

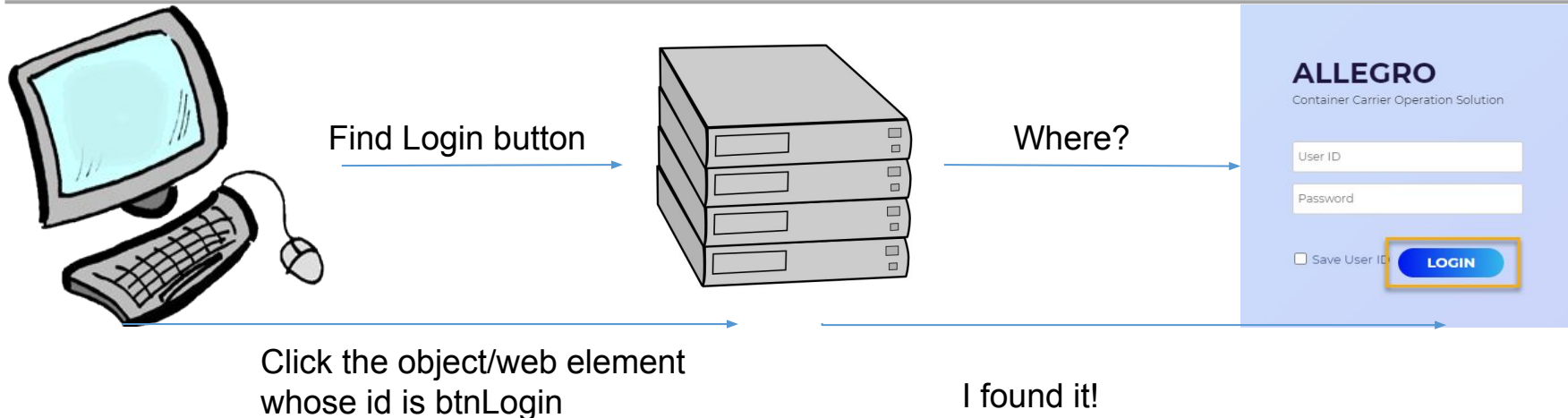
Web Object Identification



Agenda

- ❖ Why do we need identify web object?
- ❖ HTML Structure
- ❖ Finding Objects
- ❖ XPath
- ❖ Type of XPath and CSS Selector
- ❖ XPath Syntax
- ❖ CSS Selector Syntax
- ❖ Summary

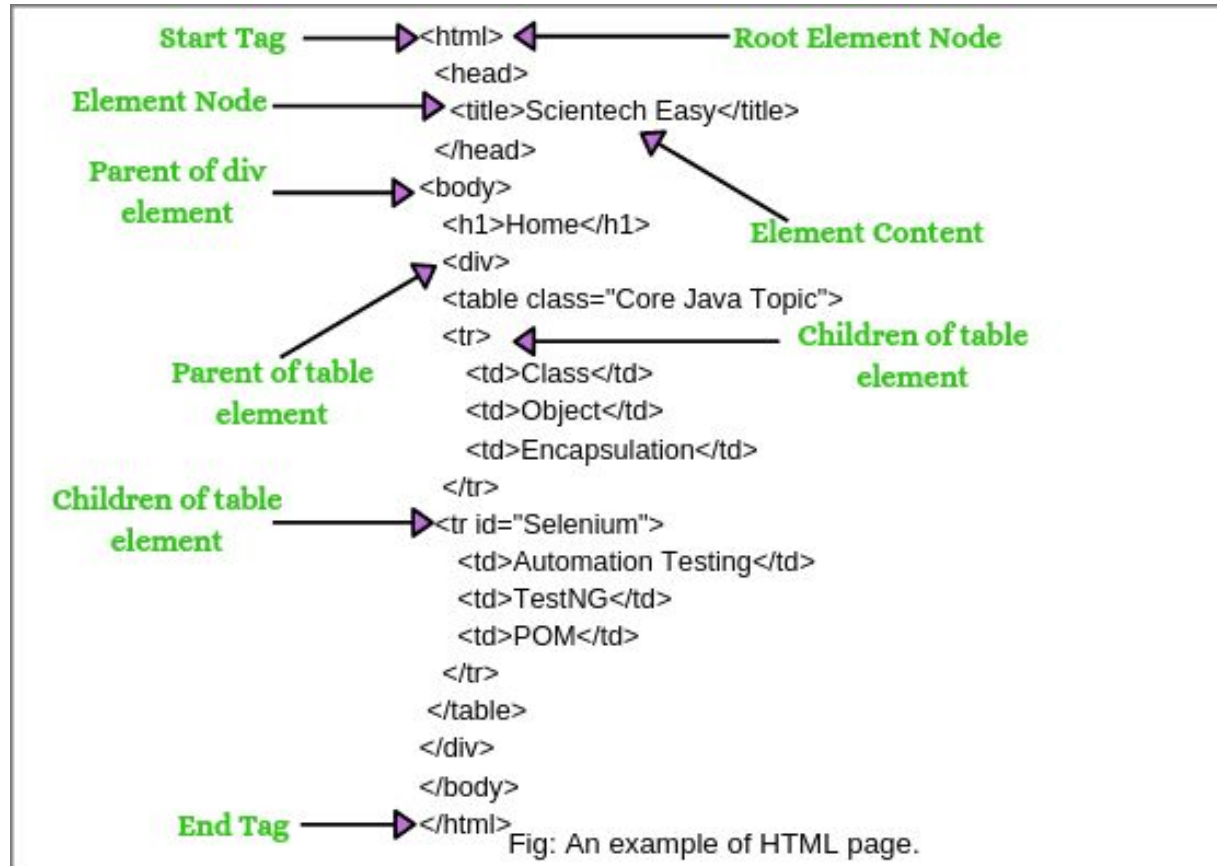
Why do we need identify web object?



```
driver.findElement(By.id("login_btn"));
```

