**Web Elements and Element Locators**  
   
i) Web Elements  
  
ii) Element Locators  
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**i) Web Elements**  
Browser  
Page  
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Edit Box- https://www.w3schools.com/html/html\_forms.asp  
Link  
Button- https://www.w3schools.com/tags/tryit.asp?filename=tryhtml\_button\_test  
Image, Image Link, Image Button  
Text box  
Text Area  
Check box  
Radio Button  
Drop down box  
List box  
Combo box- https://www.w3schools.com/tags/tryit.asp?filename=tryhtml\_select  
Web table /HTML table  
Frame: <https://www.w3schools.com/tags/tag_button.asp>

<https://www.w3schools.com/tags/tryit.asp?filename=tryhtml_frame_cols>   
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1) Operations on Browser  
> Launch the browser,  
> Navigate to particular web page,  
> Close focused Browser  
> Close all Browsers that opened by WebDriver during execution  
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> Navigate from one URL to another  
> Navigate back to previous URL  
> Navigate forward  
> Refresh the Browser  
> Maximize the Browser  
Etc...  
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2) Operations on Web Page  
> Get Page Title  
> Get Page URL  
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3) Operations on Edit box  
  
> Enter a Value,  
> Clear the Value,  
> Check enabled status,  
> Check edit box existence,  
> Get the value etc...  
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4) Operations on Link  
  
> Click Link,  
> Check the link existence,  
> Check the link enabled status,  
> Return the Link Name  
Etc...  
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5) Operations on Button  
  
> Click  
> Check Enabled status  
> Display status  
Etc...  
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6) Operations Image  
  
Three types of Image elements in Web Environment  
  
a) General Image (No functionality)  
  
b) Image Button (Submits)- https://www.w3schools.com/tags/tryit.asp?filename=tryhtml\_input\_alt  
  
c) Image Link (Redirects to another page/location)  
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7) Operations on Text Area  
  
> Return / Capture Text Area or Error message from a web page  
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8) Operations on Check box  
  
> Check if the check box is displayed or not?  
> Check if the check box is enabled or not?  
> Check if the check box is Selected or not?  
> Select the Check box  
> Unselect the Check box  
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9) Operations on Radio Button  
  
> Select Radio Button  
> Verify if the Radio Button is Displayed or not?  
> Verify if the Radio Button is enabled or not?  
> Verify if the Radio Button is Selected or not?  
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10) Operations on Drop down box  
  
> Check the Drop down box existence  
> Check if the Drop down is enabled or not?  
> Select an item  
> Items Count  
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11) Operations on List box  
  
12) Operations on Combo box  
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13) Operations on Web table /HTML Table  
  
> Get cell value  
> Rows Count  
> Cells Count Etc...  
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14) Operations on Frame  
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> Switch from Top window to a frame  
> Switch from a frame to Top window  
Etc...  
----------------------------------------------  
**ii) Element Locators**  
What is Locator?  
  
> Locator is an address that identifies a web element uniquely within the webpage. Locators are the HTML properties of a web element.  
  
Selenium WebDriver uses 8 element locators   
  
id,   
  
name,   
  
className,   
  
tagName,   
  
linkText,   
  
partialLinkText,   
  
cssSelector,   
  
xpath   
  
to find elements on Web pages.  
  
Why we need to use different locators?  
  
1) Developers may not provide all locators for all elements  
  
2) Some locators may be duplicated.  
  
So we have to choose any one unique locator to recognize the element.  
  
How to inspect elements?  
  
Download and install Firebug and Firepath plug ins/Add ons for Firefox Browser.   
  
If it Internet Explorer or Chrome, we no need to install any Add on, they provide built -in Developer Tools (F12) to inspect elements.

