



# Selenium Web Browser Automation

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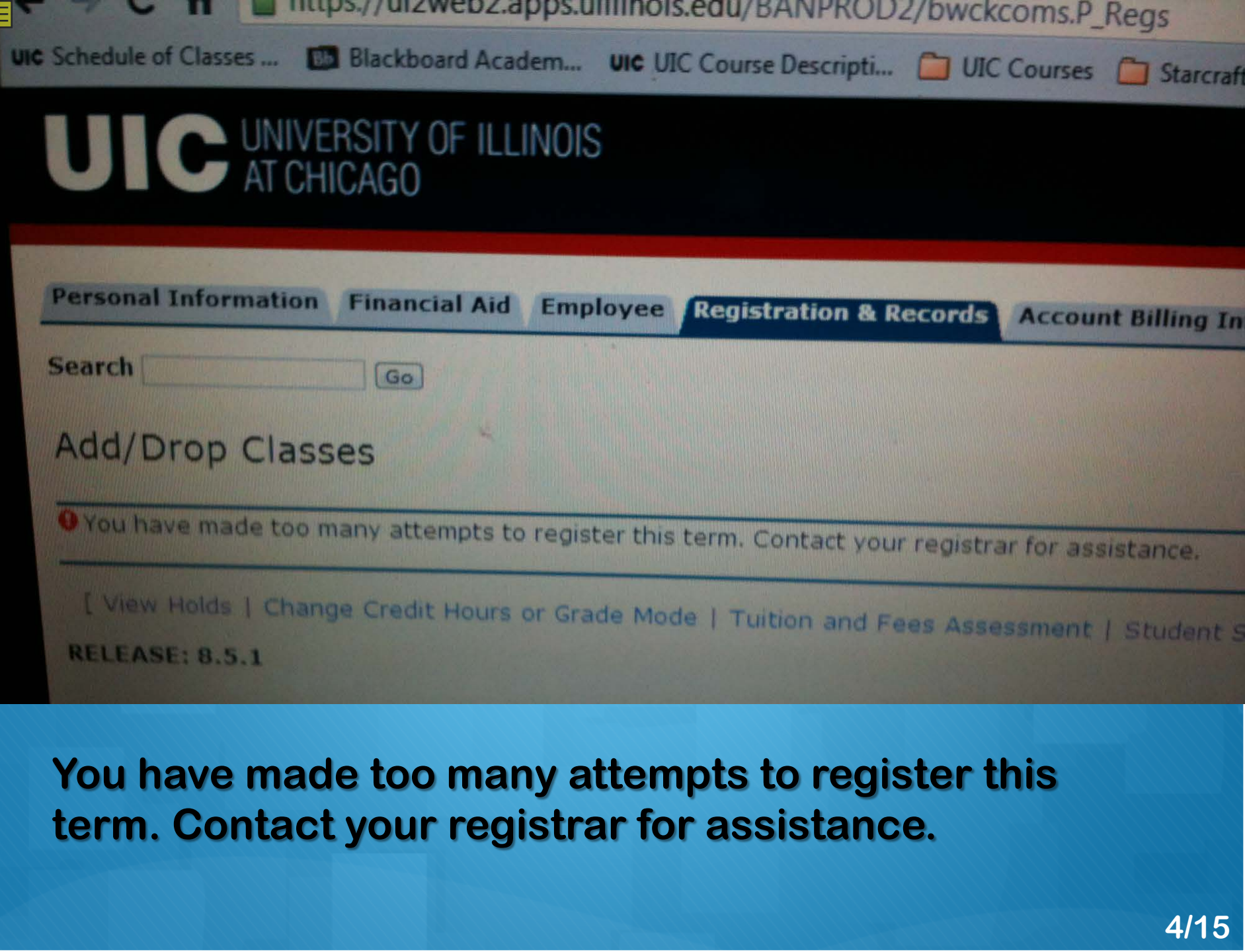
# Automation

- **Manual**
  - **Time consuming**
  - **Boring**
- **Programmable Keyboard or Lua**
  - **No feedback – not sure if task was actually done**





# Possible Selenium IDE Demo – Registering for Classes

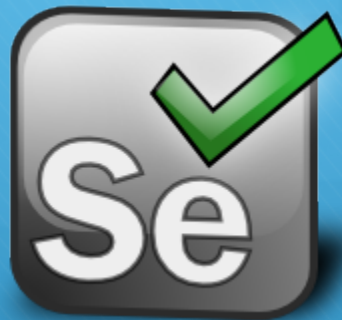


**You have made too many attempts to register this term. Contact your registrar for assistance.**



# What is Selenium?

- Selenium automates browsers
- Set of different software tools used to automate browsers





