

# GATHERING DATA USING WEBCAM

```
In [84]: import cv2
key = cv2.waitKey(1)
webcam = cv2.VideoCapture(0)
while True:
    try:
        check, frame = webcam.read()
        print(check) #print true as long as webcam is runnnin
        print(frame) #print matrix value of each framecd(?)
        cv2.imshow("capturing", frame)
        key = cv2.waitKey(1)
        if key == ord('s'):
            cv2.imwrite(filename='svd_img.jpg',img=frame)
            webcam.release()
            img_new = cv2.imread('svd_img.jpg',cv2.IMREAD_GRAYSCALE)
            img_new = cv2.imshow('captured image', img_new)
            cv2.waitKey(1650)
            cv2.destroyAllWindows()
            print('proccessing image....')
            img_ = cv2.imread('svd_img.jpg',cv2.IMREAD_ANYCOLOR)
            print('converting image rgb image to grayscale....')
            print('resizing image to 28x28 scale....')
            img_ = cv2.resize(gray,(28,28))
            print('resized...')
            img_resized = cv2.imwrite(filename='svd_img-final.jpg', img=img_)
            print('image saved!')

            break
        elif key == ord('q'):
            print('turning off the camera')
            webcam.release()
            print('cam off')
            print('program ended')
            cv2.destroyAllWindows()
            break

    except KeyboardInterrupt:
        print('turning off the camera')
        webcam.release()
        print('cam off')
        print('program ended')
        cv2.destroyAllWindows()
        break
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processing image....
converting image rgb image to grayscale....
resizing image to 28x28 scale....

-----
NameError                                Traceback (most recent call last)
Cell In[84], line 25
     23 print('converting image rgb image to grayscale....')
     24 print('resizing image to 28x28 scale....')
--> 25 img_ = cv2.resize(gray,(28,28))
     26 print('resized...')
     27 img_resized = cv2.imwrite(filename='svd_img-final.jpg', img=img_)

NameError: name 'gray' is not defined
```

# GATHERING DATGA USING MICROPHONE

```
In [76]: !pip install sounddevice

Requirement already satisfied: sounddevice in c:\users\zphrrwa\anaconda3\lib\site-packages (0.4.6)
Requirement already satisfied: CFFI>=1.0 in c:\users\zphrrwa\anaconda3\lib\site-packages (from sounddevice) (1.16.0)
Requirement already satisfied: pycparser in c:\users\zphrrwa\anaconda3\lib\site-packages (from CFFI>=1.0->sounddevice) (2.21)

In [77]: !pip install wavio

Requirement already satisfied: wavio in c:\users\zphrrwa\anaconda3\lib\site-packages (0.0.8)
Requirement already satisfied: numpy>=1.19.0 in c:\users\zphrrwa\anaconda3\lib\site-packages (from wavio) (1.26.4)

In [78]: !pip install scipy

Requirement already satisfied: scipy in c:\users\zphrrwa\anaconda3\lib\site-packages (1.11.4)
Requirement already satisfied: numpy<1.28.0,>=1.21.6 in c:\users\zphrrwa\anaconda3\lib\site-packages (from scipy) (1.26.4)

In [83]: !pip install pyaudio

Requirement already satisfied: pyaudio in c:\users\zphrrwa\anaconda3\lib\site-packages (0.2.14)

In [12]: import sounddevice as sd
from scipy.io.wavfile import write
import wavio as wv

freq = 44100
duration = 5
recording = sd.rec(int(duration * freq),
                    samplerate=freq, channels=2)

print('now recording...')
sd.wait()
print('end of recording')

write('recordxd.wav',freq, recording)
wv.write('recrodahah.wav',recording,freq,sampwidth=2)

now recording...
end of recording
```

# Web Scraping

## Image Scraping using BeautifulSoup and Request

```
In [159... import requests
from bs4 import *

def getdata(url):
    r = requests.get(url)
    return r.text

# htmldata = getdata('https://www.google.com/')
```

```
htmldata = getdata('https://www.themidnightofficial.com/')
soup = BeautifulSoup(htmldata, 'html.parser')
for item in soup.find_all('img'):
    print(item['src'])
```

