IT8303
AI & HUMAN INTERFACE

LAB 2: ROBOTIC PROCESS AUTOMATION

Task 1: Installation of TagUI

Instruction: https://tagui.readthedocs.io/en/latest/setup.html

You can use TagUI following the below steps:

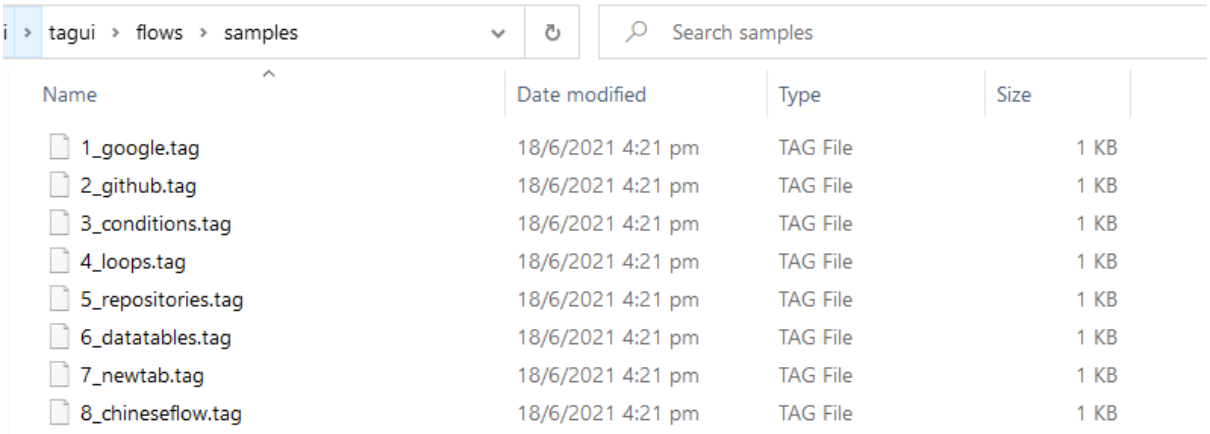
1. Download TagUI for Windows: https://github.com/kelaberetiv/TagUI/releases/download/v6.46.0/TagUI_Windows.exe
2. Install the software under C:\tagui

Main Concepts

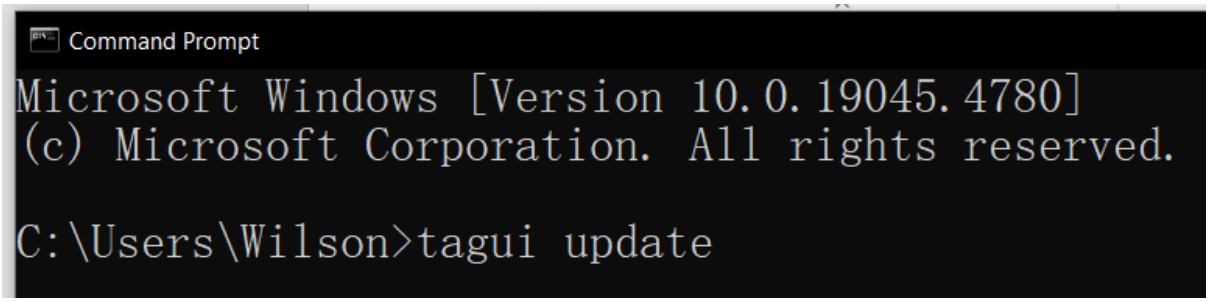
Flows

TagUI automates your actions by running flows, which are text files with .tag file extension.

Under the folder tagui\flows\samples, there are multiple sample flows files for you to try.



After the installation, you can open your Command Prompt, and run the command "**tagui update**", this will ensure they update the tagui to the latest version.