Locator
Strategy

Locator
Value



Finding Objects



`<button type="button" id="btnLogin" align="absmiddle" border="0" data-nx="{fncd:'R'}">LOGIN</button>`

Locator Strategies based on priority:

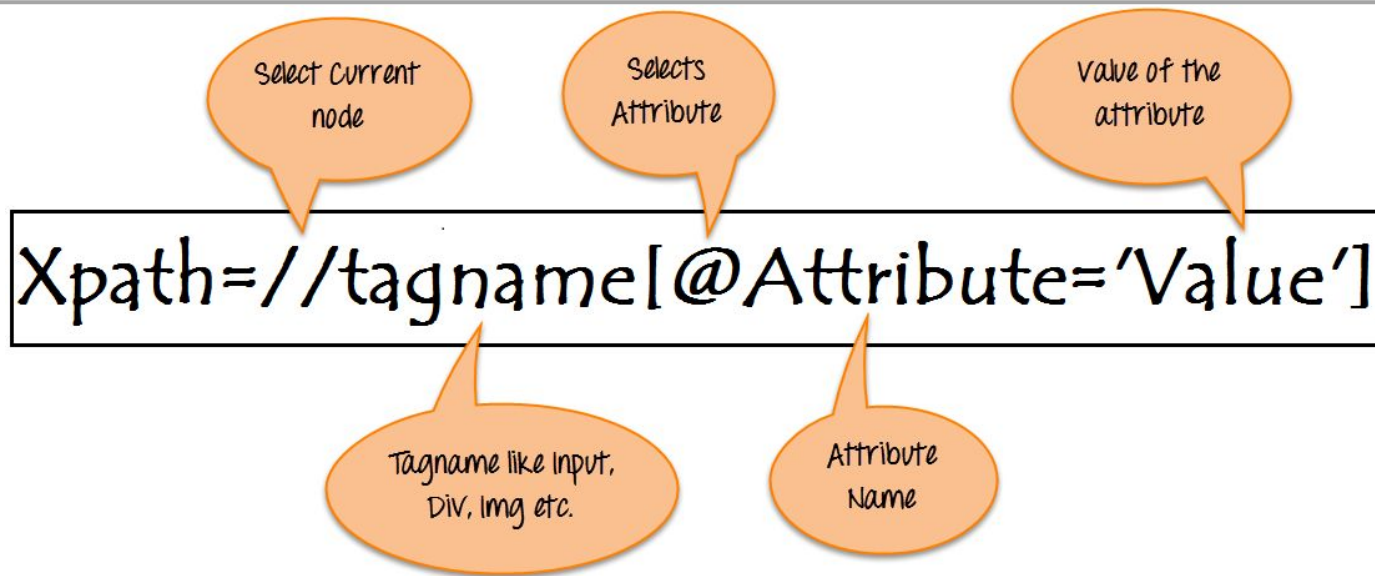
- ID
- Class Name
- Tag Name
- XPath
- CSS Selector