# Brief History

- **Developed by Jason Huggins in 2004**
  - **Joined by other programmers and testers at ThoughtWorks**
- **Name started off as a joke to mock a competitor named Mercury**
  - **Apparently mercury poisoning can be cured by taking Selenium supplements**





# Selenium Applications



```
graph LR; A[Selenium Applications] --> B[Test Automation]; A --> C[Boring and Tedious Administrative Tasks]; A --> D[Exporting and Importing Data To/From Online Database]; A --> E[Many Different Random Personal Uses];
```

**Test  
Automation**

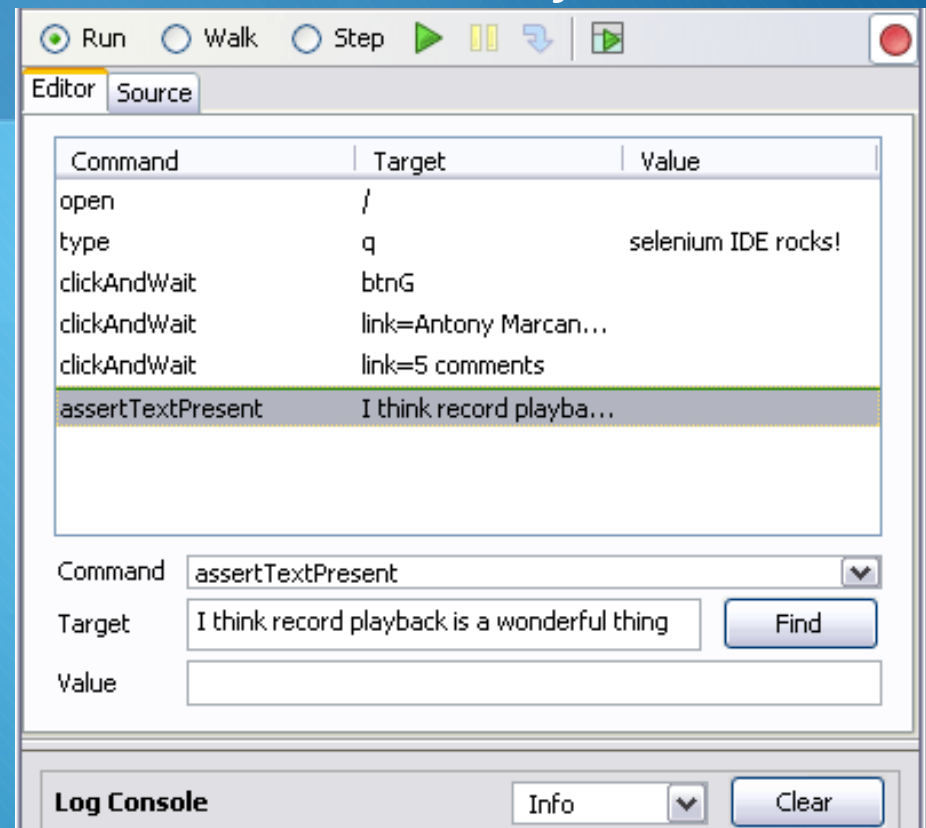
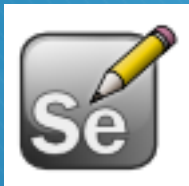
**Boring and  
Tedious  
Administrative  
Tasks**

**Exporting  
and  
Importing  
Data To/From  
Online  
Database**

**Many  
Different  
Random  
Personal  
Uses**

# Selenium IDE (Demonstrated earlier)

- Selenium IDE
  - Firefox add-on
  - Simple record-and-playback of interactions with browser



- Screenshot of Selenium IDE



# Selenium WebDriver

- Selenium WebDriver and Selenium Remote Control
- Collection of libraries that drive a browser
- Browsers
  - Chrome, Firefox, Internet Explorer, Safari, and etc.
- Programming Languages
  - C#, Java, JavaScript, Python, Ruby, and etc.





# Selenium Web Driver Automation Demo





# Source Code

- **Selenium Web Browser Automation's relationship to Programming Languages**
  - **N Tiers**
  - **Looking for WebElements using XPath is Analogous to looking for data using SQL**
  - **Controlling WebElements is the other end of creating GUI elements in homework assignments**

- `d1.get("https://my.uic.edu/common/");`
- `click("//span[text()='login']");`

The screenshot shows a Firefox browser window displaying the "UIC Schedule of Classes (Current Semester)" page. The page header features the UIC logo and the text "UNIVERSITY OF ILLINOIS AT CHICAGO" and "World-Class Education. World-Class City." The main content area is titled "Schedule of Classes (Current Semester)" and contains a note about using the "Schedule of Classes Search" tool. A sidebar on the left provides links for "Home", "First Time Portal Users", "Existing Portal Users", and "Parent or Guest". A right sidebar contains links for "Schedule of Classes", "New General Education", "Old General Education", "Business Core", and "Student Catalogs". At the bottom, a Selenium IDE console is open, showing the HTML structure of the page. The console highlights the following HTML snippet:

```

Edit | span <a <span <span <p <div.edu-...cription <li <ul <div#edu-...-wrapper <div#pc-2683 <div#sidebar1 <div>
  <a href="https://my.uic.edu/uPortal">
    <span style="font-size: medium;">login</span>
  </a>
  <span style="font-size: medium;"> | </span>
  <a href="https://ossswebcs.admin.uillinois.edu/PORTAL_UIC/currentstudent.html">