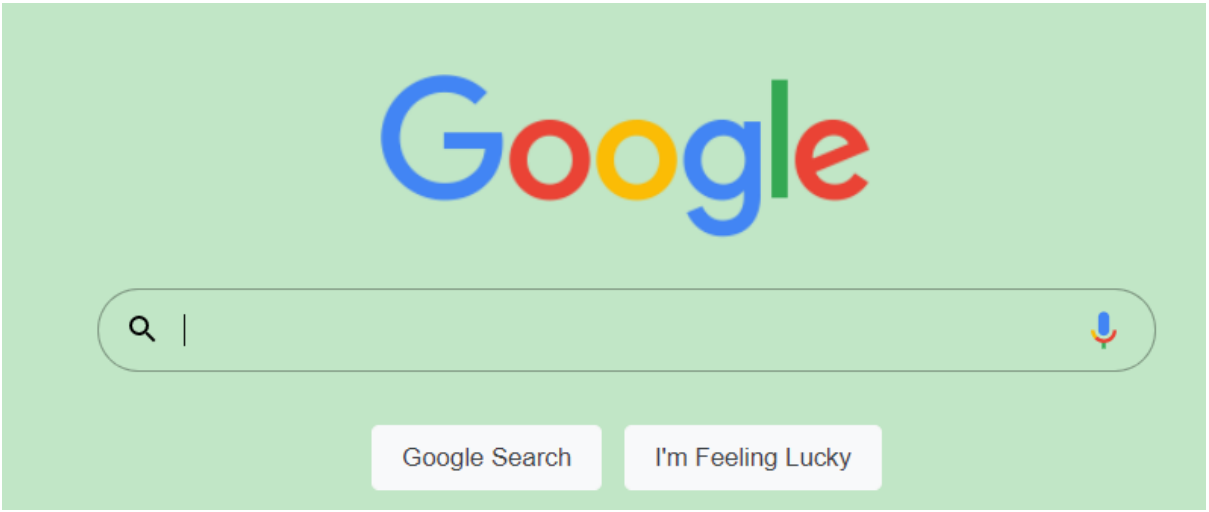
Task 2: Automating Google search and web scraping

This exercise will try to execute a flows that will automatically make a search on Google, clicks the first result and screenshots the page.

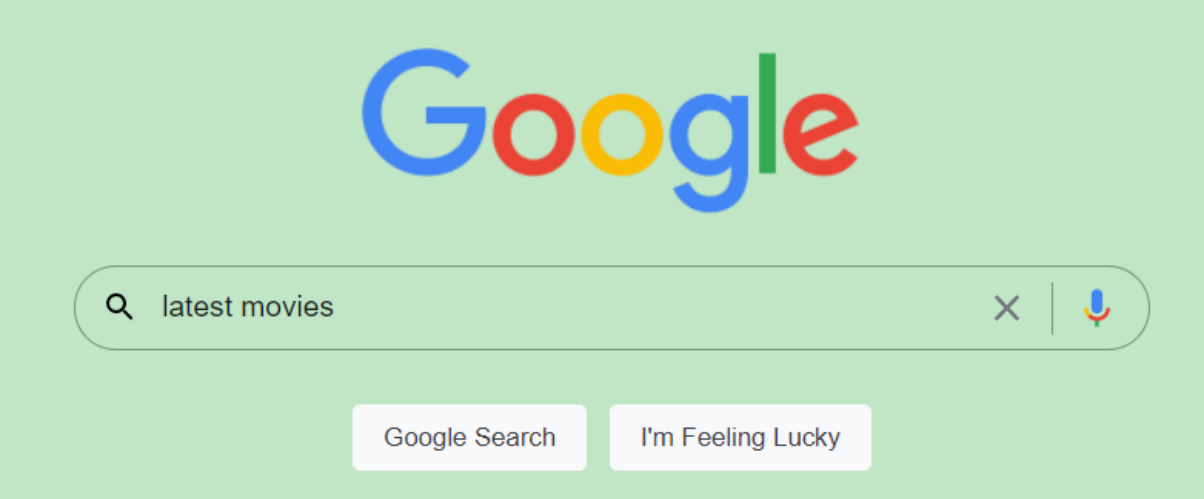
Open your command prompt, change the directory to the tagui samples folder by typing "**cd c:/tagui/tagui/flows/samples**".

The run the command "**tagui 1_google.tag**".