The screenshot displays the Allegro login interface and its underlying HTML structure. The login form includes input fields for 'User ID' and 'Password', a 'Save User ID' checkbox, and a prominent blue 'LOGIN' button. The developer tools 'Elements' panel on the right shows the DOM tree, with the specific HTML code for the login button highlighted in a yellow box. An orange arrow indicates the mapping from the visual button on the page to its corresponding code in the DOM.

```
<!DOCTYPE html>
<html lang="en_US">
<head>_</head>
<body data-new-gr-c-s-check-loaded="14.1058.0" data-gr-ext-installed>
  <div id="login">
    <h1>Allegro</h1>
    <div class="form_wrap">
      <div class="m_left">_</div>
      <div class="micro">_</div>
      <div class="m_right">
        <div class="login_box">
          <div class="login_cont">
            <h2 id="projName">ALLEGRO</h2>
            <p>Container Carrier Operation Solution</p>
            <div class="form">
              <ul>_</ul>
              <p class="rem">_</p>
              ...
              <button type="button" id="btnLogin" align="absmiddle" border="0" data-nx="{fncd:'R'}">LOGIN</button> == $0
            </div>
            <hr class="seperate-login" data-content="OR">
            <div class="sso-link-wrapper"></div>
          </div>
        </div>
      </div>
    </div>
    <div id="logFooter">_</div>
    <div class="messagearea">_</div>
  </body>
  <grammarly-desktop-integration data-grammarly-shadow-root="true">_</grammarly-desktop-integration>
</html>
```

... ap div.m_right div.login_box div.login_cont div.form button#btnLogin ...

Find by string, selector, or XPath



i.e: `//button[@id='btnLogin']`

❖ Type of XPath and CSS Selector

Absolute XPath, i.e: /html/body/div[1]/div/div[3]/div/div/div[1]/button

The image shows a screenshot of the ALLEGRO login page on the left and its corresponding DOM structure on the right. The login page has a header with 'ALLEGRO' and 'Container Carrier Operation Solution'. It features input fields for 'User ID' and 'Password', a 'Save User ID' checkbox, and a blue 'LOGIN' button. The DOM structure on the right is a tree view of the page's HTML. A yellow box highlights the 'button' element with the following attributes: `<button type="button" id="btnLogin" align="absmiddle" border="0" data-nx="{fncd:'R'}">LOGIN</button> == $0`. A yellow arrow points from this box to the 'button' element in the breadcrumb path at the bottom: `/html/body/div[1]/div/div[3]/div/div/div[1]/button`. The breadcrumb path is also highlighted with a yellow box.

❖ Type of XPath and CSS Selector

Relative Xpath, i.e://*[@id='btnLogin']

The image displays a web browser window showing the Allegro login page on the left and its DOM tree on the right. The login page features the Allegro logo, the text "Container Carrier Operation Solution", input fields for "User ID" and "Password", a "Save User ID" checkbox, and a blue "LOGIN" button. The DOM tree on the right shows the page's structure, with the "btnLogin" button highlighted in green. A yellow box highlights the button's HTML attributes, and a yellow arrow points from the XPath selector in the bottom bar to the button. The XPath selector is `//*[@id='btnLogin']`.

DOM Tree Structure:

```
<script type="text/javascript" src="/oceans/script/comm/login.js"></script>
<link rel="shortcut icon" type="image/x-icon" href="/oceans/webf/w/favicon.ico">
</head>
<body data-new-gr-c-s-check-loaded="14.1058.0" data-gr-ext-installed>
  <div id="login">
    <h1>Allegro</h1>
    <div class="form_wrap">
      <div class="m_left">
        <div class="company">Cyberlogitec</div>
        <p class="txt_s"></p>
      </div>
      <div class="micro"></div>
      <div class="m_right">
        <div class="login_box">
          <div class="login_cont">
            <h2 id="projName">ALLEGRO</h2>
            <p>Container Carrier Operation Solution</p>
            <div class="form">
              <ul></ul>
              <div class="form">
                <input type="text" value="User ID">
                <input type="password" value="Password">
                <input type="checkbox" value="Save User ID">
                <button type="button" id="btnLogin" align="absmiddle" border="0" data-nx="{fncd:'R'}">LOGIN</button>
              </div>
            </div>
            <hr class="separate-login" data-content="OR">
            <div class="also-link-wrapper"></div>
          </div>
        </div>
      </div>
    </div>
  </div>
  <div id="logFooter"></div>
</body>
```