img/the-midnight-logo.svg

Image Scraping using Selenium

```
In [85]: !pip install selenium
```

Requirement already satisfied: selenium in c:\users\zphrrwa\anaconda3\lib\site-packages (4.18.1)  
Requirement already satisfied: urllib3<3,>=1.26 in c:\users\zphrrwa\anaconda3\lib\site-packages (from urllib3[socks]<3,>=1.26->selenium) (2.0.7)  
Requirement already satisfied: trio~=0.17 in c:\users\zphrrwa\anaconda3\lib\site-packages (from selenium) (0.25.0)  
Requirement already satisfied: trio-websocket~=0.9 in c:\users\zphrrwa\anaconda3\lib\site-packages (from selenium) (0.11.1)  
Requirement already satisfied: certifi>=2021.10.8 in c:\users\zphrrwa\anaconda3\lib\site-packages (from selenium) (2024.2.2)  
Requirement already satisfied: typing\_extensions>=4.9.0 in c:\users\zphrrwa\anaconda3\lib\site-packages (from selenium) (4.9.0)  
Requirement already satisfied: attrs>=23.2.0 in c:\users\zphrrwa\anaconda3\lib\site-packages (from trio~=0.17->selenium) (23.2.0)  
Requirement already satisfied: sortedcontainers in c:\users\zphrrwa\anaconda3\lib\site-packages (from trio~=0.17->selenium) (2.4.0)  
Requirement already satisfied: idna in c:\users\zphrrwa\anaconda3\lib\site-packages (from trio~=0.17->selenium) (3.4)  
Requirement already satisfied: outcome in c:\users\zphrrwa\anaconda3\lib\site-packages (from trio~=0.17->selenium) (1.3.0.post0)  
Requirement already satisfied: sniffio>=1.3.0 in c:\users\zphrrwa\anaconda3\lib\site-packages (from trio~=0.17->selenium) (1.3.0)  
Requirement already satisfied: cffi>=1.14 in c:\users\zphrrwa\anaconda3\lib\site-packages (from trio~=0.17->selenium) (1.16.0)  
Requirement already satisfied: wsproto>=0.14 in c:\users\zphrrwa\anaconda3\lib\site-packages (from trio-websocket~=0.9->selenium) (1.2.0)  
Requirement already satisfied: pysocks!=1.5.7,<2.0,>=1.5.6 in c:\users\zphrrwa\anaconda3\lib\site-packages (from urllib3[socks]<3,>=1.26->selenium) (1.7.1)  
Requirement already satisfied: pycparser in c:\users\zphrrwa\anaconda3\lib\site-packages (from cffi>=1.14->trio~=0.17->selenium) (2.21)  
Requirement already satisfied: h11<1,>=0.9.0 in c:\users\zphrrwa\anaconda3\lib\site-packages (from wsproto>=0.14->trio-websocket~=0.9->selenium) (0.14.0)

```
In [86]: import sys
sys.path.insert(0, '/usr/lib/chromium-browser/chromedriver')
```

```
In [87]: from selenium import webdriver
import time
import requests
import shutil
import os
import getpass
import urllib.request
import io
import time
from PIL import Image
```

```
In [88]: user = getpass.getuser()
chrome_options = webdriver.ChromeOptions()
chrome_options.add_argument('--headless')
chrome_options.add_argument('--no-sandbox')
chrome_options.add_argument('--disable-dev-shm-usage')
driver = webdriver.Chrome('chromedriver',chrome_options=chrome_options)

search_url = "https://www.google.com/search?q={q}&tbm=isch&tbs=sur%3Afc&hl=en&ved=0CAIQpwVqFwoTCK
driver.get(search_url.format(q='Car'))

def scroll_to_end(driver):
    driver.execute_script("window.scrollTo(0, document.body.scrollHeight);")
    time.sleep(5)#sleep_between_interactions

def getImageUrls(name,totalImgs,driver):

    search_url = "https://www.google.com/search?q={q}&tbm=isch&tbs=sur%3Afc&hl=en&ved=0CAIQpwVqFw
    driver.get(search_url.format(q=name))
    img_urls = set()
    img_count = 0
    results_start = 0

    while(img_count<totalImgs): #Extract actual images now

        scroll_to_end(driver)
```



```
thumbnail_results = driver.find_elements_by_xpath("//img[contains(@class,'Q4LuWd')]")
totalResults=len(thumbnail_results)
print(f"Found: {totalResults} search results. Extracting links from{results_start}:{tot

for img in thumbnail_results[results_start:totalResults]:

    img.click()
    time.sleep(2)
    actual_images = driver.find_elements_by_css_selector('img.n3VNCb')
    for actual_image in actual_images:
        if actual_image.get_attribute('src') and 'https' in actual_image.get_attribute(
            img_urls.add(actual_image.get_attribute('src'))

    img_count=len(img_urls)
    if img_count >= totalImgs:
        print(f"Found: {img_count} image links")
        break
    else:
        print("Found:", img_count, "looking for more image links ...")
        load_more_button = driver.find_element_by_css_selector(".mye4qd")
        driver.execute_script("document.querySelector('.mye4qd').click();")
        results_start = len(thumbnail_results)

return img_urls

def downloadImages(folder_path, file_name, url):
    try:
        image_content=requests.get(url).content
    except Exception as e:
        print(f'error - couldnt download {url}-{e}')
    try:
        image_file = io.BytesIO(image_content)
        image = Image.open(iamge_file).convert('RGB')

        file_path = os.path.join(folder_path, file_name)
        with open(file_path,'wb') as f:
            image.save(f, 'JPEG', quality =85)
        print(f'saved - {url} - at: {file_path}')
    except Exception as e:
        print(f'error-cant save {url}-{e}')
def saveInDestFolder(searchNames, destDir,totalImgs,driver):
    for name in list(searchNames):
        path=os.path.join(destDir,name)
        if not os.path.isdir(path):
            os.mkdir(path)
        print('curr path',path)
        totalLinks = getImageUrls(name,totalImgs,driver)
        print('totalLinks', totalLinks)
    if totalLinks is None:
        print('imgs not found for:', name)
    else:
        for i ,link in enumerate(totalLinks):
            file_name = f'{i:150}.jpg'
            downloadImages(path, file_name, link)

searchNames=['cat']
destDir = f'C:\\\\Users\\\\ZPHRRWA\\\\pythonbruh'
totalImgs=5

saveInDestFolder(searchNames,destDir,totalImgs,driver)
```

-----

TypeError

Traceback (most recent call last)

Cell In[88], line 6

4 chrome\_options.add\_argument('--no-sandbox')

5 chrome\_options.add\_argument('--disable-dev-shm-usage')

