DA1: DESIGNING APPLICATIONS IN PYTHON
LECTURE
SELENIUM

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SELENIUM

Selenium is a powerful tool for:

- Web testing (i.g. Quality Assurance testing)
- Web automation
- Other routines

SELENIUM INSTALLATION

- First, you have to download the driver from the web.
- It can be any browser. For example, you can find Chrome browser here: http://chromedriver.chromium.org/
- There are also Firefox, Safari and other drivers. Simply google them

SELENIUM INSTALLATION

- Then you have to install the package for your Python environment
  pip install selenium

IMPORT PACKAGES AND MODULES

```
import time
from selenium import webdriver
from selenium.webdriver.support.ui import WebDriverWait
from selenium.webdriver.support import expected_conditions as EC
from selenium.webdriver.common.by import By
from selenium.webdriver import ActionChains
from selenium.webdriver.common.keys import Keys
```

- time – module is for making pauses (sleep() method)
- from selenium import webdriver – is driver itself
- from selenium.webdriver.support.ui import WebDriverWait – another (better) way to wait until something loads on the page
- from selenium.webdriver.support import expected_conditions as EC – expected condition (i.g. until object is clackable)
- from selenium.webdriver.common.by import By – find element by some feature (i.g. class, css_selector, xpath)
- from selenium.webdriver import ActionChains – the class for building the chain of actions
- from selenium.webdriver.common.keys import Keys – the class for sending the keyboard keys (i.g. Keys.ENTER)

MAKING A DRIVER OBJECT

```
options = webdriver.ChromeOptions()
options.add_argument("--start-maximized")
driver = webdriver.Chrome(executable_path='chromedriver.exe', options=options)
driver.get('https://www.instagram.com/')
```

- options = webdriver.ChromeOptions() – make the options parameter for driver
- options.add_argument("--start-maximized") – open the full window
- driver = webdriver.Chrome(executable_path='chromedriver.exe', options=options) – make the object of the driver
- driver.get('https://www.instagram.com/') – follow some URL address

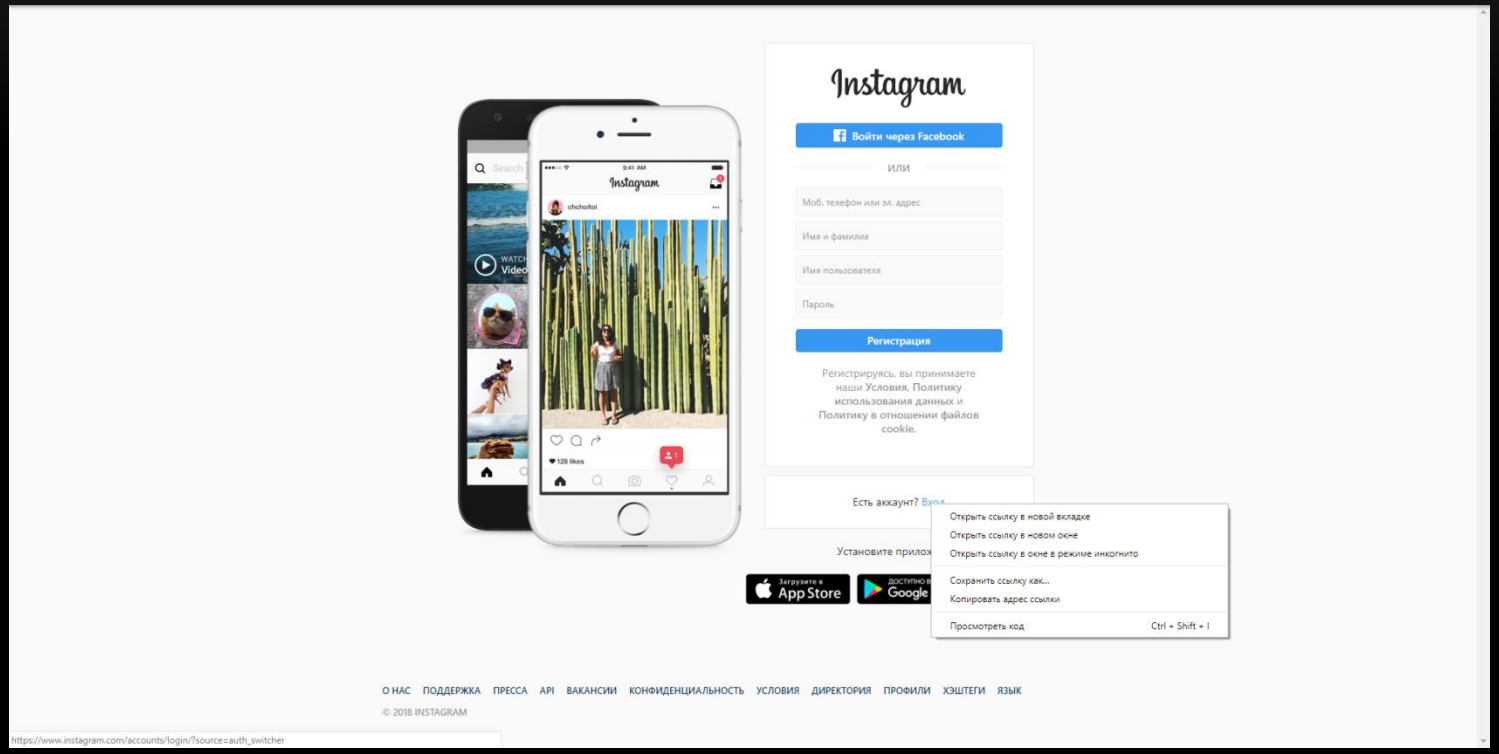
AN EXAMPLE OF WAITING FOR AN EVENT

```
element = WebDriverWait(driver, 5).until(
    EC.presence_of_element_located((By.CSS_SELECTOR, "#react-root > section > main > article > div.rgFsT > div:nth-child(2) > p > a"))
)

signIn_btn = driver.find_element_by_css_selector('#react-root > section > main > article > div.rgFsT > div:nth-child(2) > p > a')
signIn_btn.click()
```

