Note: We can use id,class and name attributes within css expression

By.cssSelector("input[id='user']")

**limitation of Css:

-->Sometimes few element html code contains same attribute so we cannot use cssSelector to identify those elements.

-->Correct script using Absolute xpath

```
WebDriver driver = new FirefoxDriver();
    driver.get("file:///C:/Users/Alpha/Desktop/HTML/E32/css_X.html");
    driver.findElement(By.xpath("/html/body/input[1]")).sendKeys("abc");
    driver.findElement(By.xpath("/html/body/input[2]")).sendKeys("mno");
    driver.findElement(By.xpath("/html/body/input[3]")).sendKeys("poi");
    driver.findElement(By.xpath("/html/body/input[4]")).sendKeys("wer");
```

8: xpath: This locator type is used to identify the component using tagname,Attribute, text ,index

Syntax: By.xpath("expression");

**Types of Xpath:

1: Absolute xpath

2: Relative xpath

3: xpathByAttribute

4: xpathByText

5: xpathByContains

6: xpath using Independent and Dependent

7: xpathByIndex

8: xpathAxes

1: Absolute xpath: This xpath expression is used to identify target element by navigating from root of the parent to immediate child, from that child to its immediate child and so on upto target element.

Note: "/" - used to navigate from parent to immediate child

Ques: WATS to handle component by using Absolute xpath for below webpage

```
<html>
  <body>
     Firstname<input type="text"><br>
     Lastname<input type="text"><br>
     Pwd<input type="text"><br>
     C_Pwd<input type="text"><br>
</body>
</html>
```

**HTML TREE DIAGRAM:

```
HTML
  body
     input[1]    firstname
     input[2]    Lastname
     input[3]    Pwd
     input[4]    C_pwd
```

Script:

```
WebDriver driver = new FirefoxDriver();
driver.get("file:///C:/Users/Alpha/Desktop/HTML/E32/Absolute.html");
driver.findElement(By.xpath("/html/body/input[1]")).sendKeys("abc");
driver.findElement(By.xpath("/html/body/input[2]")).sendKeys("mno");
driver.findElement(By.xpath("/html/body/input[3]")).sendKeys("tree");
driver.findElement(By.xpath("/html/body/input[4]")).sendKeys("der");
```

**HTML CODE:

```
<html>
  <body>
      <div>
         Firstname<input type="text"><br>
        Middlename<input type="text"><br>
        Lastname<input type="text"><br>
      </div>
      <div>
         Pwd<input type="password"><br>
        Email<input type="text"><br>
       <a href="signin.html">Link 1</a><br>
     </div>
     <div>
        <a href="signup.html">Link 2</a><br>
        Contact<input type="text"><br>
        <a href="abs.html">Link 3</a><br>
      </div>
      <div>
         <a href="tagname.html">Link 4</a><br>
         <a href="id.html">Link 5</a><br>
         <a href="name.html">Link 6</a>
      </div>
  </body>
</html>
```

**HTML TREE DIAGRAM:

```
html
  body
```

div[1]

input[1] FN

input[2] MN

input[3] LN

div[2]

input[1] Pwd

input[2] email

a[1] Link 1

div[3]

a[1] Link 2

input[1] contact

a[2] Link 3

div[4]

a[1] Link 4

a[2] Link 5

a[3] Link 6

Element	Absolute xpath
Contact	/html/body/div[3]/input[1]
Link 1	/html/body/div[2]/a[1]
MiddleName,email	/html/body/div/input[2]
Link1,Link2,Link4	/html/body/div/a[1]
All links	/html/body/div/a
Pwd, Link5	/html/body/div[2]/input[1]|/html/body/div[4]/a[2]

**Limitations:

1: Developing tree diagram for webpage is difficult and time consuming

2: Absolute xpath expression will be too lengthy

2: Relative Xpath: Navigating from parent to any child

-->To achieve Relative xpath we use "//".