----> 6 driver = webdriver.Chrome('chromedriver',chrome\_options=chrome\_options)

8 search\_url = "https://www.google.com/search?q={q}&tbm=isch&tbs=sur%3Afc&hl=en&ved=0CAIQpwVqFwoTKKCa1c6s4-oCFQAAAAAAdAAAAABAC&biw=1251&bih=568"

9 driver.get(search\_url.format(q='Car'))

TypeError: WebDriver.\_\_init\_\_() got an unexpected keyword argument 'chrome\_options'

# Web Scrapping of Movies Information using BeautifulSoup

```
In [89]: from requests import get
url = 'https://www.imdb.com/search/title?release_date=2017&sort=num_votes,desc&page=1'
agent = {'User-Agent': 'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like
response = get(url, headers = agent)
print(response.text[:500])
```

file:///C:/Users/ZPHRRWA/Desktop/CALAMBA HOA7.2.html

81/91

```
<!DOCTYPE html><html lang="en-US" xmlns:og="http://opengraphprotocol.org/schema/" xmlns:fb="http://www.facebook.com/2008/fbml"><head><meta charset="utf-8"/><meta name="viewport" content="width=device-width"/><script>if(typeof uet === 'function'){ uet('bb', 'LoadTitle', {wb: 1}); }</script><script>window.addEventListener('load', (event) => {
    if (typeof window.csa !== 'undefined' && typeof window.csa === 'function') {
        var csaLatencyPlugin = window.csa('Content', {
```

```
In [90]: from bs4 import BeautifulSoup
html_soup = BeautifulSoup(response.text, 'html.parser')
headers = {'Accept-Language': 'en-US,en;q=0.8'}
type(html_soup)
```

Out[90]: bs4.BeautifulSoup

```
In [91]: movie_containers = html_soup.find_all('div', class_ = "sc-ab6fa25a-3 bVYfLY dli-parent")
print(type(movie_containers))
print(len(movie_containers))
```

```
<class 'bs4.element.ResultSet'>
50
```