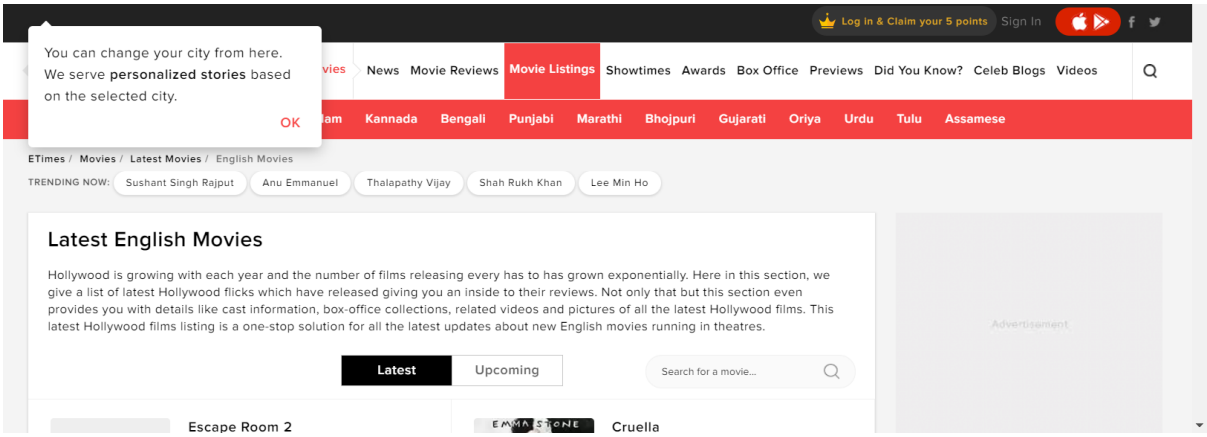
1. Google page will open automatically.



2. It will automatically search “latest movie” in Google search bar.



3. It will enter the first website, do a screen shot, then close the browser.



4. You will find the screen shot *.png file saved under **tagui/flows/samples**.

If you open the 1_google.tag file in Notepad, you can see the source code:

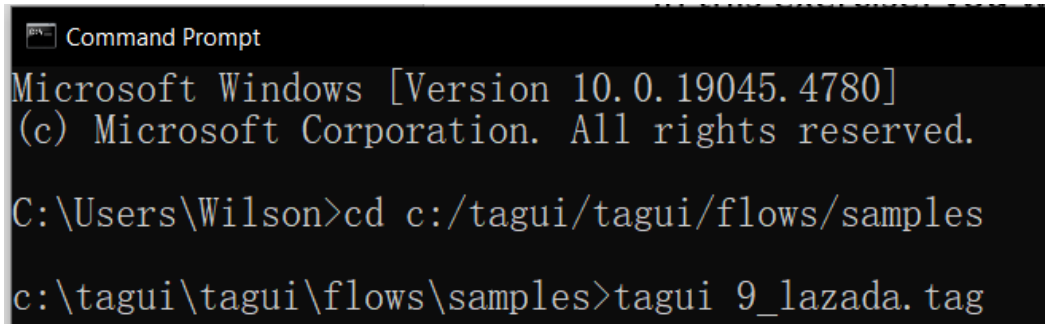
```
// First, visit google.com
https://www.google.com

// Look on the web page for an element with 'q' in its text, id or name
// (or some other attributes), then type 'latest movies' and enter
// type q as latest movies[enter]

// Use a more accurate identifier below instead because
// google.com webpage differs for different locations
type //*[@name="q"] as latest movies[enter]

// Click the first result using XPath
// Learn XPath: https://www.w3schools.com/xml/xpath_intro.asp
click (//*[@class="g"])[1]//a

// Wait 3 seconds so the page can load
wait 3

// Save a screenshot of the web page to top_result.png
snap page to top_result.png
```

