

Indian Institute of Information Technology Surat



Lab Report on Machine Learning (CS 601) Practical

Submitted by

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Table of Contents

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Lab No: 1

Aim:

Data Collection from E-Commerce, Twitter and Similar Platforms

Description:

Write a Python script for:

(a) Collecting tweets that may incorporate owner, date of post, number of retweet, number of followers, no of followers, and other associated information from Twitter and store it into a .csv file. (The size of collected tweets >5000)

(b) To scrap users reviews from any E-commerce or similar portals (Ex- Amazon, Flipkart, Yelp) and store it into a csv file that may incorporate date of post, number of likes/dislikes, reviews, location, and other associated fields (The size of collected reviews >5000).

Source Code:

For Task (a):

```
# -----  
from selenium import webdriver  
from selenium.webdriver.common.by import By  
from fake_useragent import UserAgent  
from webdriver_manager.firefox import GeckoDriverManager  
import time  
import json  
import os  
from selenium.webdriver.common.keys import Keys  
  
MY_USERNAME_VAR = os.getenv('USERNAME')  
MY_PASS_VAR = os.getenv('PASS')  
def wait_for_window(self, timeout = 2):  
    time.sleep(round(timeout / 1000))  
    wh_now = self.driver.window_handles  
    wh_then = self.vars["window_handles"]  
    if len(wh_now) > len(wh_then):  
        return set(wh_now).difference(set(wh_then)).pop()  
keywords = ["WWE", "Rock", "RomanReigns"]  
ulrs = []  
options = webdriver.FirefoxOptions()  
options.headless = False  
ua = UserAgent()  
userAgent = ua.random
```

```

options.add_argument(f'user-agent={userAgent}')

driver =
webdriver.Firefox(executable_path=GeckoDriverManager().install(),options=options)
driver.get("https://twitter.com/i/flow/login")
driver.maximize_window()
time.sleep(10)
try:
    input_element = driver.find_element(By.CSS_SELECTOR,
'.r-30o5oe.r-1niwhzg.r-17gur6a.r-1yadl64.r-de0lkf.r-homxoj.r-poiln3')
    input_element.click()
    time.sleep(5)
    password_x = driver.find_element(By.CSS_SELECTOR,
'.r-30o5oe.r-1niwhzg.r-17gur6a.r-1yadl64.r-de0lkf.r-homxoj.r-poiln3.r-7cikom.r-1ny41
31.r-t60dpp.r-1dz5y72.r-fdjy7.r-13qz1uu')
    password_x.click()
    password_x.send_keys(MY_PASS_VAR)
    time.sleep(5)
    with open('keyword_numbers.json', 'w') as file:
        json.dump(keyword_numbers, file)

except Exception as e:
    print(ulrs)
    print("An error occurred:", str(e))

```

For Task (b):

```

import csv

from selenium import webdriver
from selenium.webdriver.common.by import By
import time

def extract_reviews(product_url, num_reviews_to_scrape=10):
    driver = webdriver.Chrome()
    driver.get(product_url)
    time.sleep(8)
    reviews = []
    review_elements = driver.find_elements(By.CSS_SELECTOR, '.a-section.review')
    temp_Date = ""
    for review_element in review_elements[:num_reviews_to_scrape]:
        time.sleep(1)
        review = {}
        review['author'] = review_element.find_element(By.CSS_SELECTOR,

```

```

'.a-profile-name').text.strip()
    temp_Date = review_element.find_element(By.CSS_SELECTOR,
'.review-date').text.strip()
    review['date'] = temp_Date[temp_Date.find('on')+3:]
    review['location'] = temp_Date[12:temp_Date.find('on')-1]
    review['text'] = review_element.find_element(By.CSS_SELECTOR,
'.review-text-content').text.strip()
    review['rating'] =
review_element.find_element_by_xpath('//i[@data-hook="review-star-rating"]').text.st
rip()
    review['title'] = review_element.find_element(By.CSS_SELECTOR,
'.review-title').text.strip()
    reviews.append(review)
    print(review)
    driver.quit()
    return reviews
product_url =
'https://www.amazon.in/ZAPCASE-Compatible-Xiaomi-Covers-Carbon/product-reviews/B07GQ
Y2RN2/ref=cm_cr_ar_p_d_paging_btm_next_2?ie=UTF8&reviewerType=all_reviews'
reviews_data = []
for i in range(1,4):
    reviews_data += extract_reviews(product_url+'&pageNumber='+str(i),
num_reviews_to_scrape=10)
def export_csv(reviews, csv_filename='reviews_data.csv'):
    with open(csv_filename, 'w', newline='', encoding='utf-8') as csv_file:
        fieldnames = ['date', 'names', 'location', 'reviewtitles', 'ratings', 'reviews']
        writer = csv.DictWriter(csv_file, fieldnames=fieldnames)

        writer.writeheader()
        for review in reviews:
            writer.writerow({'date': review['date'], 'names': review['author'],
'location': review['location'], 'reviewtitles': review['title'], 'ratings':
review['rating'], 'reviews': review['text']})
export_csv(reviews_data)

