Web Scrapping Using Python

OVERVIEW

A fundamental project that gives you a better understanding of working with Python. Creation of a book directory, where endpoints are used and creation of it using four basic methods: GET, POST, PUT, and DELETE. We are going to build a REST API to manage books with Node.js and Express. REST APIs use different HTTP request methods, corresponding to the previously mentioned actions, to retrieve and manipulate data. Here we are using JSON file for the data collection purpose.

Problem Statement

Scrap data of 100+ restaurants and their information along with their phone numbers and addresses using python in less than 40 lines of code and export it as a CSV file format.

Software Requirements

1. Programming Language : Python

2. Environemnt: Jupyter Notebooks / Google Collab

3. Database: CSV(export type)

4. Operation System: Windows XP or above

5. Librarires Used: Beautiful Soup, URLlib, Pandas

Creating the Scraper

1. Open a New Notebook and import the required libraires

```
import bs4 as bs
import urllib.request as url_x
import pandas as pd
```

In this step we import the libraries that are basically required for following operation. Bs4 stands for BeautiFullSoup4 which we use for pulling data out of html and xml files(but doesn't directly allow to download data). Urllib module is for URL handling it uses different inbuilt functions to deal with the url. Pandas are used for data manipulation and analysis.

2. Decalring Required Variables & Taking input of State Name

```
BusinessNames=[]
Phone=[]
Address=[]
Urls=[]
state_name = input('Enter State name here:')
print('Process Ignited')
```

Here we basically declare all the variables that are required in the process of scrapping. Here we tale input by using the INPUT function.

3. Declaring URL & post forwarding a variable

```
url='https://www.yelp.com/search?find_desc=Restaurants&find_near=alabama-state-capitol-montgomery'

urlsource=''+url+'&next='
```

Here we declare all the required URL’s and add extended info to the url which helps it to get it to next required pages.

4. Main Function Process – Attaching Classes to Declared Variables

In this main part of the process ,firstly we declare number of pages we want to explore then we will be adding the page no. to the url. We use BeautifulSoup module to initialize html parser and this parser creates a parse tree through which data is accessed.

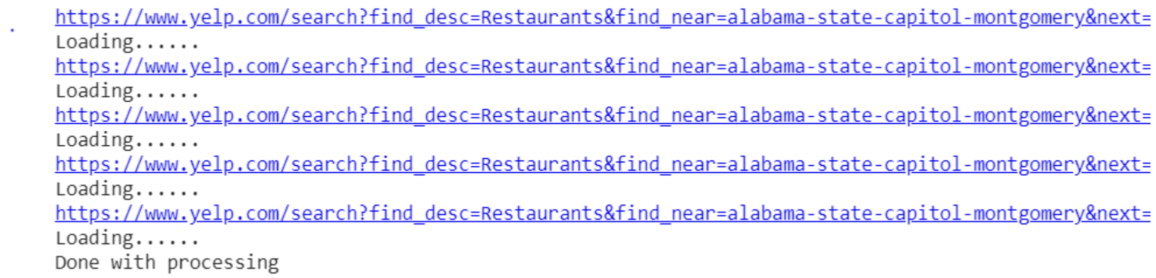
We use variable called mains where we store required class that has all the information required, using FIND_ALL function we search all the classes. In for loop we use try function and that is used to get all the required information from the web(like business name, phone number, address) and append it into a list.

In the output we can see the url’s have different page numbers(i.e. accessed that many different pages).

```
no_of_pages=5
for iteration in range(no_of_pages):
 s=iteration*10
 if(s==0):
  s=1
 source = url_x.urlopen(urlsource+str(s))
 print(urlsource+str(s))

 page_soup = bs.BeautifulSoup(source, 'html.parser')
 mains = page_soup.find_all("div", {"class": " scrollablePhotos__09f24__1PpB8 arrange__09f24__Ai
SIM border-color--default__09f24__R1nRO"})
 for main in mains:
   try:
     busname = main.find("a", {"class" : " link__09f24__1kwXV link-color--
inherit__09f24__3PYlA link-size--inherit__09f24__2Uj95"}).text
     BusinessNames.append(busname)
     pnumber = main.find("p", {"class" : " text__09f24__2tZKC text-color--black-extra-
light__09f24__38DtK text-align--right__09f24__1TIxB text-size--small__09f24__1Z_UI"}).text
     Phone.append(pnumber)
     address = main.find("span", {"class" : " raw__09f24__3Obuy"}).text
     Address.append(address)
     url = main.find("a", {"class" : " link__09f24__1kwXV link-color--inherit__09f24__3PYlA link-
size--inherit__09f24__2Uj95"})['href']
     Urls.append("yelp.com" + url)
   except:
     print(None)
 print('Loading......')
print('Done with processing')
```