Task 3: Make a search on Lazada

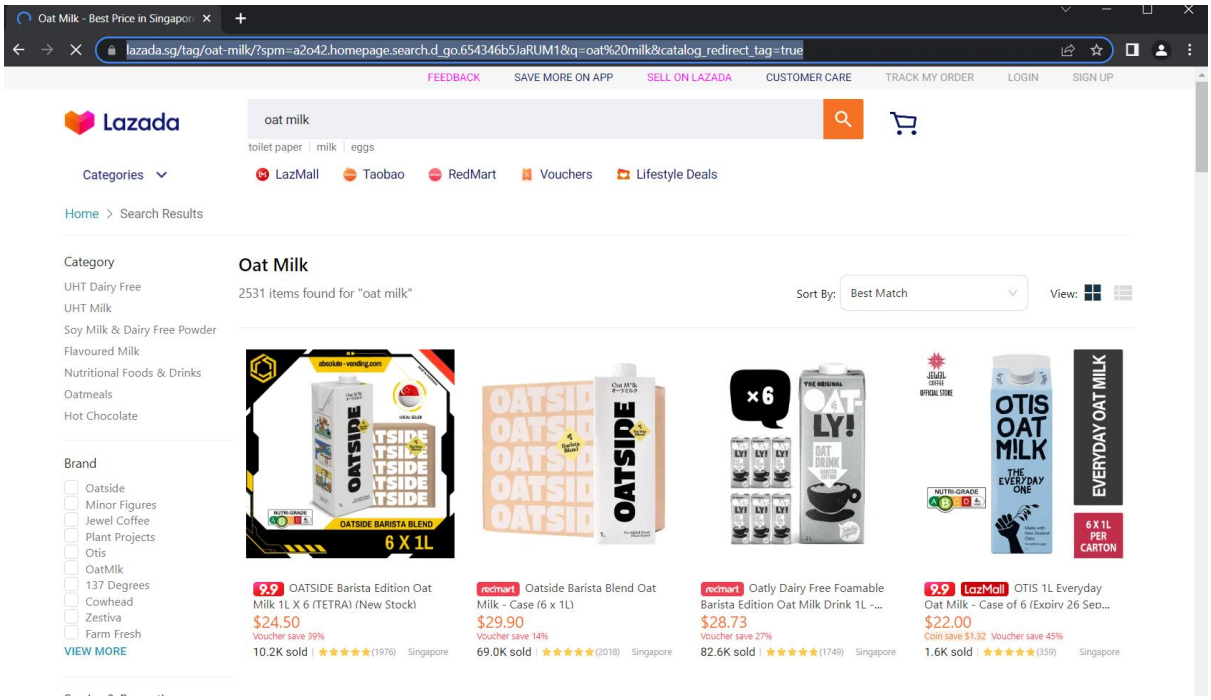
In this exercise, you will try to use TagUI to make a product search (Oat Milk) on Lazada and save the top 40 results to a CSV file.

Open your command prompt, change the directory to the tagui samples folder by typing "**cd c:/tagui/tagui/flows/samples"**.

The run the command "**tagui 9_lazada.tag**".



1. The Chrome browser will be open, go to the Lazada website, and automatically search the product "oat milk".



2. Wait for 30 seconds, the browser will close and you will find a **“Oat Milk.csv” file** being saved in the folder under “tagui/flows/samples”.

