Week 8: Locator Strategies in Selenium

Dr Gunel Jahangirova

6CCS3SMT/7CCSMASE Software Measurement and Testing

Faculty of Natural, Mathematical & Engineering Sciences
Department of Informatics

Web Pages: HTML

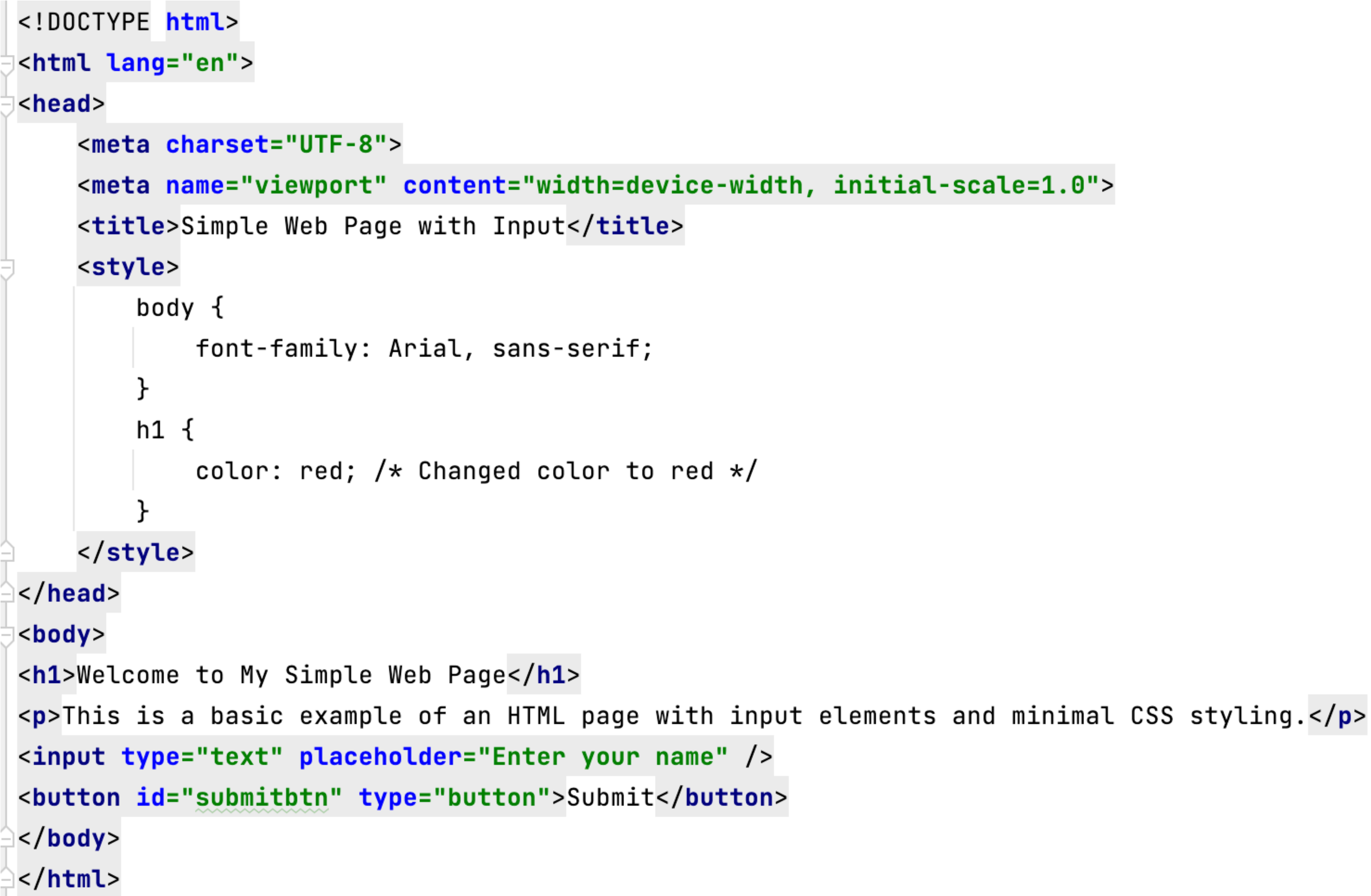
HTML is the standard markup language for creating web pages. It structures the content of the web page using elements or tags.