Extracting the data for a single movie

```
In [92]: first_movie = movie_containers[0]
first_movie
```

```
Out[92]: <div class="sc-ab6fa25a-3 bVYfLY dli-parent"><div class="sc-ab6fa25a-2 g0sifL"><div class="sc-e5
a25b0f-0 jQjDIb dli-poster-container"><div class="ipc-poster ipc-poster--base ipc-poster--dynami
c-width ipc-sub-grid-item ipc-sub-grid-item--span-2" role="group"><div aria-label="add to watchl
ist" class="ipc-watchlist-ribbon ipc-focusable ipc-watchlist-ribbon--s ipc-watchlist-ribbon--bas
e ipc-watchlist-ribbon--loading ipc-watchlist-ribbon--onImage ipc-poster__watchlist-ribbon" role
="button" tabindex="0"><svg class="ipc-watchlist-ribbon_bg" height="34px" role="presentation" v
iewbox="0 0 24 34" width="24px" xmlns="http://www.w3.org/2000/svg"><polygon class="ipc-watchlist
-ribbon_bg-ribbon" fill="#000000" points="24 0 0 0 32 12.2436611 26.2926049 24 31.7728343"></
polygon><polygon class="ipc-watchlist-ribbon_bg-hover" points="24 0 0 0 32 12.2436611 26.2926
049 24 31.7728343"></polygon><polygon class="ipc-watchlist-ribbon_bg-shadow" points="24 31.7728
343 24 33.7728343 12.2436611 28.2926049 0 34 0 32 12.2436611 26.2926049"></polygon></svg><div cl
ass="ipc-watchlist-ribbon__icon" role="presentation"><svg class="ipc-loader ipc-loader--circle i
pc-watchlist-ribbon__loader" data-testid="watchlist-ribbon-loader" height="48px" role="presentat
ion" version="1.1" viewBox="0 0 48 48" width="48px" xmlns="http://www.w3.org/2000/svg"><g class
="ipc-loader__container" fill="currentColor"><circle class="ipc-loader__circle ipc-loader__circl
e--one" cx="24" cy="9" r="4"></circle><circle class="ipc-loader__circle ipc-loader__circle--two"
cx="35" cy="14" r="4"></circle><circle class="ipc-loader__circle ipc-loader__circle--three" cx
="39" cy="24" r="4"></circle><circle class="ipc-loader__circle ipc-loader__circle--four" cx="35"
cy="34" r="4"></circle><circle class="ipc-loader__circle ipc-loader__circle--five" cx="24" cy="3
9" r="4"></circle><circle class="ipc-loader__circle ipc-loader__circle--six" cx="13" cy="34" r
="4"></circle><circle class="ipc-loader__circle ipc-loader__circle--seven" cx="9" cy="24" r="4">
</circle><circle class="ipc-loader__circle ipc-loader__circle--eight" cx="13" cy="14" r="4"></ci
rcle></g></svg></div></div><div class="ipc-media ipc-media--poster-27x40 ipc-image-media-ratio--
poster-27x40 ipc-media--base ipc-media--poster-m ipc-poster__poster-image ipc-media__img" style
="width:100%"></div><a aria
-label="View title page for Logan" class="ipc-lockup-overlay ipc-focusable" href="/title/tt33153
42/?ref=sr_i_1"><div class="ipc-lockup-overlay__screen"></div></a></div></div><div class="sc-b0
691f29-0 jbYPfh"><div class="ipc-title ipc-title--base ipc-title--title ipc-title-link-no-icon i
pc-title--on-textPrimary sc-b0691f29-9 klOwFB dli-title"><a class="ipc-title-link-wrapper" href
="/title/tt3315342/?ref=sr_t_1" tabindex="0"><h3 class="ipc-title__text">1. Logan</h3></a></div
><div class="sc-b0691f29-7 hrgukm dli-title-metadata"><span class="sc-b0691f29-8 ilsLEX dli-titl
e-metadata-item">2017</span><span class="sc-b0691f29-8 ilsLEX dli-title-metadata-item">2h 17m</s
pan><span class="sc-b0691f29-8 ilsLEX dli-title-metadata-item">R-16</span></div><span class="sc-
b0691f29-1 grHDBY"><div class="sc-e2dbc1a3-0 ajrIH sc-b0691f29-2 bhhtyj dli-ratings-container" d
ata-testid="ratingGroup--container"><span aria-label="IMDb rating: 8.1" class="ipc-rating-star i
pc-rating-star--base ipc-rating-star--imdb ratingGroup--imdb-rating" data-testid="ratingGroup--i
mdb-rating"><svg class="ipc-icon ipc-icon--star-inline" fill="currentColor" height="24" role="pr
esentation" viewBox="0 0 24 24" width="24" xmlns="http://www.w3.org/2000/svg"><path d="M12 20.11
5.82 3.682c1.066.675 2.37-.322 2.09-1.5841-1.543-6.926 5.146-4.667c.94-.85.435-2.465-.799-2.5671
-6.773-.602L13.29.89a1.38 1.38 0 0-2.581 0l-2.65 6.53-6.774.602C.052 8.126-.453 9.74.486 10.59
15.147 4.666-1.542 6.926c-.28 1.262 1.023 2.26 2.09 1.585L12 20.099z"></path></svg>8.1<span clas
s="ipc-rating-star--voteCount"> (<!-- -->827K<!-- --></span></span><button aria-label="Rate Log
an" class="ipc-rate-button sc-e2dbc1a3-1 jbo0Qc ratingGroup--user-rating ipc-rate-button--unrate
d ipc-rate-button--base" data-testid="rate-button"><span class="ipc-rating-star ipc-rating-star-
base ipc-rating-star--rate"><svg class="ipc-icon ipc-icon--star-border-inline" fill="currentCol
or" height="24" role="presentation" viewBox="0 0 24 24" width="24" xmlns="http://www.w3.org/200
0/svg"><path d="M22.724 8.217l-6.786-.587-2.65-6.22c-.477-1.133-2.103-1.133-2.58 0l-2.65 6.234-
6.772.573c-1.234.098-1.739 1.636-.8 2.446l5.146 4.446-1.542 6.598c-.28 1.202 1.023 2.153 2.09 1.
5115.818-3.495 5.819 3.509c1.065.643 2.37-.308 2.089-1.511-1.542-6.612 5.145-4.446c.94-.81.45-2.
348-.785-2.446zm-10.726 8.89l-5.272 3.174 1.402-5.983-4.655-4.026 6.141-.531 2.384-5.634 2.398
5.648 6.14.531-4.654 4.026 1.402 5.983-5.286-3.187z"></path></svg><span class="ipc-rating-star--
rate">Rate</span></span></button></div><span class="sc-b0691f29-11 TmkKM"><span class="sc-b0901d
f4-0 bcQdDJ metacritic-score-box" style="background-color:#54A72A">77</span><span class="metacri
tic-score-label">Metascore</span></span></span></div><div class="sc-ab6fa25a-4 ggHbBR dli-post-e
lement"><button aria-disabled="false" aria-label="See more information about Logan" class="ipc-i
con-button dli-info-icon ipc-icon-button--base ipc-icon-button--onAccent2" role="button" tabinde
x="0" title="See more information about Logan"><svg class="ipc-icon ipc-icon--info" fill="curren
tColor" height="24" role="presentation" viewBox="0 0 24 24" width="24" xmlns="http://www.w3.org/
2000/svg"><path d="M0 0h24v24H0V0z" fill="none"></path><path d="M11 7h2v2h-2zm0 4h2v6h-2zm1-9C6.
48 2 2 6.48 2 12s4.48 10 10 10 10-4.48 10-10S17.52 2 12 2zm0 18c-4.41 0-8-3.59-8-8s3.59-8 8-8 8
3.59 8 8-3.59 8-8 8z"></path></svg></button></div></div><div class="sc-ab6fa25a-1 bBwFsP"><div c
lass="ipc-html-content ipc-html-content--base sc-ab6fa25a-0 bhexuD dli-plot-container" role="pre
sentation"><div class="ipc-html-content-inner-div">In a future where mutants are nearly extinct,
an elderly and weary Logan leads a quiet life. But when Laura, a mutant child pursued by scienti
sts, comes to him for help, he must get her to safety.</div></div></div></div>
```