3. You can open the Oat Milk.csv file and take a look. There are 40 products records.

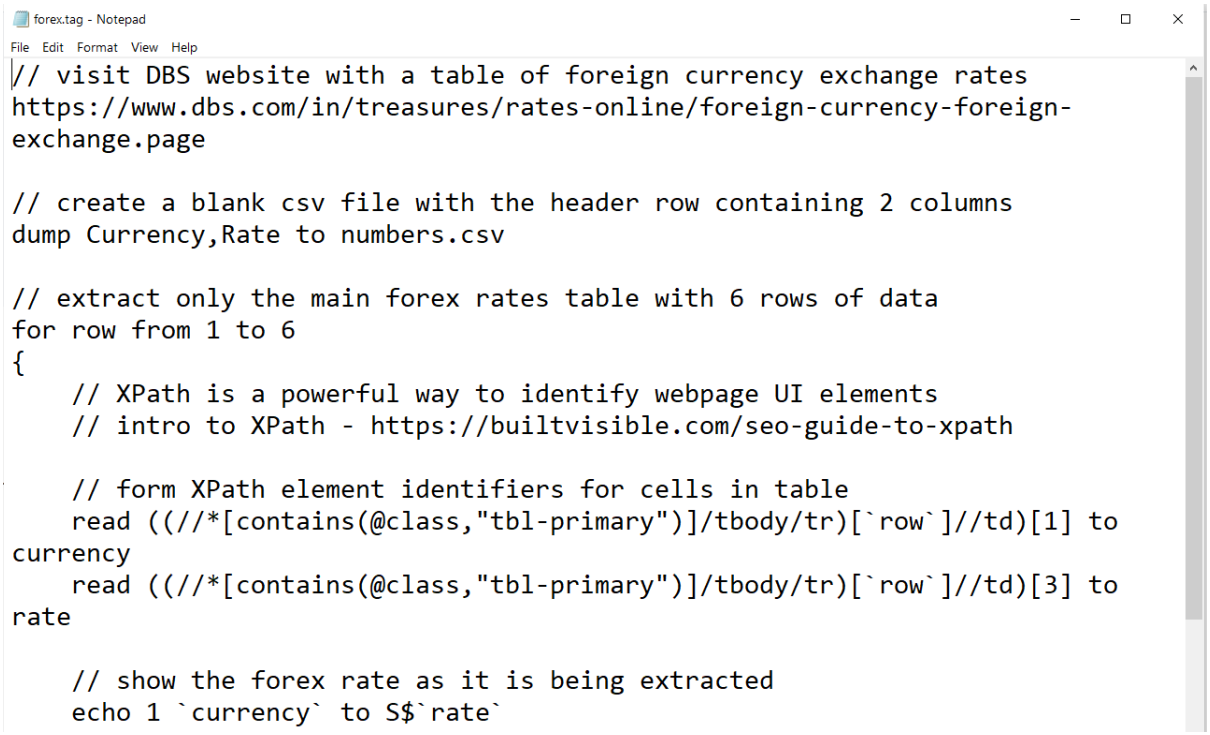
#	Item	Price	Link
1	OATSIDE Barista E	$24.50	https://www.lazada.sg/products/oatside-barista-edition-oat-milk-1l-x-6-tetra-new-stock-i2746449286.html
2	Oatside Barista Bl	$29.90	https://www.lazada.sg/products/oatside-barista-blend-oat-milk-case-6-x-1l-i2215796484.html
3	Oatly Dairy Free F	$28.73	https://www.lazada.sg/products/oatly-dairy-free-foamable-barista-edition-oat-milk-drink-1l-case-i736878853.html
4	OTIS 1L Everyday	$22.00	https://www.lazada.sg/products/otis-1l-everyday-oat-milk-case-of-6-expiry-26-sep-2024-i1115918390.html
5	Oatly Dairy Free F	$39.36	https://www.lazada.sg/products/oatly-dairy-free-foamable-barista-edition-oat-milk-drink-1l-case-try-swedish-laz-mama-shop-i2234451144.html
6	OATLY Barista Edi	$26.90	https://www.lazada.sg/products/oatly-barista-edition-oat-milk-1l-x-6-tetra-new-stock-i2221025056.html
7	OTIS 1L Barista Oa	$28.00	https://www.lazada.sg/products/otis-1l-barista-oat-milk-case-of-6-expiry-20-nov-2024-i1115496152.html
8	ALL GOOD Barista	$4.95	https://www.lazada.sg/products/all-good-barista-oat-milk-i1635158228.html
9	MINOR FIGURES (	$29.90	https://www.lazada.sg/products/minor-figures-organic-oat-milk-1l-x-6-tetra-new-stock-i2894484496.html
10	Oatside Barista Bl	$25.90	https://www.lazada.sg/products/oatside-barista-blend-original-oat-milk-with-straws-case-200ml-x-24-dairy-free-creamy-zero-added-sugar-i2997764205.html
11	Oatly Dairy Free C	$1.90	https://www.lazada.sg/products/oatly-dairy-free-chocolate-oat-milk-drink-250ml-i594066960.html
12	Australia's Own U	$6.66	https://www.lazada.sg/products/australias-own-unsweetened-oat-milk-i2638046441.html
13	Oatbedient Oat M	$20.55	https://www.lazada.sg/products/oatbedient-oat-mlk-barista-3-x-1l-halal-i2673662238.html
14	Oatly Dairy Free D	$34.64	https://www.lazada.sg/products/oatly-dairy-free-deluxe-high-calcium-oat-milk-drink-1l-case-i2807949426.html
15	Sanitarium So Goo	$4.54	https://www.lazada.sg/products/sanitarium-so-good-long-life-unsweetened-oat-milk-i1854315373.html
16	UFC Velvet Oat M	$4.96	https://www.lazada.sg/products/ufc-velvet-oat-milk-unsweetened-i585030769.html
17	Oatside Barista Bl	$1.76	https://www.lazada.sg/products/oatside-barista-blend-oat-milk-pocket-pack-200ml-i2777211273.html
18	Oatside Barista Bl	$6.10	https://www.lazada.sg/products/oatside-barista-blend-oat-milk-1l-i2081316964.html
19	Oatbedient Oat M	$10.90	https://www.lazada.sg/products/oatbedient-oat-milk-with-oats-chia-seeds-12-x-35g-halal-i2307833888.html
20	Oatly Dairy Free F	$5.00	https://www.lazada.sg/products/oatly-dairy-free-foamable-barista-edition-oat-milk-drink-1l-i322290429.html
21	noomoo Oat/Coc	$10.50	https://www.lazada.sg/products/noomoo-oatcoconut-milk-barista-1lx2-uht-lactose-free-vegan-plant-based-dairy-free-mylk-i2469262820.html
22	Oatside Barista Bl	$3.51	https://www.lazada.sg/products/oatside-barista-blend-oat-milk-with-straw-3-x-200ml-i2998693985.html
23	Oatly Dairy Free C	$6.56	https://www.lazada.sg/products/oatly-dairy-free-organic-oat-milk-drink-1l-i301124661.html
24	Otis Oat Milk Bari	$31.00	https://www.lazada.sg/products/otis-oat-milk-barista-case-6-x-1l-i1682202263.html
25	Oatside Chocolate	$6.10	https://www.lazada.sg/products/oatside-chocolate-oat-milk-1l-i2081354793.html
26	Minor Figures Bar	$28.90	https://www.lazada.sg/products/minor-figures-barista-oat-milk-organic-6-x-1l-i3117648167.html