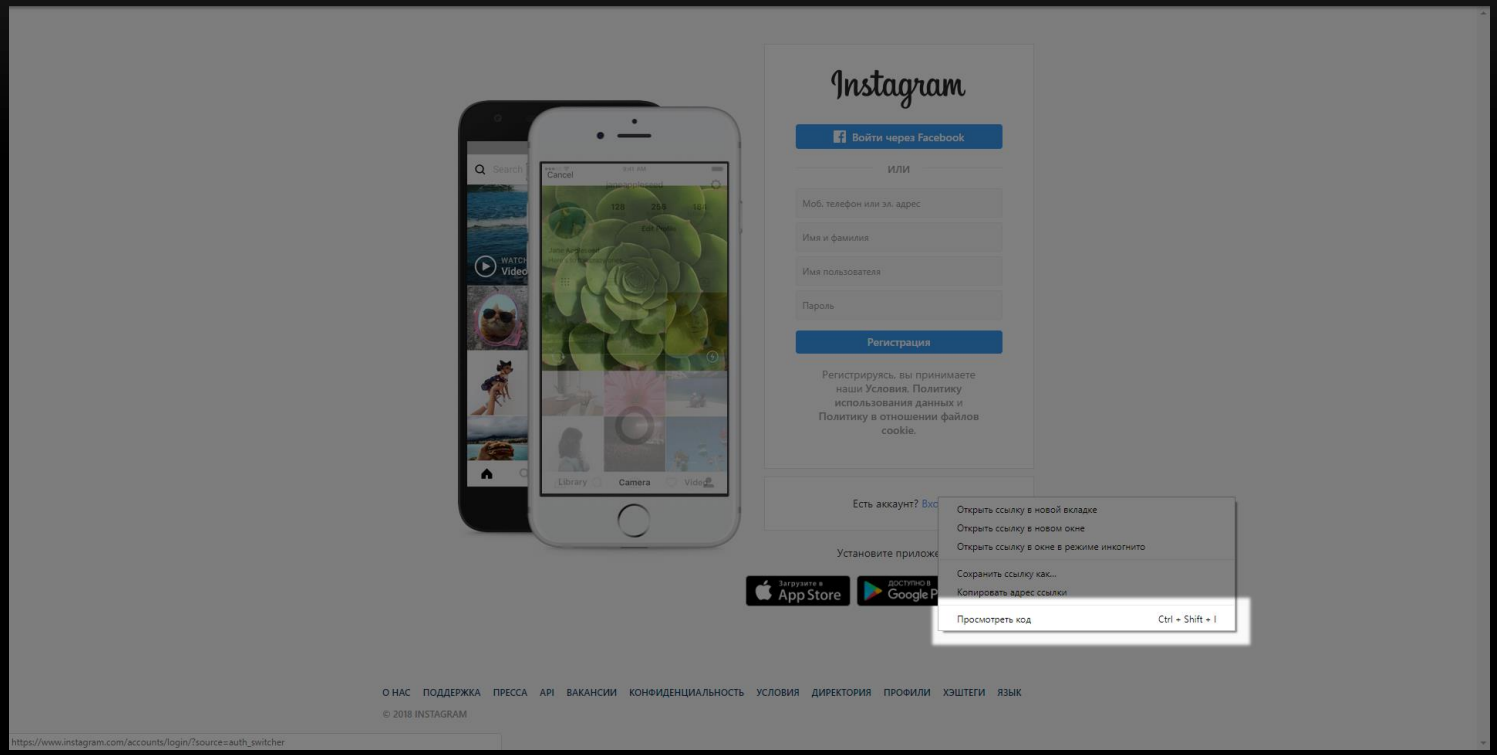
- element = WebDriverWait(driver, 5).until(
  EC.presence_of_element_located((By.CSS_SELECTOR, "#react-root > section > main > article > div.rgFsT > div:nth-child(2) > p > a"))
) – wait until the button locates itself on the page
- signIn_btn = driver.find_element_by_css_selector('#react-root > section > main > article > div.rgFsT > div:nth-child(2) > p > a') – make the button object
- signIn_btn.click() – click the button

