ECE 528: Cloud Computing

Assignment #2

Python Image Gallery and Detection of Emotion

Seema Sharanappa Kanaje

February 7, 2021

1 Statement of the Problem

To post a picture on canvas.Create a master list from the URL posted by all the students on canvas.Display all the images with their name below it and arrange them in alphabetical order.One cool python application: on entering full name or part of it. It would display emotion of the image.

2 Description of Solution

Below are steps to put an image on the university server:

- ssh username@login.umd.umich.edu
- Enter your password
- Duo two-factor should be verified using one of those three methods.
- Check for present working directory using PWD unix command
- list files in that directory
- Public and Private will be listed in that.
- Check for permissions of the Directory
- Change Directory to Public
- Change Directory to HTML
- Create a new Directory as CIS528
- Steps to place an image in CIS528
- open a new terminal
- stfp username@login.umd.umich.edu

- Enter your password.
- Check present working directory by entering pwd command
- Change Directory to CIS528/images like in the above step Image should be placed in the same folder as the python program by using put imagename.ext. This command will upload the image on to the server

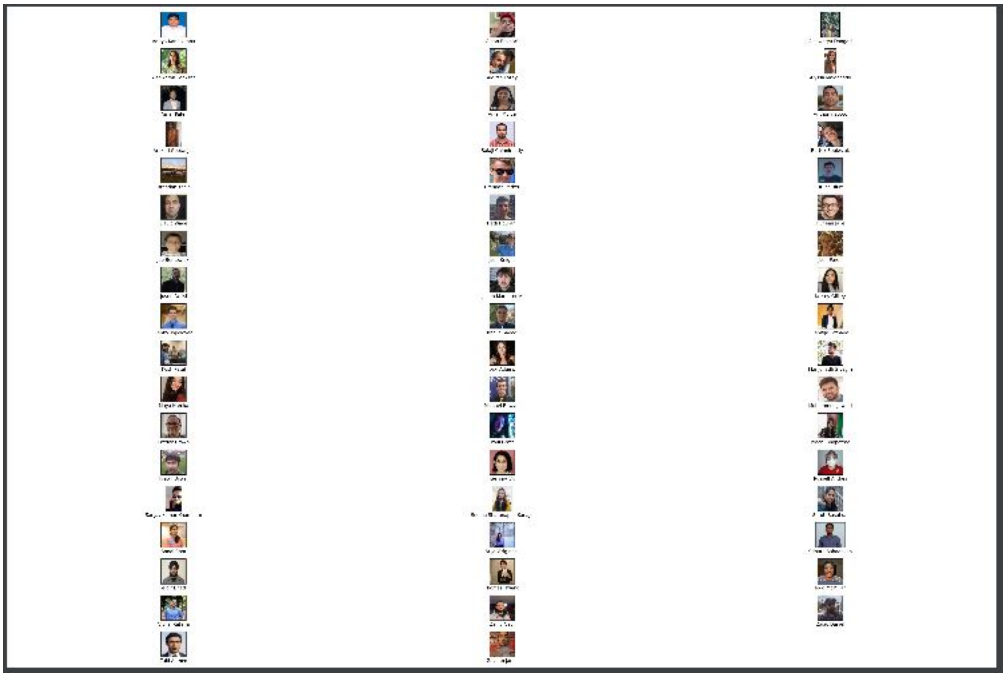
Each person will post their First Name, Last Name, url on the canvas. A master list is created using the posts and saved in a CSV format.I have concatenated first name and last name and added to the list along with their url. Created a new ordered list after sorting the list.I have set the size of the figure.

Traverse one by one image using for loop. Image is read using matplotlib library and add a extra parameter to read jpg image as well.Also, remove x,y ticks and add xlabel to it.After for loop show the image.

On pressing option 2, you can enter full name or part of it.Using "requests" library, image is downloaded from URL which was against the student name. Using Facial Expression Recognition(FER), I have detected emotion of that particular image

3 Testing and Output

I have tested my program and it display all the images with their names below it. Also, there are all arranged in the alphabetical order.