```

Output:

For Task (a):

A1	link										
	A	B	C	D	E	F	G	H	I	J	
1	link	text	name	username	date	is_rt	n_comment	n_rt	n_quote	n_like	
2	https://twitter.com/WWE/status/174201177	IF YA SMELL..... @TheRock has come back to #WWERaw!	WWE	@WWE	Jan 2, 2024 · 2:5	FALSE	1087	9916	1856	49981	
3	https://twitter.com/WWE/status/17457398	Who had the best Instagram photo of the week?! https://www.wwe.co	WWE	@WWE	Jan 12, 2024 · 9	FALSE	42	29	2	252	
4	https://twitter.com/WWE/status/17456794	These #RoyalRumble crashers were RUTHLESS! https://youtu.be/VLWWE	WWE	@WWE	Jan 12, 2024 · 5	FALSE	45	65	2	566	
5	https://twitter.com/WWE/status/17456419	An All Mighty moment in the 2023 Men's #RoyalRumble Match!	WWE	@WWE	Jan 12, 2024 · 3	FALSE	57	193	13	2233	
6	https://twitter.com/WWE/status/17455966	Outta nowhere! 🤔	WWE	@WWE	Jan 12, 2024 · 1	FALSE	69	340	10	3655	
7	https://twitter.com/ShawnMichaels/status/17455524	Thanks for stopping by the WWE Performance Center @dkelece1!	Shawn Michaels	@ShawnMichae	Jan 11, 2024 · 9	TRUE	49	209	7	2301	
8	https://twitter.com/WWE/status/17455524	The Tribal Chief is unfazed 🤔 @WWERomanReigns @HeymanHus	WWE	@WWE	Jan 11, 2024 · 9	FALSE	119	502	26	4421	
9	https://twitter.com/WWE/status/17455524	It was great to have @dkelece1 come out and visit the WWE Performa	WWE NXT	@WWENXT	Jan 11, 2024 · 8	TRUE	165	360	276	3575	
10	https://twitter.com/WWE/status/17455426	Attention @NHLFlyers fans! @GrittyNHL has the #WWEGoldenTide	WWE	@WWE	Jan 11, 2024 · 8	FALSE	50	138	12	991	
11	https://twitter.com/WWE/status/17455426	The #DustyClassic continues NEXT WEEK on #WWENXT with these	WWE NXT	@WWENXT	Jan 11, 2024 · 8	TRUE	36	150	5	857	
12	https://twitter.com/WWE/status/17455222	Available NOW on @WWEShop! Get these all-new shirts featuring R	WWE	@WWE	Jan 11, 2024 · 7	FALSE	62	198	12	1613	
13	https://twitter.com/WWE/status/17455222	Take a look at @tiffstrattonwwe's eventful day as @FallonHenleyWW	WWE NXT	@WWENXT	Jan 11, 2024 · 4	TRUE	41	180	21	1068	
14	https://twitter.com/WWE/status/17454907	Enjoy a cold one on #NationalMilkDay just like @TheRock & @RealKW	WWE	@WWE	Jan 11, 2024 · 5	FALSE	41	184	5	1341	
15	https://twitter.com/WWE/status/17454819	Happy #NationalMilkDay!	WWE	@WWE	Jan 11, 2024 · 4	FALSE	105	524	103	4258	
16	https://twitter.com/NXTLevelUp/status/17454819	Can Big Body Javi upset @JoeGacy tomorrow night on #NXTLevelUp	NXT Level Up	@NXTLevelUp	Jan 11, 2024 · 4	TRUE	40	66	5	384	
17	https://twitter.com/WWE/status/17454819	Thanks for joining us on #WWETheBump. @MiaYiml 2024 is shaping	WWE's The Bun	@WWETheBum	Jan 11, 2024 · 3	TRUE	18	73	1	422	
18	https://twitter.com/WWE/status/17454819	Live, Laugh, Lovel R-Truth & The Judgment Day have 2 new tees av	WWEShop.com	@WWEShop	Jan 11, 2024 · 1	TRUE	141	541	224	4118	
19	https://twitter.com/WWE/status/17454656	They weren't supposed to be in the #RoyalRumble match! What happ	WWE	@WWE	Jan 11, 2024 · 3	FALSE	28	102	2	691	
20	https://twitter.com/WWE/status/17453775	Message sent. #SmackDown	WWE	@WWE	Jan 11, 2024 · 9	FALSE	104	382	19	5927	
21	https://twitter.com/WWE/status/17453171	Message sent. #SmackDown	WWE	@WWE	Jan 11, 2024 · 5	FALSE	70	321	7	5293	
22	https://twitter.com/WWE/status/17452491	ICYMI: Watch R-Truth's lovely tribute to The Judgment Day - https://	WWE	@WWE	Jan 11, 2024 · 1	FALSE	59	441	8	3880	
23	https://twitter.com/DMcIntyreWWE/status/17452491	Say it to my chest	Drew	@DMcIntyreW	Jan 10, 2024 · 1	TRUE	322	723	146	14094	