FINDING THE ADDRESS OF AN ELEMENT



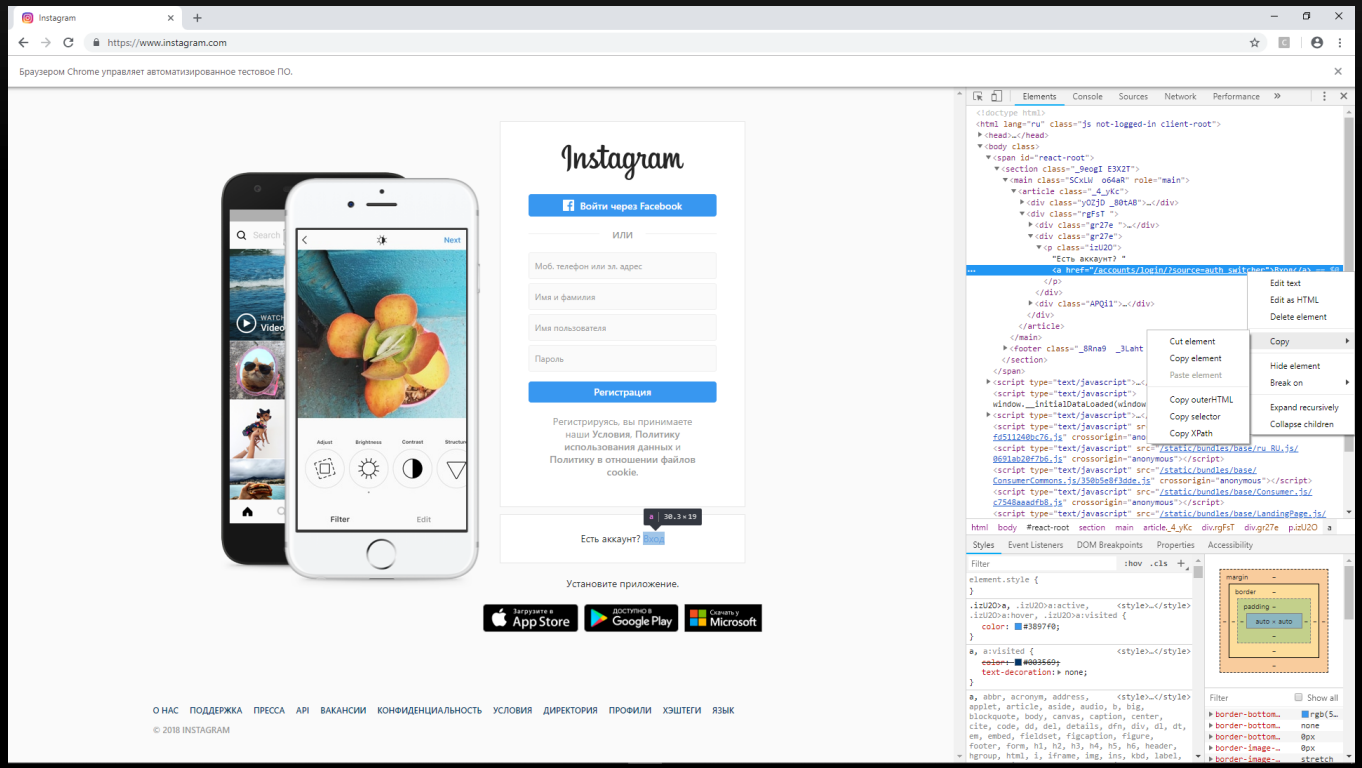
- In order to find an elements css_selector/xpath/class you have to click on it with the right mouse button

FINDING THE ADDRESS OF AN ELEMENT



- Click on ‘Check the source’

FINDING THE ADDRESS OF AN ELEMENT



- You'll get the source on the right side of the page. Click on the relevant area of the code and copy the selector/xpath

FINDING THE FORM

```
forms = driver.find_elements_by_class_name('_9nyy2')

nickname, password = read_users()
```

- forms = driver.find_elements_by_class_name('_9nyy2') – find the authorization form NOTICE THAT find_elements_by…returns you a list, instead find_element_by returns you a single web element
- nickname, password = read_users() – some data to be filled into the form

ACTIONS CHAIN

```
ActionChains(driver)\
    .move_to_element(forms[0]).click()\
    .send_keys(nickname)\
    .move_to_element(forms[1]).click()\
    .send_keys(password)\
    .send_keys(Keys.ENTER)\
    .perform()
```

ActionChains is a class for making a script of sequence of actions

- ActionChains(driver)\
  .move_to_element(forms[0]).click()\ # move to the first field of a form
  .send_keys(nickname)\ # send the text
  .move_to_element(forms[1]).click()\ # move to the second field of a form
  .send_keys(password)\ # send the text
  .send_keys(Keys.ENTER)\ # press the ENTER key
  .perform() # finally perform all actions