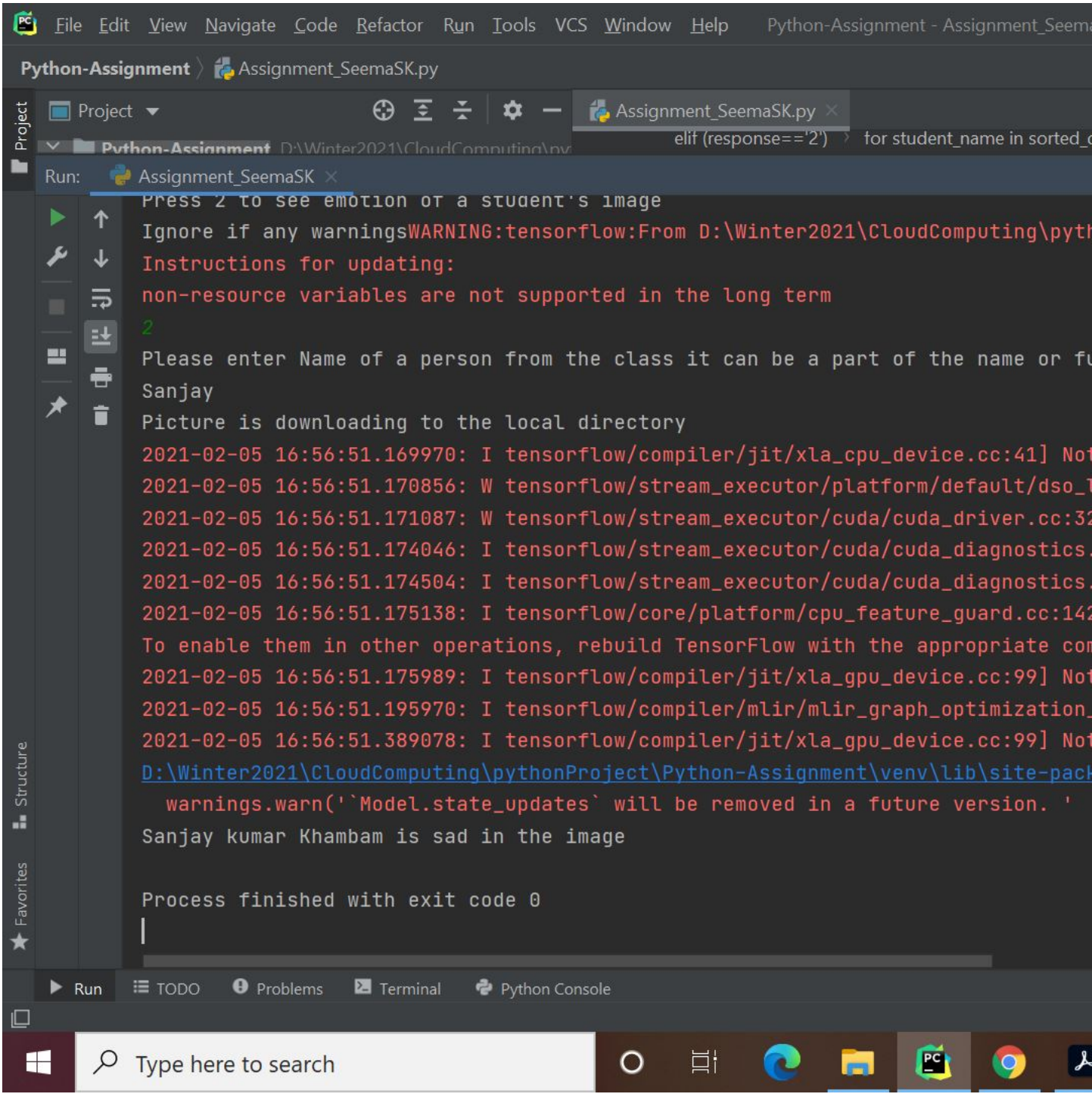


I verified few images and it displays their emotions. In the below image you can see for image it shows as "Happy"