```

The "Style" pane on the right shows the computed style for the selected element:

```

Style | Computed Layout DOM
element.style {
  font-size: medium;
}
Inherited from a uPortal
#pc-2683 classsch.html #3 (line 1)
#edu-il-ws-2683-

```



- `sendKeys("//input[@id='UserIDinput']", netID);`
- `click("//input[@value='Enter']");`

Firefox | UIC User Identification Service | Firebug | firebug make text larger - Google Se... | how to make text larger or smaller in... | +

https://ness.uic.edu/bluestem/login.cgi?cacheid=1398811835-598511809;return=68747470733a2f2f6d792e7569632e6564752f755

Most Visited | Getting Started | UIC Schedule of Classes (C... | Blackboard Academic ... | UIC UIC Course Descriptio... | UIC Courses | Starcraft 2 | My Login - - | Find the 22.5" Genesis ...

# UIC UNIVERSITY OF ILLINOIS AT CHICAGO

## User Identification Service

**NetID**

Enter your University NetID, then press Enter.

### Things you should know...

To protect your privacy, this service will provide your [NetID](#) only to secure applications you request on [these authorized servers](#). The server that has just now requested your ID is shown below.

Console | HTML | CSS | Script | DOM | Net | Cookies | FirePath

input#UserIDinput < form < div < body < html

```
<input type="hidden" value="" name="proxyrpc">
<input type="hidden" value="" name="RPCURL">
<input type="hidden" value="" name="RPCVersion">
<label style="font-family: sans-serif; font-weight: bold" for="UserID">NetID</label>
<input id="UserIDinput" type="text" value="" name="UserID" size="20">
<input type="submit" value="Enter">
<br>
Enter your University NetID, then press Enter.
</form>
```

Style | Computed | Layout | DOM

input { login....ookie=1 (line 86)  
font-size: 12pt;

Inherited from div

element.style  
{  
text-align: center;  
}

Inherited from body

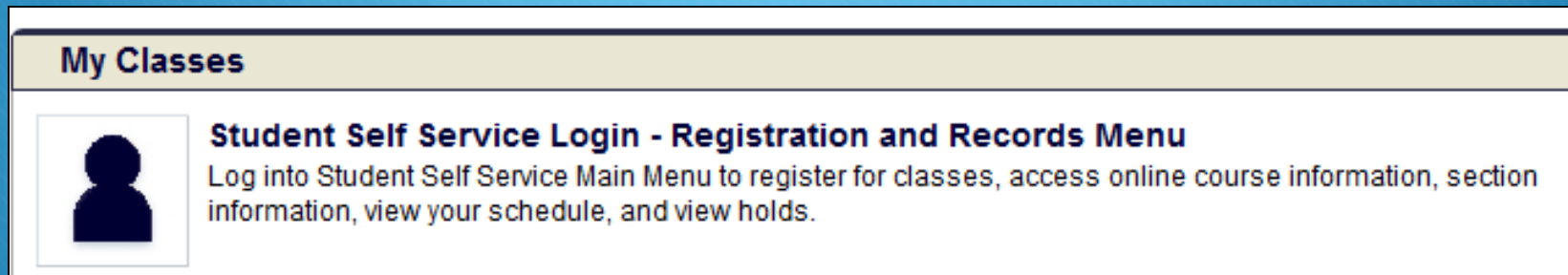
Firefox automatically sends some data to Mozilla so that we can improve your experience.

Choose What I Share

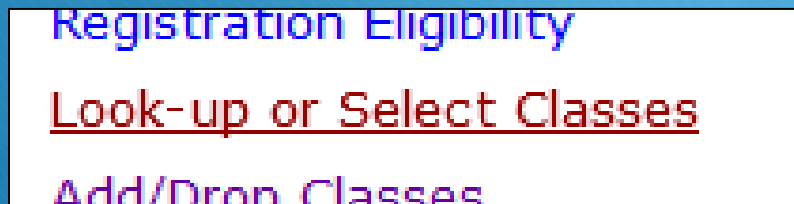
○ `click("//span[text()='Academics']");`



○ `click("//a[text()='Student Self Service Login - Registration and Records Menu']");`



○ `click("//a[text()='Look-up or Select Classes']");`





For more  
information and  
downloads:

<http://docs.seleniumumhq.org/>