Webdriver driver= new ChromeDriver()  
Element Locators are common for all Browsers.  
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1) id  
  
Syntax:  
  
By.id("id value")  
  
Examples:  
  
driver.findElement(By.id("Email"))  
  
driver- is Object  
  
findElement - WebDriver method  
  
By - pre-defined Class  
  
id - Element locater  
  
Email - id locator value  
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driver.findElement(By.id("Email")).sendKeys("gcrindia");  
--------------------------------------------  
Or  
  
WebElement x = driver.findElement(By.id("Email"));  
x.sendKeys("ashokonmi3");  
-------------------------------------------  
id locator for Button  
  
WebElement Email = driver.findElement(By.id("signIn"));  
Email.click();  
  
Or  
  
driver.findElement(By.id("signIn")).click();  
-------------------------------------------------------  
2) name  
  
Synatx:  
  
By.name("name value/locator name")         
  
Examples:  
  
driver.findElement(By.name("Email")).sendKeys("xyz@gmail.com");  
         
Or  
  
WebElement e = driver.findElement(By.name("Email"));  
e.sendKeys("gcrindia");  
------------------------------------------  
WebElement e = driver.findElement(By.name("signIn"));  
e.click();  
------------------------------------------  
3) className  
  
Syntax: By.className("class name value")  
  
Example:  
  
driver.findElement(By.className("textboxcolor")).sendKeys("Hyderabad");  
----------------------------------------------  
4) tagName  
  
Syntax:  
By.tagName("tag name value")  
  
Example:  
driver.findElement(By.tagName("input")).sendKeys("Hyderabad");  
--------------------------------------------------------------         
5) linkText  
  
Syntax:  
By.linkText("Link Text Value")  
  
Example:  
  
driver.findElement(By.linkText("Gmail")).click();  
-----------------------------------------------------                 
6) paritialLinkText  
  
Syntax:  
By.partialLinkText("Partial Link Text Value")  
  
Example:  
  
driver.findElement(By.partialLinkText("Gma")).click();  
-----------------------------------------------  
7) cssSelector  
Syntax:  
By.cssSelector("value")  
  
Example:  
driver.findElement(By.cssSelector(".gb\_m")).click();  
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8) xpath   
Xpath in XML document shows the direction of software web application's element location.  
  
Syntax:  
  
By.xpath("xpath value")  
  
driver.findElement(By.xpath(".//\*[@id='Email']")).sendKeys("abcdef");

# Chrome

This can be achieved by three different approaches (see my blog article [here](http://yizeng.me/2014/03/23/evaluate-and-validate-xpath-css-selectors-in-chrome-developer-tools/) for more details):

* Search in Elements panel like below
* Execute $x() and $$() in Console panel, as shown in Lawrence's [answer](https://stackoverflow.com/a/22571294/1177636)
* Third party extensions (not really necessary in most of the cases, could be an overkill)

Here is how you search XPath in Elements panel:

1. Press F12 to open Chrome Developer Tool
2. In "Elements" panel, press Ctrl+F
3. In the search box, type in XPath or CSS Selector, if elements are found, they will be highlighted in yellow.

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***Xpath=//Tag\_name[@attribute\_name=’value’]***

**//** : It is used to select the current node.

Tag\_name: It is the name of the tag of a particular node.

@: It is used to select to select attribute.

Attribute\_name: It is the name of the attribute of the node.

<https://www.freecrm.com/index.html>

user name

//input[@name='username']

Password

//input[@name=’password']

//input[@name='lst-ib']

Value: It is the value of the attribute.

//input[@id='lst-ib']

For submit button

//input[@type='submit']

More reliable

//input[@type='submit' and @value=’login’]

//input[@type='submit' and @value=’login’ and @class=’ btn btn-small’]

<input type="submit" value="Login" class="btn btn-small">

Link

Feature

//a 19 links are present

//a[text()='Features']

//a[contains(text(),'Features')]—recommended

For sign up button

//button[@type='button' and @class='btn']

// button [contains(text(),'Sign Up')]—recommended

<https://v4-alpha.getbootstrap.com/components/dropdowns/>

Drop down

//button[@type='button' and @class='btn btn-secondary dropdown-toggle'] – 5 element

Require more generic

//div//button[@type='button' and @class='btn btn-secondary dropdown-toggle'] – 5 element

More generic

//div[@class='dropdown']//button[@type='button' and @class='btn btn-secondary dropdown-toggle']

**Instead of above I can use simple**

//button[@id='dropdownMenuButton']

This is better performance wise

**Bootstrap link**

//a[text()='Bootstrap']] —recommended

Freecrm contacts

//\*[@id="vContactsForm"]/table/tbody/tr[5]/td[1]/input

Abs xpath

//\*[@id="vContactsForm"]/table/tbody/tr[8]/td[1]/input

//a[text()='test1 test1']//parent::td[@class='datalistrow']//preceding-sibling::td[@class='datalistrow']//input[@name='contact\_id']