**XPath Selector:**  
XPath is designed to allow the navigation of XML documents, with the purpose of selecting individual elements, attributes, or some other part of an XML document for specific processing

There are two types of xpath

**1. Native Xpath**, it is like directing the xpath to go in direct way. like  
Example:  
html/head/body/table/tr/td

Here the advantage of specifying native path is, finding an element is very easy as we are mention the direct path. But if there is any change in the path (if some thing has been added/removed) then that xpath will break.

**2. Relative Xpath.**  
In relative xpath we will provide the relative path, it is like we will tell the xpath to find an element by telling the path in between.  
Advantage here is, if at all there is any change in the html that works fine, until unless that particular path has changed. Finding address will be quite difficult as it need to check each and every node to find that path.  
Example:  
‘//nav/ul/li/div[@class='panel-heading']’

Advantage of using relative xpath is, you don't need to mention the long xpath, you can start from the middle or in between.

Disadvantage here is, it will take more time in identifying the element as we specify the partial path not (exact path).

If there are multiple elements for the same path, it will select the first element that is identified

* ancestor - Selects all ancestors (parent, grandparent, etc.)
* descendant - Selects all descendants (children, grandchildren, etc.)
* following-sibling - Selects all siblings after the current node
* preceding-sibling - Selects all siblings before the current node
* child - Selects all children of the current node
* parent - Selects the parent of the current node

Steps to write Xpath:

1. Start with ‘//’, later the webelement to be searched.

2. Later for finding by classname go to the web elements ‘//nav/ul/li/div[@class='panel-heading']’

3. You can also use supported operations like h3 element contains text ‘Paris’

Example: ‘/h3[contains(text(), 'Paris')]’

Example of XPATH and its Operations:

xpath is used to find the specific element in the given webpage.  
Some of the below examples will demonstrate how we can write the xpath expressions.

|  |  |
| --- | --- |
| Find all elements with tag input | //input |
| Find all input tag element having  attribute type = ‘hidden’ | //input[@type='hidden'] |
| Find all input tag element having  attribute type = ‘hidden’  and name attribute = ‘ren’ | //input[@type='hidden'][@name='ren'] |
| Find all input tag element with attribute type containing ‘hid’ | //input[contains(@type,'hid')] |
| Find all input tag element with attribute type starting with ‘hid’ | //input[starts-with(@type,'hid')] |
| Find all elements having innertext = ‘password’ | //\*[text()='Password'] |
| Find all td elements having innertext = ‘password’ | //td[text()='Password'] |
| Find all next siblings of td tag having innertext = ‘gender’ | //td[text()='Gender']//following-sibling::\* |
| Find all elements in the 2nd next sibling of td tag having innertext = ‘gender’ | //td[text()='Gender']//following-sibling::\*[2]//\* |
| Find input elements in the 2nd next sibling of td tag having innertext = ‘gender’ | //td[text()='Gender']//following-sibling::\*[2]//input |
| Find the td which contains font element containing the text ‘12’ | //td[font[contains(text(),'12')]] |
| Find all the preceding siblings of the td which contains font element containing the text ‘12’ | //td[font[contains(text(),'12')]]//preceding-sibling::\* |

**More xpath Expressions.**

|  |  |  |
| --- | --- | --- |
| **Operation** | **Xpath** |  |
| Find all elements with tag input | //input |  |
|  |
| Find all input tag element having  attribute type = ‘hidden’ | //input[@type='hidden'] |  |
|  |
| Find all input tag element having  attribute type = ‘hidden’  and name attribute = ‘ren’ | //input[@type='hidden'] [@name='ren'] |  |
|  |
| Find all input tag element with attribute type containing ‘hid’ | //input[contains(@type,'hid')] |  |
|  |
| Find all input tag element with attribute type starting with ‘hid’ | //input[starts-with(@type,'hid')] |  |
|  |
| Find all input tag element with attribute type ending with ‘den’ | //input[ends-with(@type,'den')]  //input[substring(@value, string-length(@value) - string-length('me') +1) = 'me'] |  |
|  |
| Find all input tag element with attribute value matching the pattern xyz | //input[matches(@value,'nam')] |  |
|  |
| Find all td tags that has the exact text xyz in it | //td[text()='xyz'] |  |
|  |
| Find all td tags that contains text xyz in it | //td[contains(text(),'xyz')] |  |
|  |
| Find all tr tags that are ancestor of current td tag | //td/ancestor::tr |  |
|  |
| Find all tr tags that are descendant of current td tag | //td/descendant::tr |  |
|  |
| Find all following siblings of td | //td/following-sibling::td |  |
|  |
| Find all preceding siblings of td | //td/preceding-sibling::td |  |
|  |
| Find all the children of div | //div[text()='abc']/child::\* |  |
|  |
| Find the parent of div | //div[text()='abc']/parent::\* |  |
|