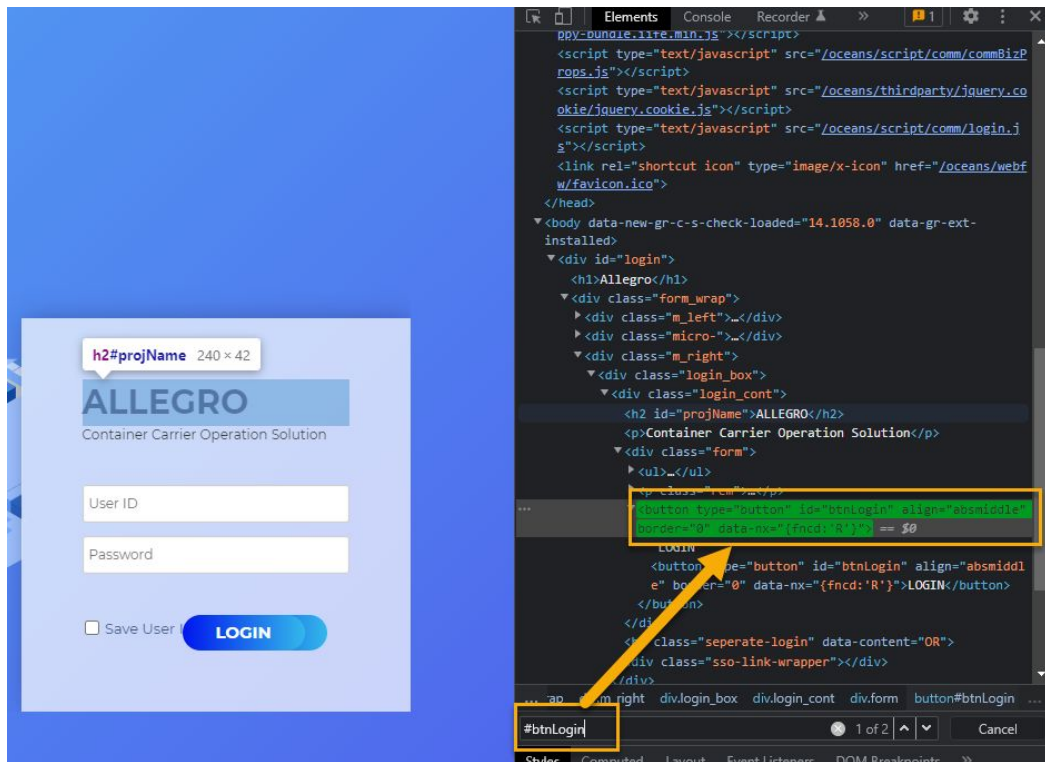
XPath Selector: `//*[@id='btnLogin']`

❖ Type of XPath and CSS Selector

Absolute CSS Selector, i.e: #login > div > div.m_right > div > div > p

The screenshot displays the ALLEGRO login interface on the left, featuring a blue header with the logo, input fields for 'User ID' and 'Password', a 'Save User' checkbox, and a blue 'LOGIN' button. On the right, the browser's developer tools are open to the 'Elements' tab, showing the DOM tree. The path to the login button is highlighted: `#login > div > div.m_right > div > div > p`. A yellow arrow points from the selected element in the DOM tree to the login button on the page.

Relative CSS Selector, i.e: `#btnLogin`



Expression	Description
/	Select from the root node
//	Select nodes in the document from the current node that match the selection no matter where they are
//*	Select all elements in the document
//div	Select all elements have tagname = “div”
@class	Select all elements have class
@class='value123'	Select all elements have class with value = “value123”

Reference: <https://www.guru99.com/xpath-selenium.html>

Expression	Description
<code>[contains(@class,'sub')]</code>	Select elements have class with value contain “sub”
<code>//*[starts-with(@id,'message')]</code>	Select elements have class with value start with “sub”
<code>//*[@type='submit' or @name='btnReset']</code>	Select elements has type is submit or elements has name is btnReset
<code>//*[@type='submit' and @name='btnReset']</code>	Select elements has type is submit and has name is btnReset
<code>//*[text()='UserID']</code>	Selects elements has text = “UserID”
<code>//body//div</code>	Selects elements have tagname = “div” where the parent have tagname = “body”

Expression	Description
.intro	Selects all elements with attribute class = "intro"
.name1.name2	Selects all elements with attribute class = " <i>name1</i> " and attribute class = " <i>name2</i> "
.name1 .name2	Selects all elements with attribute class= " <i>name2</i> " that is a child of an element with attribute class = " <i>name1</i> "
#firstname	Selects the element with id = "firstname"
div	Selects all elements has tagname = "div"
div.intro	Selects all elements has tagname = "div" with attribute class = "intro"

Expression	Description
<code>body>div</code>	Selects elements have tagname = “div” where the parent have tagname = “body”
<code>input[size='8']</code>	Selects elements have tagname = “input” with attribute size = “8”
<code>[title~=flower]</code>	Selects all elements has attribute is title containing the word “flower”
<code>[lang =en]</code>	Selects all elements has attribute lang with value starting with “en”
<code>[href*="allegro"]</code>	Selects all elements has attribute href attribute with value contains “allegro”

Reference: https://www.w3schools.com/cssref/css_selectors.asp

- Should use unique and valid locator
- Good practice for performance when locating Web Elements:
Id > ID + Class/Text/LinkText > CSS Selector/XPath
- Should use relative path rather than absolute path (XPath and CSS Selector)
- PRACTICE, PRACTICE & PRACTICE.

Q/A?