The name of the movie

```
In [99]: first_movie.div
```

```
Out[99]: <div class="sc-ab6fa25a-2 g0sifL"><div class="sc-e5a25b0f-0 jQjDIb dli-poster-container"><div cl
ass="ipc-poster ipc-poster--base ipc-poster--dynamic-width ipc-sub-grid-item ipc-sub-grid-item--
span-2" role="group"><div aria-label="add to watchlist" class="ipc-watchlist-ribbon ipc-focusabl
e ipc-watchlist-ribbon--s ipc-watchlist-ribbon--base ipc-watchlist-ribbon--loading ipc-watchlist
-ribbon--onImage ipc-poster__watchlist-ribbon" role="button" tabindex="0"><svg class="ipc-watchl
ist-ribbon__bg" height="34px" role="presentation" viewBox="0 0 24 34" width="24px" xmlns="htt
p://www.w3.org/2000/svg"><polygon class="ipc-watchlist-ribbon__bg-ribbon" fill="#000000" points
="24 0 0 0 0 32 12.2436611 26.2926049 24 31.7728343"></polygon><polygon class="ipc-watchlist-rib
bon__bg-hover" points="24 0 0 0 0 32 12.2436611 26.2926049 24 31.7728343"></polygon><polygon cla
ss="ipc-watchlist-ribbon__bg-shadow" points="24 31.7728343 24 33.7728343 12.2436611 28.2926049 0
34 0 32 12.2436611 26.2926049"></polygon></svg><div class="ipc-watchlist-ribbon__icon" role="pre
sentation"><svg class="ipc-loader ipc-loader--circle ipc-watchlist-ribbon__loader" data-testid
="watchlist-ribbon-loader" height="48px" role="presentation" version="1.1" viewBox="0 0 48 48" w
idth="48px" xmlns="http://www.w3.org/2000/svg"><g class="ipc-loader__container" fill="currentCol
or"><circle class="ipc-loader__circle ipc-loader__circle--one" cx="24" cy="9" r="4"></circle><ci
rcle class="ipc-loader__circle ipc-loader__circle--two" cx="35" cy="14" r="4"></circle><circle c
lass="ipc-loader__circle ipc-loader__circle--three" cx="39" cy="24" r="4"></circle><circle class
="ipc-loader__circle ipc-loader__circle--four" cx="35" cy="34" r="4"></circle><circle class="ipc
-loader__circle ipc-loader__circle--five" cx="24" cy="39" r="4"></circle><circle class="ipc-load
er__circle ipc-loader__circle--six" cx="13" cy="34" r="4"></circle><circle class="ipc-loader__ci
rcle ipc-loader__circle--seven" cx="9" cy="24" r="4"></circle><circle class="ipc-loader__circle
ipc-loader__circle--eight" cx="13" cy="14" r="4"></circle></g></svg></div></div><div class="ipc-
media ipc-media--poster-27x40 ipc-image-media-ratio--poster-27x40 ipc-media--base ipc-media--pos
ter-m ipc-poster__poster-image ipc-media__img" style="width:100%"></div><a aria-label="View title page for Logan" class="i
pc-lockup-overlay ipc-focusable" href="/title/tt3315342/?ref_=sr_i_1"><div class="ipc-lockup-ove
rlay__screen"></div></a></div></div><div class="sc-b0691f29-0 jbYPfh"><div class="ipc-title ipc-
title--base ipc-title--title ipc-title-link-no-icon ipc-title--on-textPrimary sc-b0691f29-9 kl0w
FB dli-title"><a class="ipc-title-link-wrapper" href="/title/tt3315342/?ref_=sr_t_1" tabindex
="0"><h3 class="ipc-title__text">1. Logan</h3></a></div><div class="sc-b0691f29-7 hrgukm dli-tit
le-metadata"><span class="sc-b0691f29-8 ilsLEX dli-title-metadata-item">2017</span><span class
="sc-b0691f29-8 ilsLEX dli-title-metadata-item">2h 17m</span><span class="sc-b0691f29-8 ilsLEX d
li-title-metadata-item">R-16</span></div><span class="sc-b0691f29-1 grHDBY"><div class="sc-e2dbc
1a3-0 ajrIH sc-b0691f29-2 bhhtyj dli-ratings-container" data-testid="ratingGroup--container"><sp
an aria-label="IMDb rating: 8.1" class="ipc-rating-star ipc-rating-star--base ipc-rating-star--i
mdb ratingGroup--imdb-rating" data-testid="ratingGroup--imdb-rating"><svg class="ipc-icon ipc-ic
on--star-inline" fill="currentColor" height="24" role="presentation" viewBox="0 0 24 24" width
="24" xmlns="http://www.w3.org/2000/svg"><path d="M12 20.115.82 3.682c1.066.675 2.37-.322 2.09-
1.5841 1.543-6.926 5.146-4.667c.94-.85.435-2.465-.799-2.5671-6.773-.602L13.29.89a1.37 1.38 0 0 0
-2.581 01-2.65 6.53-6.774.602C.052 8.126-.453 9.74.486 10.5915.147 4.666-1.542 6.926c-.28 1.262
1.023 2.26 2.09 1.585L12 20.099z"></path></svg>8.1<span class="ipc-rating-star--voteCount"> (<!--
-->827K<!-- --></span></span><button aria-label="Rate Logan" class="ipc-rate-button sc-e2dbc1
a3-1 jbo0Qc ratingGroup--user-rating ipc-rate-button--unrated ipc-rate-button--base" data-testid
="rate-button"><span class="ipc-rating-star ipc-rating-star--base ipc-rating-star--rate"><svg cl
ass="ipc-icon ipc-icon--star-border-inline" fill="currentColor" height="24" role="presentation"
viewBox="0 0 24 24" width="24" xmlns="http://www.w3.org/2000/svg"><path d="M22.724 8.2171-6.786
-.587-2.65-6.22c-.477-1.133-2.103-1.133-2.58 01-2.65 6.234-6.772.573c-1.234.098-1.739 1.636-.8
2.44615.146 4.446-1.542 6.598c-.28 1.202 1.023 2.153 2.09 1.5115.818-3.495 5.819 3.509c1.065.643
2.37-.308 2.089-1.511-1.542-6.612 5.145-4.446c.94-.81.45-2.348-.785-2.446zm-10.726 8.891-5.272
3.174 1.402-5.983-4.655-4.026 6.141-.531 2.384-5.634 2.398 5.648 6.14.531-4.654 4.026 1.402 5.98
3-5.286-3.187z"></path></svg><span class="ipc-rating-star--rate">Rate</span></span></button></di
v><span class="sc-b0691f29-11 TmkKM"><span class="sc-b0901df4-0 bcQdDJ metacritic-score-box" sty
le="background-color:#54A72A">77</span><span class="metacritic-score-label">Metascore</span></sp
an></span></div><div class="sc-ab6fa25a-4 ggHbBR dli-post-element"><button aria-disabled="false"
aria-label="See more information about Logan" class="ipc-icon-button dli-info-icon ipc-icon-butt
on--base ipc-icon-button--onAccent2" role="button" tabindex="0" title="See more information abou
t Logan"><svg class="ipc-icon ipc-icon--info" fill="currentColor" height="24" role="presentatio
n" viewBox="0 0 24 24" width="24" xmlns="http://www.w3.org/2000/svg"><path d="M0 0h24v24H0V0z" f
ill="none"></path><path d="M11 7h2v2h-2zm0 4h2v6h-2zm1-9C6.48 2 2 6.48 2 12s4.48 10 10 10 10-4.4
8 10-10S17.52 2 12 2zm0 18c-4.41 0-8-3.59-8-8s3.59-8 8-8 8 3.59 8-3.59 8-8 8z"></path></svg></
button></div></div>
```