Tags are the building blocks of HTML. They are used to create elements and are typically enclosed in angle brackets (< >).

An HTML **element** is a complete structure that includes the opening tag, content, and the closing tag.

Attributes provide additional information about an HTML element and are specified in the opening tag. Attributes usually come in name/value pairs.

CSS is a stylesheet language used to describe the presentation of a document written in HTML or XML. It controls the layout, colors, fonts, and overall look of web pages.



```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Simple Web Page with Input</title>
    <style>
        body {
            font-family: Arial, sans-serif;
        }
        h1 {
            color: red; /* Changed color to red */
        }
    </style>
</head>
<body>
<h1>Welcome to My Simple Web Page</h1>
<p>This is a basic example of an HTML page with input elements and minimal CSS styling.</p>
<input type="text" placeholder="Enter your name" />
<button id="submitbtn" type="button">Submit</button>
</body>
</html>
```

HTML attributes

id attribute uniquely identifies a single HTML element on a page.

```html
<input type="text" id="username"class="input-field" placeholder="Enter your username”></input>
```

HTML attributes

name attribute identifies form elements to send key-value pairs when submitting form data. Unlike id, name values don’t need to be unique. Multiple elements in a form can share the same name, allowing them to be grouped in the form submission.

```html
<input type="radio" id="colorRed" name="favoriteColor" value="Red">
<label for="colorRed">Red</label><br>

<input type="radio" id="colorBlue" name="favoriteColor" value="Blue">
<label for="colorBlue">Blue</label><br>
```

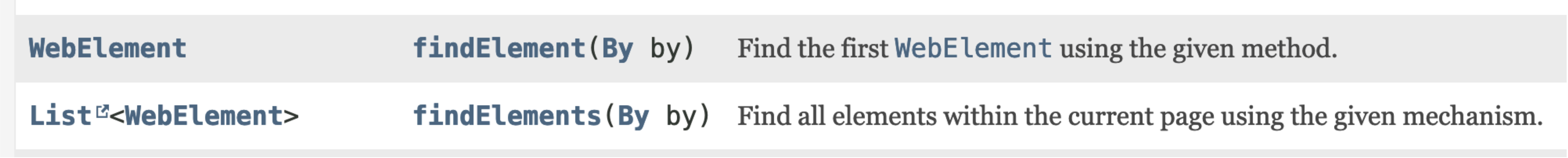
HTML attributes

class attribute categorises multiple elements by applying a common style or functionality to them.Class values do not need to be unique.

```
<html>
<head>
    <title>Class Attribute Example</title>
    <style>
    /* CSS to style the element with the "input-style" class */
        .input-style {
        border: 2px solid #4CAF50;
        padding: 8px;
        width: 100%;
        font-size: 16px;
        border-radius: 4px;
    }
    </style>
</head>
<body>
    <form>
        <label for="username">Username:</label>
        <input type="text" id="username" class="input-style" placeholder="Enter your username">
    </form>
</body>
</html>
```