Figure 1.1 Output for Twitter Data Collection

For Task (b):

A1	date															
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1	date	names	location	reviewtitles	ratings	reviews										
2	14 November 20	Vishal S Prabhu	India	Good Deal	5.0 out of 5 stars	Good product. Fits well. Overall, a good deal.										
3	18 July 2023	Kartik Jain	India	Nice cover	4.0 out of 5 stars	It's good you can try it.										
4	22 October 2022	Kedar	India	Good cover and	5.0 out of 5 stars	Effective price.										
5						The product is overall good at this price. It could have been better. The build quality - 3/5 stars. Handling and comfort - 4/5 stars. The fitting to the phone - 2/5 stars...										
	26 May 2023	Placeholder	India	Just okay...	3.0 out of 5 stars	But if you want the perfect and the best cover for your Mi A2 you can opt to buy another cover at a higher price...										
6	30 March 2023	Saleem Shah	India	Best quality	5.0 out of 5 stars	This is one of the best quality. Go for it										
7	27 December 20	Yashwanth Redd	India	Good	4.0 out of 5 stars	Good										
8	19 March 2023	Alifaz Jikani	India	Fit	5.0 out of 5 stars	Fit to Mi A2 as expected.										
9	2 June 2022	joel	India	It doesn't comp	1.0 out of 5 stars	The product doesn't protect the phone completely the borders are not thick which protects the phone from a fall there is no point of taking this case if it doesn't protect										
10	30 September 21	Placeholder	India	Money worthy	3.0 out of 5 stars	Not bad										
11	7 January 2022	Keshav chandra	India	Ok for the price	4.0 out of 5 stars	Flexible silicon type rubber , does the job. Perfect fit for the Mi A2. Overall recommended. I dont think it will protect the phone from a fall but for sure adds grip										
12	26 April 2022	Amazon Custom	India	Good Product	4.0 out of 5 stars	The product seems to be good. But the price is too much. It could have been a little less.										
13	17 February 202	vijay madrecha	India	Looks decent, br	3.0 out of 5 stars	Fitting and built quality is good, but I am skeptical if it is genuine Zupcase cover or not. The paper box has Zupcase mentioned on it, but the inner transparent cover										
14	8 November 202	Amaresh Swain	India	Average	3.0 out of 5 stars	Finishing is average, material good										
15	13 May 2021	nilotpal	India	Good not great.	4.0 out of 5 stars	Finish of the product is not great. It's 'okay'. I would have given 5star if this was below 100rs. But for 150rs, this is a good product. Should save the phone from min										
16	21 March 2021	Abhiram	India	Worth it.	4.0 out of 5 stars	I've liked this product very much. Its is completely same as given in image. It feels so good while holding the phone.										
17	14 December 20	Atul Sharma	India	Exact fit.	4.0 out of 5 stars	Exact fit to phone.										

Figure 1.2 Output for Amazon Review Scraping

Conclusion:

- Efficient and direct access to Twitter's data through the API.
- Provides real-time data retrieval, enabling instant updates.
- Offers structured data in JSON format for easy processing.
- Overcomes API limitations for certain tasks, such as scraping dynamic content using custom scraping.