In [100...	first_movie.a
Out[100...	<a aria-label="View title page for Logan" class="ipc-lockup-overlay ipc-focusable" href="/title/tt3315342/?ref_=sr_i_1"><div class="ipc-lockup-overlay__screen"></div></a>
In [101...	first_movie.h3
Out[101...	<h3 class="ipc-title__text">1. Logan</h3>
In [102...	first_movie.h3.a

In [103...

```
first_name = first_movie.find('h3',class_ = 'ipc-title__text').text[3:]
first_name
```

Out[103...

```
'Logan'
```

The year of the movie’s release

In [106...

```
first_year = first_movie.find('span', class_ = 'sc-b0691f29-8 ilsLEX dli-title-metadata-item').text[0:4]
first_year
```

Out[106...

```
'2017'
```

The IMDB rating

In [111...

```
rating = first_movie.find('span', class_='ipc-rating-star ipc-rating-star--base ipc-rating-star--rating')
rating
```

Out[111...

```
'8.1'
```

The Metascore

In [146...

```
metscr = first_movie.find('span', class_='sc-b0901df4-0 bcQdDJ metacritic-score-box').text[0:2]
metscr
```

Out[146...

```
'77'
```

The number of votes

In [122...

```
votes = first_movie.find('span', class_='ipc-rating-star--voteCount').text[2:6]
votes
```

Out[122...

```
'827K'
```

The Script

In [152...

```
names = []
years = []
imdb_rting = []
metascores = []
votes = []

for container in movie_containers:

    if container.find('span', class_='sc-b0901df4-0 bcQdDJ metacritic-score-box') is not None:

        name = container.find('h3',class_ = 'ipc-title__text').text[3:]
        names.append(name)

        year = container.find('span', class_ = 'sc-b0691f29-8 ilsLEX dli-title-metadata-item').text[0:4]
        years.append(year)

        imdb = container.find('span', class_='ipc-rating-star ipc-rating-star--base ipc-rating-star--rating')
        imdb_rting.append(imdb)

        mscr = container.find('span', class_='sc-b0901df4-0 bcQdDJ metacritic-score-box').text[0:2]
        metascores.append(mscr)

        vote = container.find('span', class_='ipc-rating-star--voteCount').text[2:6]
        votes.append(vote)

# names
# years
# imdb_rting
# metascores
```

In [153...

```
import pandas as p
test_df = p.DataFrame({
    'movie': names,
    'year' : years,
    'imdb' : imdb_rting,
    'metascore' : metascores,
    'votes' : vote
})
print(test_df.info())
test_df
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 41 entries, 0 to 40
Data columns (total 5 columns):
#   Column      Non-Null Count  Dtype
---  -
0   movie      41 non-null    object
1   year       41 non-null    object
2   imdb       41 non-null    object
3   metascore  41 non-null    object
4   votes      41 non-null    object
dtypes: object(5)
memory usage: 1.7+ KB
None
```

Out[153...

