the login and registration forms open. The login form is titled "LOG IN" and has a text input field for the email address, which contains "wrongemail@example.com". The registration form is titled "CREA UNA NUEVA CUENTA" and has several input fields: "Nombre", "Apellido", "Correo", "Universidad de los Andes" (with a dropdown arrow), "Selecciona tu departamento..." (with a dropdown arrow), and "Contraseña". There is also a checkbox for "Acepto los términos y condiciones y la política de privacidad." and a "Registrarse" button. The Task Manager window is also open, showing the following data:

Nombre	CPU	Memoria	Disco	Red
Aplicaciones (7)				
Explorador de Windows (2)	0,4%	53,4 MB	0 MB/s	0 Mbps
Google Chrome	4,1%	21,0 MB	0,3 MB/s	0,7 Mbps
Microsoft Word	0,2%	114,8 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,7 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Task Manager	0,9%	25,9 MB	0 MB/s	0 Mbps
Visual Studio Code	0%	24,9 MB	0 MB/s	0 Mbps

Los Estudiantes | Empod... X

Seguro | https://losestudiantes.co

Un software de prueba automatizado está controlando Chrome.

Los Estudiantes

Rubby

Profesores

Rubby Casallas Gutierrez - Ingenieria De Sistemas

Ingresar

Busca y califica profesores

Selecciona tu universidad

Universidad de los Andes

Departamento: Ingeniería de S

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	36% CPU	38% Memoria	13% Disco	0% Red
Aplicaciones (7)				
Explorador de Windows (2)	0,4%	53,4 MB	0 MB/s	0 Mbps
Google Chrome	1,5%	20,8 MB	0,2 MB/s	0 Mbps
Microsoft Word	0,2%	115,6 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,7 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Task Manager	0,9%	25,9 MB	0 MB/s	0 Mbps
Visual Studio Code	0,1%	24,9 MB	0,1 MB/s	0 Mbps

Página 13 de 13 235 palabras Español (Colombia)

Rubby Casallas Gutierrez X

Seguro | https://losestudiantes.co/universidad-de-los-andes/ingenieria-de-sistemas/profesores/rubby-casallas-gutierrez

Un software de prueba automatizado está controlando Chrome.

Los Estudiantes

Busca Un Profesor O Materia...

Ingresar

Déjale saber al mundo lo que piensas de esta profesora

Profesores de Ingeniería de Sistemas:

Rubby Casallas Gutierrez

Ingeniería de Sistemas

Universidad de los Andes

Promedio 1.5 Nota promedio 4.2 Calificaciones 14

50.00% de los estudiantes la aprueban

Ver estadísticas

Califica a esta profesora

De acuerdo 17

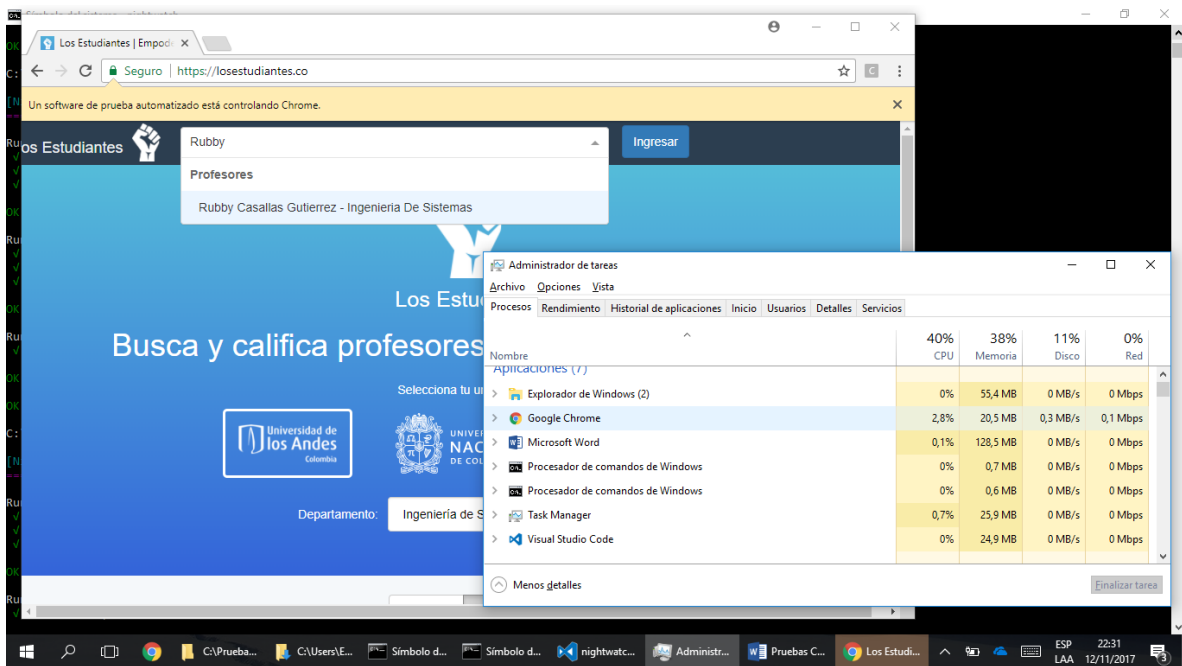
Comentarios (0)