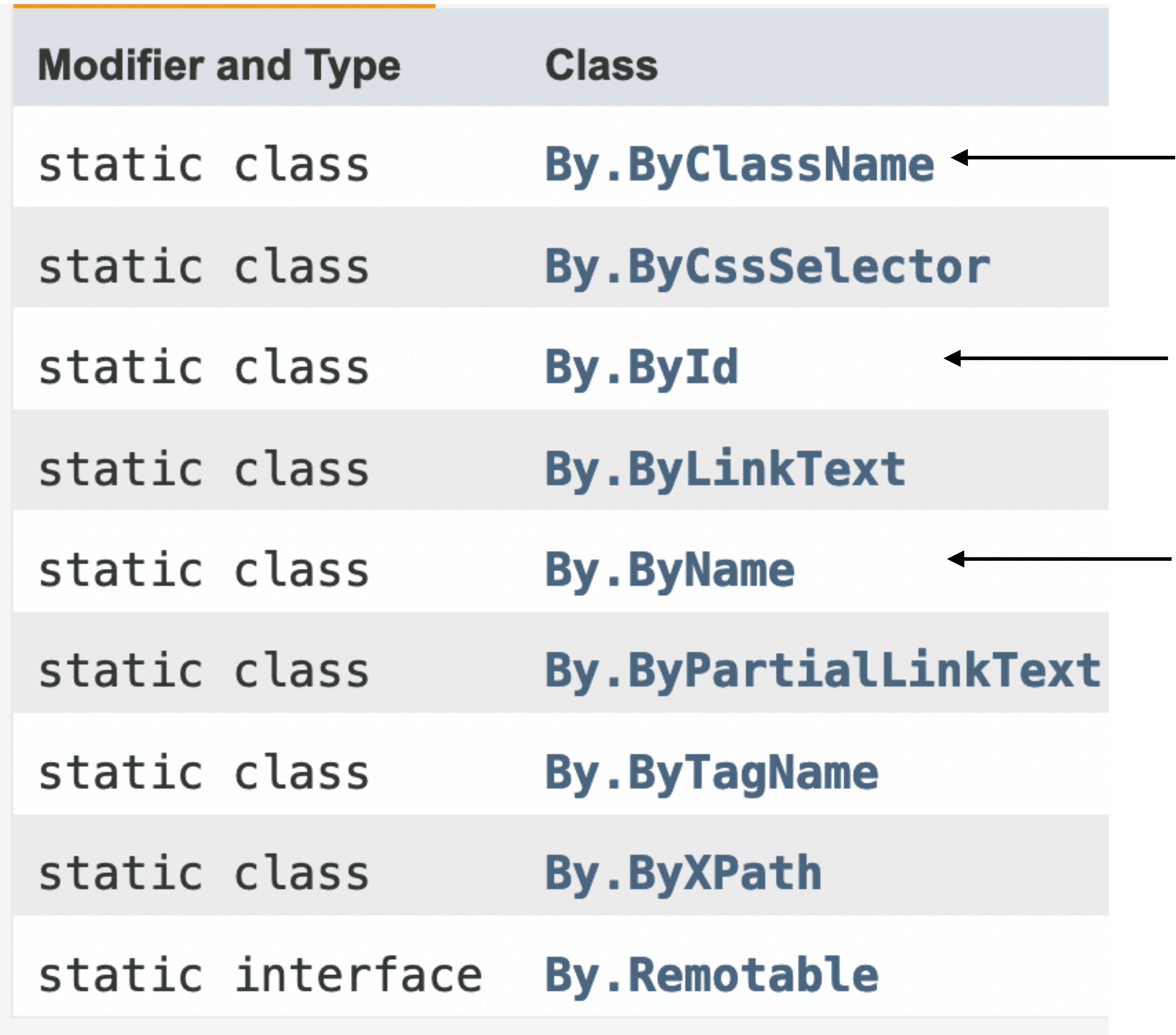
Locator Strategies in Selenium

WebDriver methods:



WebElement	findElement(By by)	Find the first WebElement using the given method.
List<WebElement>	findElements(By by)	Find all elements within the current page using the given mechanism.