Ques: Diff. between "/" & "//"

1: / - Navigating from parent to immediate child

2: // - Navigating from parent to any child

Examp:

```
<html>
   <body>
      Firstname<input type="text"><br>
      Lastname<input type="text"><br>
      Password<input type="text"><br>
      Email<input type="text"><br>
</body>
</html>
```

**HTML TREE DIAGRAM:

```
html
  body
     input[1]   FN
     input[2]   LN
     input[3]   Pwd
     input[4]   email
```

**HighLight:	Absolute Xpath	Relative Xpath
FN:	/html/body/input[1]	//input[1]
LN:	/html/body/input[2]	//input[2]
Pwd:	/html/body/input[3]	//input[3]
Email	/html/body/input[4]	//input[4]

Examp:

**HTML TREE DIAGRAM:

html

  body

    div[1]

        input[1]   FN

        input[2]   MN

        input[3]   LN

    div[2]

        input[1]   Pwd

        input[2]   email

          a[1]   Link 1

    div[3]

        a[1]   Link 2

        input[1]   contact

        a[2]   Link 3

    div[4]

        a[1]   Link 4

        a[2]   Link 5

        a[3]   Link 6

Element	Absolute xpath	Relative Xpath
Contact	/html/body/div[3]/input[1]	//div[3]/input[1]
Link 1	/html/body/div[2]/a[1]	//div[2]/a[1]
MiddleName,email	/html/body/div/input[2]	//div/input[2] OR //input[2]
Link1,Link2,Link4	/html/body/div/a[1]	//div/a[1] OR //a[1]
All links	/html/body/div/a	//div/a OR //a
Pwd, Link5	/html/body/div[2]/input[1]|/html/body/div[4]/a[2]	//div[2]/input[1]|//div[4]/a[2]

**Limitation:

1: To develop relative xpath expression, HTML Tree Diagram is required

**Practice Ques:

```
<html>
<body>
 <table>
  <tbody>
     <tr>
       <th>Sr.No</th>
       <th>Book type</th>
       <th>Cost</th>
     </tr>
      <tr>
       <td>1</td>
       <td>Selenium</td>
       <td>6000</td>
      </tr>
<tr>
       <td>2</td>
       <td>Java</td>
       <td>5000</td>
      </tr>
<tr>
       <td>3</td>
       <td>MT</td>
       <td>4000</td>
      </tr>
<tr>
       <td>4</td>
       <td>Sql</td>
```

```
        <td>2000</td>
       </tr>
```

**HTML TREE DIAGRAM:

```
html
  body
    table
      tbody
        tr[1]
          th[1]    Sr.No
          th[2]    Book Type
          th[3]     Cost
        tr[2]
          td[1]     1
          td[2]     Selenium
          td[3]     6000
        tr[3]
          td[1]     2
          td[2]     java
          td[3]     5000

        tr[4]
          td[1]     3
          td[2]     MT
          td[3]     4000

        tr[5]
          td[1]     4
          td[2]     Sql
          td[3]     2000
```

Element Absolute XPath Relative Xpath

SQL /html/body/table/tbody/tr[5]/td[2] //tr[5]/td[2]

Cost of Selenium /html/body/table/tbody/tr[2]/td[3] //tr[2]/td[3]

All Books Cost /html/body/table/tbody/tr/td[3] //tr/td[3] OR //td[3]

Sql,Java cost /html/body/table/tbody/tr[5]/td[2]| //tr[5]/td[2]|//tr[3]/td[3]
/html/body/table/tbody/tr[3]/td[3]

3: xpathByAttribute: This xpath type is used to identify component using attributes.

Syntax: //tagname[@PropertyName='PropertyValue']

Note: @ means attribute symbol which will search given values only in Attributes

[] means backends

***Syntax to handle multiple Attributes:

1: //tagname[@PropertyName='PropertyValue' AND @PropertyName='PropertyValue']

2: //tagname[@PropertyName='PropertyValue' OR @PropertyName='PropertyValue']

Here: AND--->Both the locator should be correct

OR--->Any one of the locator should be correct

And

a b y

0 0 0

0 1 0

1 0 0

1 1 1

OR

a b y

0 0 0

0 1 1

1 0 1

1 1 1

Examp: UN<input id="user" type="text">

//input[@id='user']

Ques: WATS to login application

Script:

```
WebDriver driver = new FirefoxDriver();
    driver.manage().window().maximize();
    driver.get("http://localhost/login.do");
    driver.findElement(By.xpath("//input[@id='username']")).sendKeys("admin");
    driver.findElement(By.xpath("//input[@name='pwd']")).sendKeys("manager");
    driver.findElement(By.xpath("//a[@id='loginButton']")).click();
```

AssignQues: WATS to enter Firstname,lastname,email.Company https://www.actitime.com/free-online-trial using xpathByAttribute

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