	movie	year	imdb	metascore	votes
0	Logan	2017	8.1	77	201K
1	Thor: Ragnarok	2017	7.9	74	201K
2	Guardians of the Galaxy Vol. 2	2017	7.6	67	201K
3	Dunkirk	2017	7.8	94	201K
4	Spider-Man: Homecoming	2017	7.4	73	201K
5	Wonder Woman	2017	7.3	76	201K
6	Get Out	2017	7.8	85	201K
7	Star Wars: Episode VIII - The Last Jedi	2017	6.9	84	201K
8	Blade Runner 2049	2017	8.0	81	201K
9	Baby Driver	2017	7.5	86	201K
10	It	2017	7.3	69	201K
11	Coco	2017	8.4	81	201K
12	Three Billboards Outside Ebbing, Missouri	2017	8.1	88	201K
13	John Wick: Chapter 2	2017	7.4	75	201K
14	Justice League	2017	6.1	45	201K
15	The Shape of Water	2017	7.3	87	201K
16	Jumanji: Welcome to the Jungle	2017	6.9	58	201K
17	Kingsman: The Golden Circle	2017	6.7	44	201K
18	Kong: Skull Island	2017	6.7	62	201K
19	Pirates of the Caribbean: Salazar's Revenge	2017	6.5	39	201K
20	Beauty and the Beast	2017	7.1	65	201K
21	Lady Bird	2017	7.4	93	201K
22	Call Me by Your Name	2017	7.8	94	201K
23	The Greatest Showman	2017	7.5	48	201K
24	Alien: Covenant	2017	6.4	65	201K
25	Murder on the Orient Express	2017	6.5	52	201K
26	War for the Planet of the Apes	2017	7.4	82	201K
27	Wind River	2017	7.7	73	201K
28	Fast & Furious 8	2017	6.6	56	201K
29	Life	2017	6.6	54	201K
30	Mother!	2017	6.6	76	201K
31	The Hitman's Bodyguard	2017	6.9	47	201K
32	I, Tonya	2017	7.5	77	201K
33	King Arthur: Legend of the Sword	2017	6.7	41	201K
34	Ghost in the Shell	2017	6.3	52	201K
35	Darkest Hour	2017	7.4	75	201K
36	American Made	2017	7.1	65	201K
37	Atomic Blonde	2017	6.7	63	201K
38	The Mummy	2017	5.4	34	201K
39	Baywatch	2017	5.5	37	201K
40	Bright	2017	6.3	29	201K

The script for multiple pages

In [216...

```
from time import time
from time import sleep
from requests import get
from random import randint
```



```
from IPython.core.display import clear_output
pages = [ '1','2','3','4','5']
years_url = [ '2017', '2018', '2019', '2020']

# Redeclaring the lists to store data in
names = []
years = []
imdb_ratings = []
metascores = []
votes = []

# Preparing the monitoring of the loop
start_time = time()
requests = 0

# For every year in the interval 2000-2017
for year_url in years_url:

    # Make a get request
    url = f"https://www.imdb.com/search/title?release_date={year_url}-01-01,{year_url}-12-31&ref_=adv_1"
    agent = {"User-Agent": "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/120.0.0.0 Safari/537.36"}
    response = get(url,headers = agent)
    print(response.text[:500])

    # Pause the loop
    sleep(randint(1,5))

    # Monitor the requests
    requests += 1
    elapsed_time = time() - start_time
    print('Request: {}; Frequency: {} requests/s'.format(requests, requests/elapsed_time))
    clear_output(wait = True)

    # Throw a warning for non-200 status codes
    if response.status_code != 200:
        print('Request: {}; Status code: {}'.format(requests, response.status_code))

    # Break the loop if the number of requests is greater than expected
    if requests > 72:
        print('Number of requests was greater than expected.')
        break

    # Parse the content of the request with BeautifulSoup
    page_html = BeautifulSoup(response.text, 'html.parser')

    # Select all the 50 movie containers from a single page
    mv_containers = page_html.find_all('div', class_ = 'sc-ab6fa25a-3 bVYfLY dli-parent')

    # For every movie of these 50
    for container in mv_containers:
        # If the movie has a Metascore, then:
        if container.find('span', class_ = 'sc-b0901df4-0 bcQdDJ metacritic-score-box') is not None:
            # Scrape the name
            name = container.find('h3',class_='ipc-title__text').text[3:]
            names.append(name)

            # Scrape the year
            year = container.find('span', class_ = 'sc-b0691f29-8 ilsLEX dli-title-metadata-i').text[3:]
            years.append(year)

            # Scrape the IMDB rating
            imdb = container.find('span', class_ = 'ipc-rating-star ipc-rating-star--base ipc-rating-star--imdb').text[3:]
            imdb_ratings.append(imdb)

            # Scrape the Metascore
            m_score = container.find('span', class_ = 'sc-b0901df4-0 bcQdDJ metacritic-score-metascore').text[3:]
            metascores.append(m_score)

            # Scrape the number of votes
            vote = container.find('span', class_ = 'ipc-rating-star--voteCount').text[2:-1]
            votes.append(vote)
```

```
<!DOCTYPE html><html lang="en-US" xmlns:og="http://opengraphprotocol.org/schema/" xmlns:fb="http://www.facebook.com/2008/fbml"><head><meta charset="utf-8"/><meta name="viewport" content="width=device-width"/><script>if(typeof uet === 'function'){ uet('bb', 'LoadTitle', {wb: 1}); }</script><script>window.addEventListener('load', (event) => {
    if (typeof window.csa !== 'undefined' && typeof window.csa === 'function') {
        var csaLatencyPlugin = window.csa('Content', {
```

Request:4; Frequency: 0.1342225922267423 requests/s

In [217...

```
movie_ratings = p.DataFrame({
    'movie': names,
    'year': years,
```



```
'imdb': imdb_ratings,
'metascore': metascores,
'votes': votes
})
# names
# years
# imdb_rting
# metascores
print(movie_ratings.info())
movie_ratings
```