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	63% CPU	37% Memoria	30% Disco	0% Red
Aplicaciones (7)				
Explorador de Windows (2)	0%	53,4 MB	0 MB/s	0 Mbps
Google Chrome	3,9%	20,7 MB	0,2 MB/s	1,2 Mbps
Microsoft Word	0%	109,0 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,7 MB	0 MB/s	0 Mbps
Procesador de comandos de Windows	0%	0,6 MB	0 MB/s	0 Mbps
Task Manager	0,5%	25,9 MB	0 MB/s	0 Mbps
Visual Studio Code	0,4%	24,9 MB	0 MB/s	0 Mbps

22:28 ESP LAA 12/11/2017



El consumo de recursos observado en modo no headless es relativamente bajo

Pruebas con NightWatch en modo Headless

The image displays two screenshots of a Windows desktop environment, showing the execution of NightWatch tests in headless mode. The background is a black terminal window with green and white text, and a white Task Manager window is overlaid on top.

Terminal Window (NightWatch Test Suite):

Running: **Los estudiantes login failed**

- ✓ Element <.botonIngresar> was visible after 275 milliseconds.
- ✓ Element <.aviso.alert.alert-danger> was visible after 746 milliseconds.

Running: **Find a Professor**

- ✓ Element <input> was visible after 283 milliseconds.
- ✓ Element <.Select-menu-outer> was visible after 168 milliseconds.

3 assertions passed. (11.942s)

Task Manager Window:

Nombre	CPU	Memoria	Disco	Red
eEBAPI Core Process module (32 bits)	0%	1,0 MB	0 MB/s	0 Mbps
Fusion Utility Service	0%	0,7 MB	0 MB/s	0 Mbps
Google Chrome	18,0%	64,5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,4 MB	0 MB/s	0 Mbps
Google Chrome	5,3%	13,5 MB	0,1 MB/s	0,2 Mbps
HD Audio Background Process	0%	1,0 MB	0 MB/s	0 Mbps
HP CoolSense (32 bits)	0%	0,3 MB	0 MB/s	0 Mbps

The Task Manager window shows the 'Procesos' (Processes) tab, displaying a list of running processes and their resource usage. The 'Google Chrome' process is highlighted, indicating it is the active application during the test execution.

Símbolo del sistema - nightwatch

```
C:\Pruebas_automaticas\Taller2\NightWatch>nightwatch

[Night] Test Suite
*****

Running: Los estudiantes login failed
✓ Element <.botonIngresar> was visible after 275 milliseconds.
✓ Element <.aviso.alert.alert-danger> was visible after 746 milliseconds.
✓ Testing if element <.aviso.alert.alert-danger> contains text: "El correo y la contraseña que ingresaste no figuran".

OK. 3 assertions passed. (11.942s)

Running: Find a Professor
✓ Element <input> was visible after 283 milliseconds.
✓ Element <.Select-menu-outer> was visible after 168 milliseconds.
✓ Testing if element <.nombreProfesor> contains text: "Rubby Casalla".

OK. 3 assertions passed. (18.724s)

Running: Navigate to Professor page
```

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	46% CPU	37% Memoria	11% Disco	3% Red
> eEBAPI Core Process module (32 bits)	0,1%	1,0 MB	0 MB/s	0 Mbps
> Fusion Utility Service	0%	0,7 MB	0 MB/s	0 Mbps
Google Chrome	18,2%	48,6 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,4 MB	0 MB/s	0 Mbps
Google Chrome	5,6%	12,8 MB	0,1 MB/s	3,6 Mbps
HD Audio Background Process	0%	1,0 MB	0 MB/s	0 Mbps
HP CoolSense (32 bits)	0,1%	0,3 MB	0 MB/s	0 Mbps