By classes:



Modifier and Type	Class
static class	By.ByClassName
static class	By.ByCssSelector
static class	By.ById
static class	By.ByLinkText
static class	By.ByName
static class	By.ByPartialLinkText
static class	By.ByTagName
static class	By.ByXPath
static interface	By.Remotable

locate by **class** attribute

locate by **id** attribute

locate by **name** attribute

ByCssSelector Locator

By **id**, use # followed by the id value:

```
WebElement element = driver.findElement(By.cssSelector("#submitButton"));
```

By **class** , use . followed by the class value:

```
WebElement element = driver.findElement(By.cssSelector(".btn-primary"));
```

By **tag name**:

```
WebElement firstInput = driver.findElement(By.cssSelector("input"));
```

```
<input type="text" id="username" name="username" placeholder="Enter your username"></input>
<input type="password" id="password" name="password" placeholder="Enter your password"></input>
```

By **attribute**:

```
WebElement firstInput = driver.findElement(By.cssSelector("input[type='text']"));
```

```
WebElement firstInput = driver.findElement(By.cssSelector(“input[type='text']
[name='username']"));
```

ByCssSelector Combinations

Combining tag and id:

```
WebElement inputText = driver.findElement(By.cssSelector(“input#username”));
```

Combining tag and classname:

```
WebElement inputText = driver.findElement(By.cssSelector(“input.username”));
```

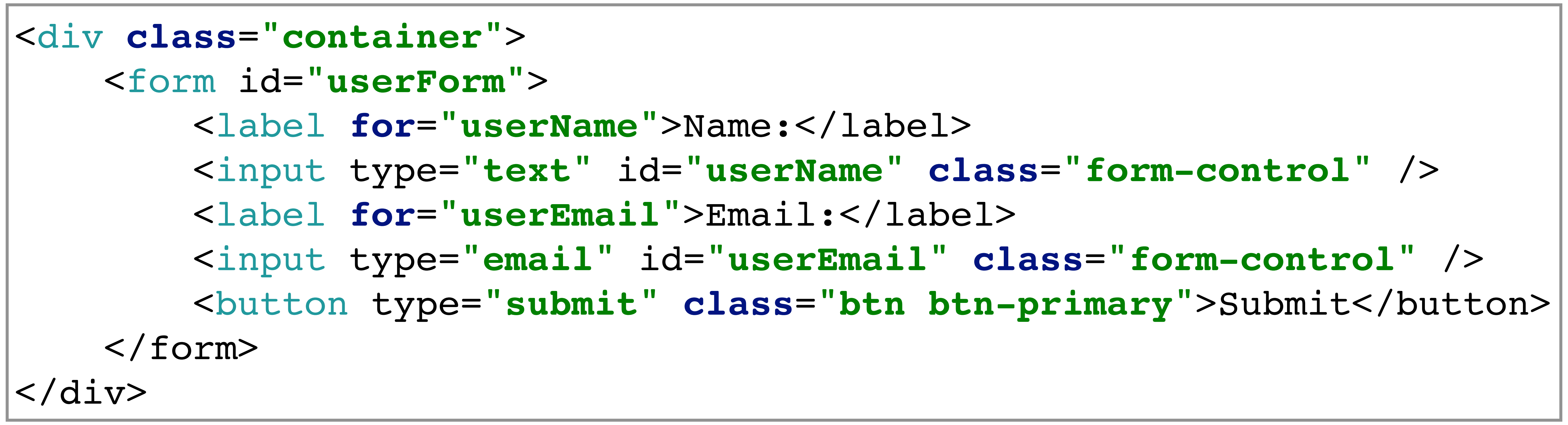
Combining tag, id and classname:

```
WebElement inputText = driver.findElement(By.cssSelector(“input#username.username”));
```

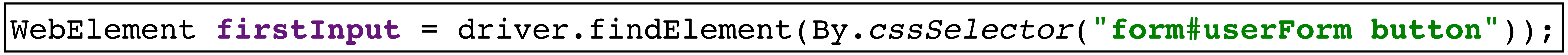
```
<input type="text" id="username" name="username" placeholder="Enter your username"></input>
<input type="password" id="password" name="password" placeholder="Enter your password"></input>
```