OUTPUT :



```
https://www.yelp.com/search?find_desc=Restaurants&find_near=alabama-state-capitol-montgomery&next=
Loading......
https://www.yelp.com/search?find_desc=Restaurants&find_near=alabama-state-capitol-montgomery&next=
Loading......
https://www.yelp.com/search?find_desc=Restaurants&find_near=alabama-state-capitol-montgomery&next=
Loading......
https://www.yelp.com/search?find_desc=Restaurants&find_near=alabama-state-capitol-montgomery&next=
Loading......
https://www.yelp.com/search?find_desc=Restaurants&find_near=alabama-state-capitol-montgomery&next=
Loading......
Done with processing
```

5. Combining various variables into a single dictionary & data framing the Dictionary using Pandas

```
dictionary = {'BusinessNames': BusinessNames, 'Address': Address, 'State': state_name, 'Phone': Pho
ne,  'Urls': Urls}

df=pd.DataFrame(dict([(k,pd.Series(v)) for k,v in dictionary.items()]))
```

Here we have combined all the lists(i.e. phone number, business names, address,url's) into one table format. Firstly we convert data into dictionary format and then into data frames using PANDAS. Keys and values of the dictionary are loaded into the table.

6. Converting the Data frames into CSV File

In this step we convert the data frames into CSV(comma separated values) format.

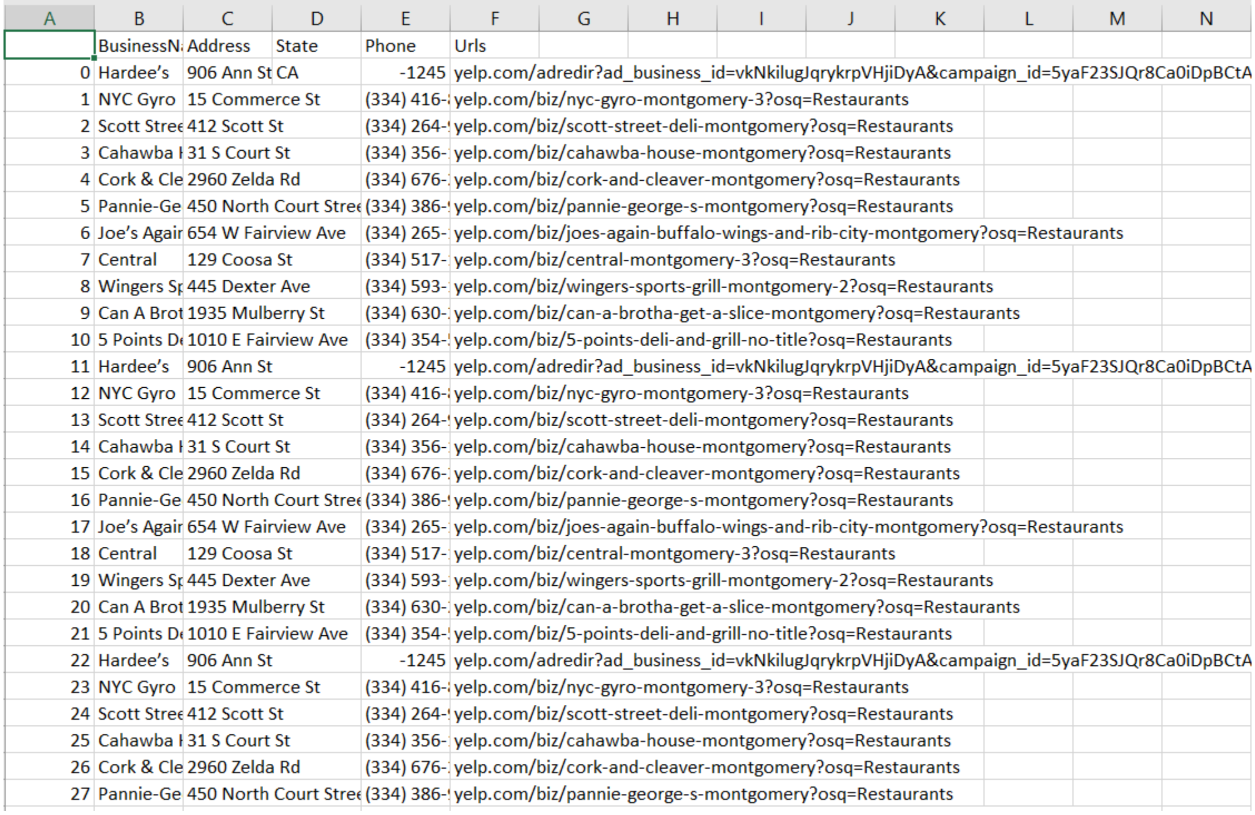
```
df.to_csv(''+state_name+'.csv',encoding='utf-8-sig')
print('saved as a file')
```