Task 4: Extracting Forex rate from DBS and write to Excel

This automation flow gets forex rates from DBS.com and save the rates into a CSV file. The flow was done on Google Chrome at 125% zoom, images may have to be replaced with your browser's to work.

```
// visit DBS website with a table of foreign currency exchange rates
https://www.dbs.com/in/treasures/rates-online/foreign-currency-foreign-exchange.page

// create a blank csv file with the header row containing 2 columns
dump Currency,Rate to numbers.csv

// extract only the main forex rates table with 8 rows of data
for row from 1 to 8
{
   // XPath is a powerful way to identify webpage UI elements
   // intro to XPath - https://builtvisible.com/seo-guide-to-xpath

   // form XPath element identifiers for cells in table
   read ((//*[contains(@class,"tbl-primary")]/tbody/tr)[`row`]//td)[1] to currency
   read ((//*[contains(@class,"tbl-primary")]/tbody/tr)[`row`]//td)[3] to rate

   // show the forex rate as it is being extracted
   echo 1 `currency` to S$`rate`

   // save current row of forex rate to the csv file
   // by using csv_row() function on an array of fields
   forex_rate = [currency, 'S$' + rate]
   write `csv_row(forex_rate)` to numbers.csv
}
```

Open your Notepad, copy paste the code into Notepad, and then save the file as forex.tag.



Open your command prompt, execute the code as below:

tagui forex.tag

Check how the flows open the browser, direct to DBS's website, and record the forex rate into the CSV file **numbers.csv**.

Congratulations, you complete Lab 2 ☺