ByCssSelector Descendant Locator

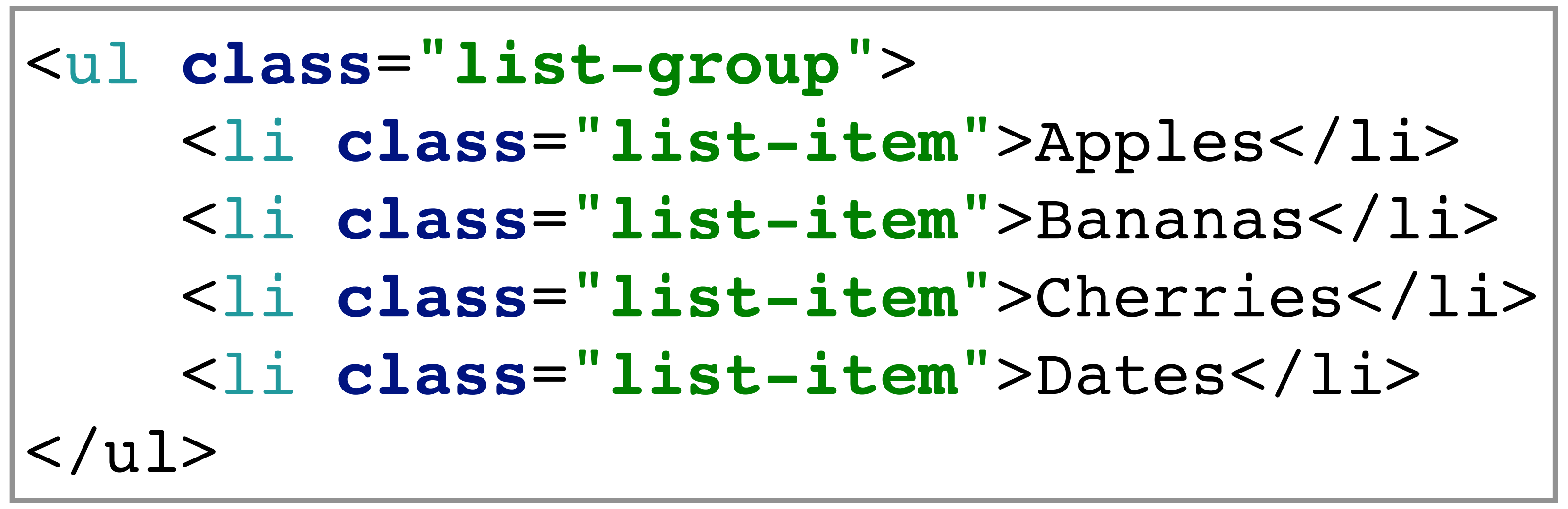
Targeting child elements within a specific parent:



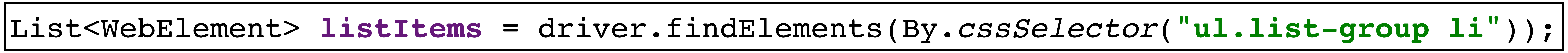
```
<div class="container">
    <form id="userForm">
        <label for="userName">Name:</label>
        <input type="text" id="userName" class="form-control" />
        <label for="userEmail">Email:</label>
        <input type="email" id="userEmail" class="form-control" />
        <button type="submit" class="btn btn-primary">Submit</button>
    </form>
</div>
```



```
WebElement firstInput = driver.findElement(By.cssSelector("form#userForm button"));
```



```
<ul class="list-group">
    <li class="list-item">Apples</li>
    <li class="list-item">Bananas</li>
    <li class="list-item">Cherries</li>
    <li class="list-item">Dates</li>
</ul>
```



```
List<WebElement> listItems = driver.findElements(By.cssSelector("ul.list-group li"));
```