<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 157 entries, 0 to 156  
Data columns (total 5 columns):  
# Column Non-Null Count Dtype  
--- ---  
0 movie 157 non-null object  
1 year 157 non-null object  
2 imdb 157 non-null object  
3 metascore 157 non-null object  
4 votes 157 non-null object  
dtypes: object(5)  
memory usage: 6.3+ KB  
None

Out[217...

	movie	year	imdb	metascore	votes
0	Logan	2017	8.1	77	827K
1	Thor: Ragnarok	2017	7.9	74	813K
2	Guardians of the Galaxy Vol. 2	2017	7.6	67	756K
3	Dunkirk	2017	7.8	94	736K
4	Spider-Man: Homecoming	2017	7.4	73	716K
...	...	...	...	...	...
152	Project Power	2020	6.0	51	97K
153	Spenser Confidential	2020	6.2	49	97K
154	Underwater	2020	5.9	48	97K
155	Minari	2020	7.4	89	96K
156	News of the World	2020	6.8	73	95K

157 rows × 5 columns

In [221...

```
movie_ratings.to_csv('movie_rating.csv',index=False, encoding='utf-8', sep=':')
```

In [222...

```
p.read_csv('C:/Users/ZPHRRWA/movie_rating.csv', on_bad_lines='skip')
```

Out[222...

	movie:year:imdb:metascore:votes
0	Logan:2017:8.1:77:827K
1	Thor: Ragnarok:2017:7.9:74:813K
2	Guardians of the Galaxy Vol. 2:2017:7.6:67:756K
3	Dunkirk:2017:7.8:94:736K
4	Spider-Man: Homecoming:2017:7.4:73:716K
...	...
150	Project Power:2020:6.0:51:97K
151	Spenser Confidential:2020:6.2:49:97K
152	Underwater:2020:5.9:48:97K
153	Minari:2020:7.4:89:96K
154	News of the World:2020:6.8:73:95K

155 rows × 1 columns

# Data Preparation

## Data preprocessing

In [224...

movie\_ratings['year'].unique()

Out[224...

array(['2017', '2018', '2019', '2020'], dtype=object)

In [225...

movie\_ratings.dtypes

Out[225...

movie object  
year object  
imdb object  
metascore object  
votes object  
dtype: object

In [227...

movie\_ratings['year'] = (movie\_ratings.year.apply(lambda x:x.replace('(I)','')))

In [228...

movie\_ratings['year'] = (movie\_ratings.year.apply(lambda x:x.replace('(III)','')))

In [230...

movie\_ratings['year'].unique()

Out[230...

array(['2017', '2018', '2019', '2020'], dtype=object)

In [231...

movie\_ratings['year'] = (movie\_ratings.year.apply(lambda x:x.replace('','')))

In [232...

movie\_ratings['year'].unique()

Out[232...

array(['2017', '2018', '2019', '2020'], dtype=object)

In [233...

movie\_ratings['year'] = movie\_ratings['year'].astype(int)

In [234...

movie\_ratings['year'].unique()

Out[234...

array([2017, 2018, 2019, 2020])

In [235...

movie\_ratings.dtypes

Out[235...

movie object  
year int32  
imdb object  
metascore object  
votes object  
dtype: object

In [236...

movie\_ratings.head(10)

Out[236...

	movie	year	imdb	metascore	votes
0	Logan	2017	8.1	77	827K
1	Thor: Ragnarok	2017	7.9	74	813K
2	Guardians of the Galaxy Vol. 2	2017	7.6	67	756K
3	Dunkirk	2017	7.8	94	736K
4	Spider-Man: Homecoming	2017	7.4	73	716K
5	Wonder Woman	2017	7.3	76	698K
6	Get Out	2017	7.8	85	691K
7	Star Wars: Episode VIII - The Last Jedi	2017	6.9	84	670K
8	Blade Runner 2049	2017	8.0	81	658K
9	Baby Driver	2017	7.5	86	605K

In [237...

movie\_ratings.tail(10)

Out[237...

	movie	year	imdb	metascore	votes
147	The Hunt	2020	6.5	50	128K
148	Greyhound	2020	7.0	64	114K
149	Hamilton	2020	8.3	88	112K
150	Eurovision Song Contest: The Story of Fire Saga	2020	6.5	50	102K
151	I'm Thinking of Ending Things	2020	6.6	78	99K
152	Project Power	2020	6.0	51	97K
153	Spenser Confidential	2020	6.2	49	97K
154	Underwater	2020	5.9	48	97K
155	Minari	2020	7.4	89	96K
156	News of the World	2020	6.8	73	95K

In [238...

movie\_ratings

Out[238...

	movie	year	imdb	metascore	votes
0	Logan	2017	8.1	77	827K
1	Thor: Ragnarok	2017	7.9	74	813K
2	Guardians of the Galaxy Vol. 2	2017	7.6	67	756K
3	Dunkirk	2017	7.8	94	736K
4	Spider-Man: Homecoming	2017	7.4	73	716K
...	...	...	...	...	...
152	Project Power	2020	6.0	51	97K
153	Spenser Confidential	2020	6.2	49	97K
154	Underwater	2020	5.9	48	97K
155	Minari	2020	7.4	89	96K
156	News of the World	2020	6.8	73	95K

157 rows × 5 columns

In [ ]: