WebElement and element locators

Test automation basics with Selenium & Java

1) WEB page
2) DOM (document object model)
3) WebElement (button, checkbox, etc)
4) WebElement locator
5) How WebDriver can locate WebElements:
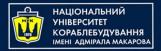
   findElement(...) - to find single element

   findElements(...) - to find list of elements

```java
@Test
public void openGoogleComInChromeTest() {
    File file = new File("src/test/resources/chromedriver.exe");
    System.setProperty("webdriver.chrome.driver",
file.getAbsolutePath());
    WebDriver driver = new ChromeDriver();
    driver.navigate().to("https://www.google.com/");
    System.out.println(driver.getTitle() +  " page has been opened");
    WebElement searchField = driver.findElement(By.name("q"));
    searchField.click();
    driver.quit();

}
```

1. Open target page
2. Press F12
3. Go to 'Elements'
4. Click „Select an element on the page to inspect it"
5. Click to the element
6. Element is displayed in DOM

Types of locators (By)

- id
- name
- className
- tagName
- cssSelector
- xpath
- linkText
- partialLinkText

```
driver.findElement(By.)
```

```
id("")
By.id(String id) org.openqa.…   By
By.ByClassName org.openqa.selen…
By.ByCssSelector org.openqa.sel…
By.ById org.openqa.selenium.By …
By.ByName org.openqa.selenium.By
By.ByLinkText org.openqa.seleni…
By.ByPartialLinkText org.openqa…
By.ByTagName org.openqa.seleniu…
By.ByXPath org.openqa.selenium.…
By.className(String classNam…   By
By.cssSelector(String cssSel…   By
By.linkText(String linkText)…   By
By.name(String name) org.ope…   By
By.partialLinkText(String pa…   By
By.tagName(String tagName) o…   By
By.xpath(String xpathExpress…   By
```

Ctrl+Down and Ctrl+Up will move caret down and up in the editor Next Tip

- `By.id("lst-ib");`
- `By.name("q");`
- `By.className("gsfi");`
- `By.tagName("input");`
- `By.cssSelector("input#lst-ib");`
- `By.xpath("//input[@aria-label = 'Search']");`
- `By.linkText("Gmail");`
- `By.partialLinkText("mail");`

1) chain of tags:

```
By.cssSelector("div input");
```

2)'#' followed by id:

```
By.cssSelector("input#lst-ib");
```

3)'.' followed by class value:

```
By.cssSelector("div input.gsfi");
```

4)attribute in square brackets:

```
By.cssSelector("input[title]") ;
```

5)tag name, attribute with its value:

```
By.cssSelector("input[title='Home']") ;
```

1) Chain of tags with '/', '//' :
```
By.xpath("//body/input");
```

2) tags, attributes and their values:
```
By.xpath("//input[@name]");
By.xpath("//div/input[@aria-la  bel='Search']");
```

3) search by text:
```
By.xpath("//*[text()='Gmail']");
```

4) logical expressions like and, or:
```
By.xpath("//*[@name='q'] | //*[@name='btnK']");
```

5) contains:
```
By.xpath("//*[contains(@class,  'gsfi')]");
```

- unique on the page
- rarely changed
- fast, good performance
- easy to understand

- One long xpath or css:

```
WebElement topResultRowHeader1 = driver.findElement(
    By.xpath("//div[@class='g']//div[@class='rc']/h3"));
```

- Or chain of finds - find child element inside parent:

```
WebElement topResultRowHeader2 = driver.findElement(
        By.xpath("//div[@class='g']")).findElements(
        By.className("rc")).get(0).findElement(
        By.tagName("h3"));
```

Learn how to write xpath and css locators

Open page https://www.youtube.com/

and write following locator using Google chrome developer tools panel:

1) css and xpath for youtube search field
2) css and xpath for youtube search button
3) list of elements (items) in left menu (with xpath or css)
4) locator for element which have attribute "type" containing partial text or text "image"