Menos detalles Finalizar tarea

Windows taskbar: C:\Pruebas_a..., C:\Users\ENV..., Símbolo del ..., nightwatch.j..., Administrad..., Pruebas CON..., ESP LAA 22:33 12/11/2017

Símbolo del sistema - nightwatch

```
C:\Pruebas_automaticas\Taller2\NightWatch>nightwatch

[Night] Test Suite
*****

Running: Los estudiantes login failed
✓ Element <.botonIngresar> was visible after 275 milliseconds.
✓ Element <.aviso.alert.alert-danger> was visible after 746 milliseconds.
✓ Testing if element <.aviso.alert.alert-danger> contains text: "El correo y la contraseña que ingresaste no figuran".

OK. 3 assertions passed. (11.942s)

Running: Find a Professor
✓ Element <input> was visible after 283 milliseconds.
✓ Element <.Select-menu-outer> was visible after 168 milliseconds.
✓ Testing if element <.nombreProfesor> contains text: "Rubby Casalla".

OK. 3 assertions passed. (18.724s)

Running: Navigate to Professor page
✓ Element <#sample_select> was visible after 271 milliseconds.

OK. 1 assertions passed. (9.297s)

OK. 7 total assertions passed. (40.43s)

C:\Pruebas_automaticas\Taller2\NightWatch>nightwatch

[Night] Test Suite
*****

Running: Los estudiantes login failed
✓ Element <.botonIngresar> was visible after 230 milliseconds.
```

Administrador de tareas

Procesos Rendimiento Historial de aplicaciones Inicio Usuarios Detalles Servicios

Nombre	47% CPU	37% Memoria	1% Disco	1% Red
> eEBAPI Core Process module (32 bits)	0%	1,0 MB	0 MB/s	0 Mbps
> Fusion Utility Service	0%	0,7 MB	0 MB/s	0 Mbps
Google Chrome	17,8%	63,3 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,4 MB	0 MB/s	0 Mbps
Google Chrome	4,8%	13,7 MB	0,1 MB/s	0,9 Mbps
HD Audio Background Process	0%	1,0 MB	0 MB/s	0 Mbps
HP CoolSense (32 bits)	0%	0,3 MB	0 MB/s	0 Mbps

Menos detalles Finalizar tarea

Windows taskbar: C:\Pruebas_a..., C:\Users\ENV..., Símbolo del ..., nightwatch.j..., Administrad..., Pruebas CON..., ESP LAA 22:34 12/11/2017

```
C:\Pruebas_automaticas\Taller2\NightWatch>nightwatch

[Night] Test Suite
*****

Running: Los estudiantes login failed
✓ Element <.botonIngresar> was visible after 275 milliseconds.
✓ Element <.aviso.alert.alert-danger> was visible after 746 milliseconds.
✓ Testing if element <.aviso.alert.alert-danger> contains text: "El correo y la contraseña que ingresaste no figuran".

OK. 3 assertions passed. (11.942s)

Running: Find a Professor
✓ Element <input> was visible after 283 milliseconds.
✓ Element <.Select-menu-outer> was visible after 168 milliseconds.
✓ Testing if element <.nombreProfesor> contains text: "Rubby Casalla".

OK. 3 assertions passed. (18.724s)

Running: Navigate to Professor page
✓ Element <#sample_select> was visible after 271 milliseconds.

OK. 1 assertions passed. (9.297s)

OK. 7 total assertions passed. (40.43s)

C:\Pruebas_automaticas\Taller2\NightWatch>nightwatch

[Night] Test Suite
*****

Running: Los estudiantes login failed
✓ Element <.botonIngresar> was visible after 230 milliseconds.
✓ Element <.aviso.alert.alert-danger> was visible after 785 milliseconds.
✓ Testing if element <.aviso.alert.alert-danger> contains text: "El

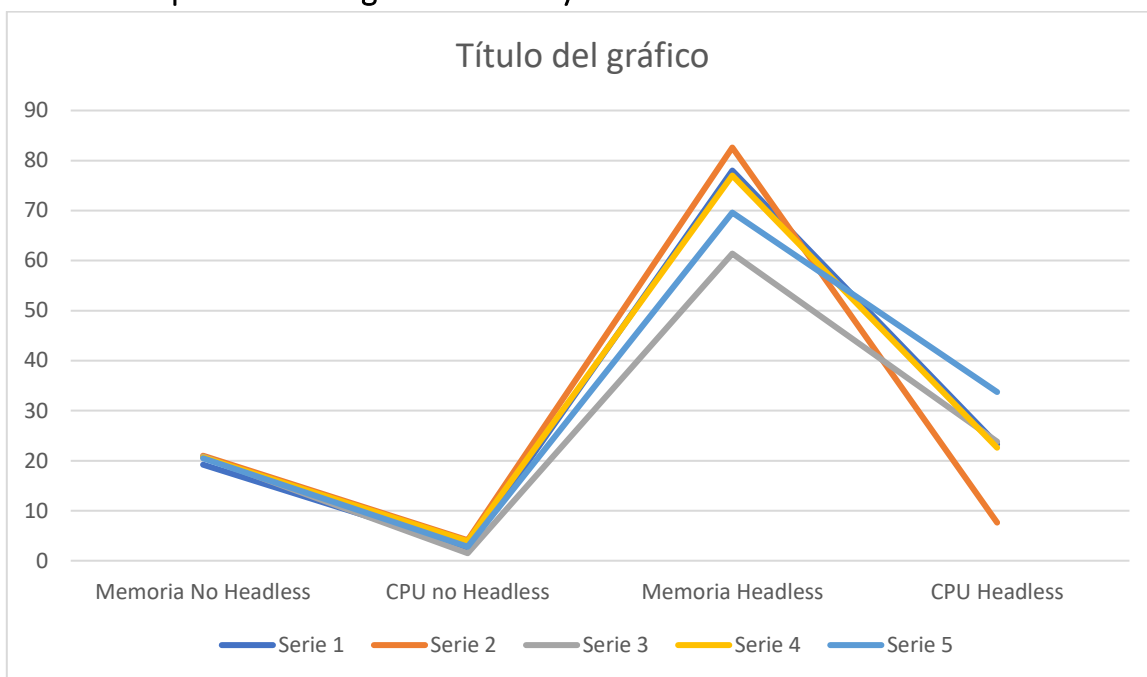
OK. 3 assertions passed. (11.816s)

Running: Find a Professor
✓ Element <input> was visible after 118 milliseconds.
```

Nombre	75% CPU	37% Memoria	2% Disco	1% Red
eEBAPI Core Process module (32 bits)	0%	1,0 MB	0 MB/s	0 Mbps
Fusion Utility Service	0%	0,7 MB	0 MB/s	0 Mbps
Google Chrome	23,4%	55,9 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,5 MB	0 MB/s	0 Mbps
Google Chrome	0%	1,4 MB	0 MB/s	0 Mbps
Google Chrome	10,3%	13,7 MB	0,1 MB/s	0 Mbps
HD Audio Background Process	0%	1,0 MB	0 MB/s	0 Mbps
HP CoolSense (32 bits)	0%	0,3 MB	0 MB/s	0 Mbps

Tras ejecutar las pruebas con NightWath en modo headless obtenemos la misma conclusión que con los demás frameworks: La ejecución de pruebas en modo headless presenta un mayor consumo de recursos respecto a la ejecución con interface gráfica, esto es contrario a lo esperado y viéndose principalmente afectado el uso de memoria que se incrementa hasta tres veces respecto a las pruebas con interfase gráfica.

Grafica comparativa de NightWatch con y sin Headless



Preguntas y Respuestas:

- ¿Qué tantos recursos se pueden ahorrar ejecutando las pruebas de manera headless?

RTA: Según lo evidenciado en las pruebas realizadas, el mayor recurso que se puede ahorrar realizando pruebas headless es el tiempo ya que la ejecución de las pruebas con esta modalidad requirió un menor tiempo en ejecución respecto a las pruebas de interface gráfica.

- ¿En qué casos cree que valdría la pena ejecutar sus pruebas de esta forma?

RTA: Considerando que las pruebas headless, así como las pruebas con interface gráfica pueden ser paralelizadas, el caso en que usaría pruebas headless sería en el que requiriera obtener solamente el resultado de la ejecución sin ver cómo estás son ejecutadas en el navegador. Esto usualmente ocurre cuando se realizan pruebas automáticas en integración continua para evidenciar que la aplicación cumple con los criterios de calidad establecidos y diseñados en las pruebas automáticas ejecutadas por el motor de CI como Jenkins, Travis o Codacy.