

# Advanced webscraping with Selenium

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## Description

Webscraping consists in using programming tools to extract content directly from webpages. This is more and more used to build original datasets based on information that is mainly accessible online. Most of the time, the website that one wants to scrape is static, meaning that for a given URL, all information is loaded on the webpage. Clicking on a button to show new information would then modify the URL.

However, a lot of websites are dynamic, meaning that the actions that one makes on the webpage (clicking on a button, selecting an input, etc.) do not change anything to the URL address. Therefore, having the URL is not enough to extract the data from the website. We also need to perform some actions to have access to the data. This makes webscraping harder, because we need to know how to mimic human actions on a webpage in order to extract the content that we need.

This is where tools like **Selenium** come into action. **Selenium** is a program that allows one to replicate their browser actions from the command line. It is therefore possible to create a program that will automatically open a browser, click on a button, download files, etc.

The goal of this training is to familiarize researchers (as well as PhD students, research assistants, etc.) with **Selenium**.

## Pre-requisites

We can use **Selenium** through different languages, such as R and Python. This training will be made in R, using the package **RSelenium**, but the methods and functions used should be easily convertible in Python.

This training will focus on the learning of **Selenium**. Therefore, some of the following skills and software are needed.

## R

Need to know how to:

- install and load packages;
- manipulate lists and vectors;
- write `for` loops.

Preferred but not required:

- familiarity with the core `tidyverse` packages (`dplyr`, `tidyr`);
- familiarity with the package `rvest`;
- familiarity with webscraping;
- know how to write custom functions.

## Software

Make sure that you installed the package `RSelenium` before the training. This may require the installation of [Java](#), which itself can require asking IT. To check whether Java is installed on your computer, open the command prompt by typing “cmd” in Windows search bar, and enter `java -version`. If this command returns an error, it means that Java is not installed.