7. Downloading The CSV file from Google Collab

At last we download the file and name it as “filename.csv”.

```
from google.colab import files
files.download(''+state_name+'.csv')
```

A Glimpse of the CSV File



A	B	C	D	E	F
	BusinessN	Address	State	Phone	Urls
0	Hardee’s	906 Ann St	CA	-1245	yelp.com/adredir?ad_business_id=vkNkilugJqrykrpVHjiDyA&campaign_id=5yaF23SJQr8Ca0iDpBCtA
1	NYC Gyro	15 Commerce St		(334) 416-	yelp.com/biz/nyc-gyro-montgomery-3?osq=Restaurants
2	Scott Stree	412 Scott St		(334) 264-	yelp.com/biz/scott-street-deli-montgomery?osq=Restaurants
3	Cahawba I	31 S Court St		(334) 356-	yelp.com/biz/cahawba-house-montgomery?osq=Restaurants
4	Cork & Cle	2960 Zelda Rd		(334) 676-	yelp.com/biz/cork-and-cleaver-montgomery?osq=Restaurants
5	Pannie-Ge	450 North Court Stree		(334) 386-	yelp.com/biz/pannie-george-s-montgomery?osq=Restaurants
6	Joe’s Agair	654 W Fairview Ave		(334) 265-	yelp.com/biz/joes-again-buffalo-wings-and-rib-city-montgomery?osq=Restaurants
7	Central	129 Coosa St		(334) 517-	yelp.com/biz/central-montgomery-3?osq=Restaurants
8	Wingers Sp	445 Dexter Ave		(334) 593-	yelp.com/biz/wingers-sports-grill-montgomery-2?osq=Restaurants
9	Can A Brot	1935 Mulberry St		(334) 630-	yelp.com/biz/can-a-brotha-get-a-slice-montgomery?osq=Restaurants
10	5 Points De	1010 E Fairview Ave		(334) 354-	yelp.com/biz/5-points-deli-and-grill-no-title?osq=Restaurants
11	Hardee’s	906 Ann St		-1245	yelp.com/adredir?ad_business_id=vkNkilugJqrykrpVHjiDyA&campaign_id=5yaF23SJQr8Ca0iDpBCtA
12	NYC Gyro	15 Commerce St		(334) 416-	yelp.com/biz/nyc-gyro-montgomery-3?osq=Restaurants
13	Scott Stree	412 Scott St		(334) 264-	yelp.com/biz/scott-street-deli-montgomery?osq=Restaurants
14	Cahawba I	31 S Court St		(334) 356-	yelp.com/biz/cahawba-house-montgomery?osq=Restaurants
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18	Central	129 Coosa St		(334) 517-	yelp.com/biz/central-montgomery-3?osq=Restaurants
19	Wingers Sp	445 Dexter Ave		(334) 593-	yelp.com/biz/wingers-sports-grill-montgomery-2?osq=Restaurants
20	Can A Brot	1935 Mulberry St		(334) 630-	yelp.com/biz/can-a-brotha-get-a-slice-montgomery?osq=Restaurants
21	5 Points De	1010 E Fairview Ave		(334) 354-	yelp.com/biz/5-points-deli-and-grill-no-title?osq=Restaurants
22	Hardee’s	906 Ann St		-1245	yelp.com/adredir?ad_business_id=vkNkilugJqrykrpVHjiDyA&campaign_id=5yaF23SJQr8Ca0iDpBCtA
23	NYC Gyro	15 Commerce St		(334) 416-	yelp.com/biz/nyc-gyro-montgomery-3?osq=Restaurants
24	Scott Stree	412 Scott St		(334) 264-	yelp.com/biz/scott-street-deli-montgomery?osq=Restaurants
25	Cahawba I	31 S Court St		(334) 356-	yelp.com/biz/cahawba-house-montgomery?osq=Restaurants
26	Cork & Cle	2960 Zelda Rd		(334) 676-	yelp.com/biz/cork-and-cleaver-montgomery?osq=Restaurants
27	Pannie-Ge	450 North Court Stree		(334) 386-	yelp.com/biz/pannie-george-s-montgomery?osq=Restaurants

Conclusion

Therefore we have successfully scraped the Data of 100+ restaurants along with their mobile numbers, addresses &URLs using Python