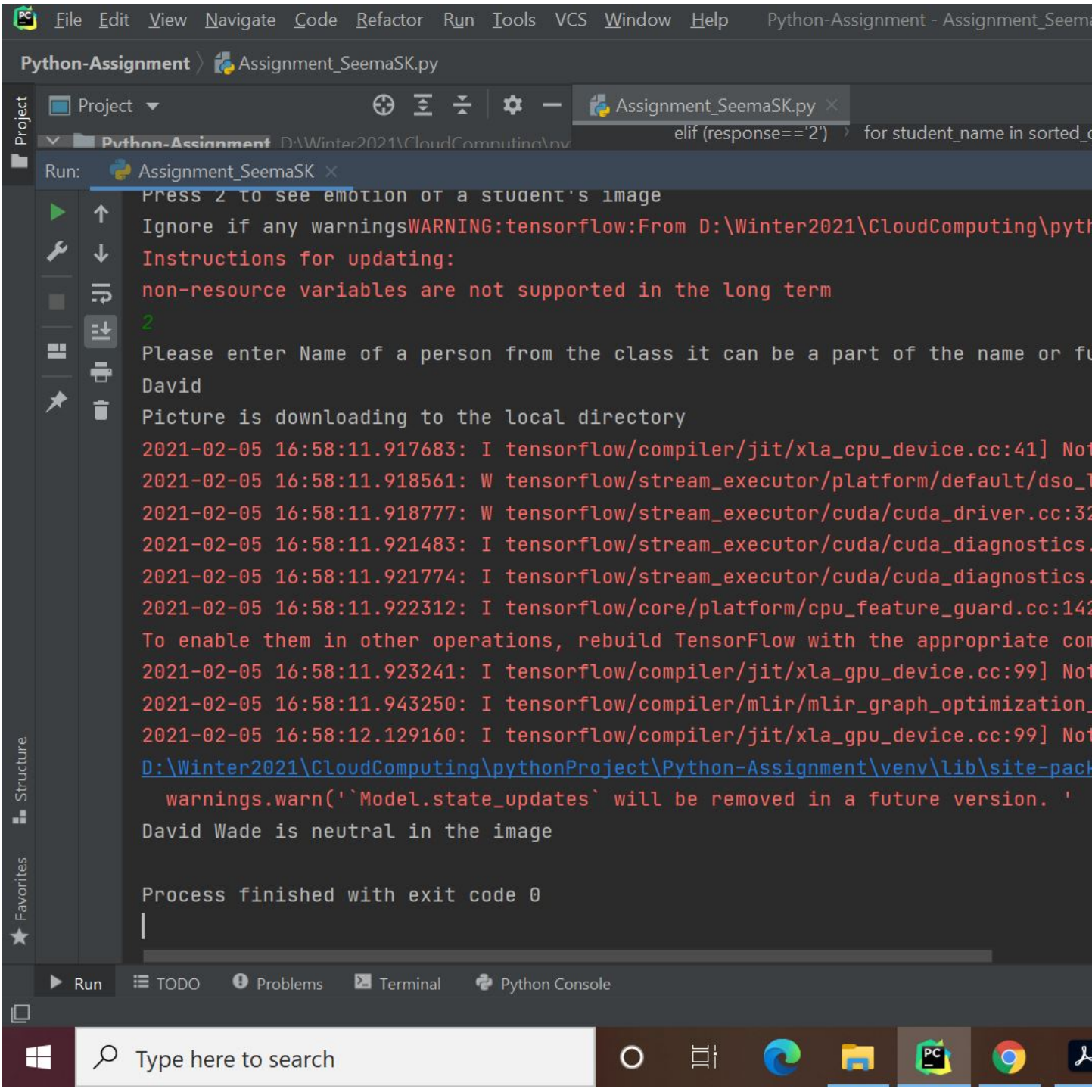
```
Press 1 to see image gallery of Class Cloud Computing - ECE 428 and 528
Press 2 to see emotion of a student's image
Ignore if any warnings2
Please enter Name of a person from the class it can be a part of the name or full nameSee
Seema
Picture is downloading to the local directory
2021-02-05 16:52:20.752363: I tensorflow/compiler/jit/xla_cpu_device.cc:41] Not creating
2021-02-05 16:52:20.755139: W tensorflow/stream_executor/platform/default/dso_loader.cc:6
2021-02-05 16:52:20.755537: W tensorflow/stream_executor/cuda/cuda_driver.cc:326] failed
2021-02-05 16:52:20.761261: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc:169] re
2021-02-05 16:52:20.761933: I tensorflow/stream_executor/cuda/cuda_diagnostics.cc:176] ho
2021-02-05 16:52:20.764486: I tensorflow/core/platform/cpu_feature_guard.cc:142] This Ten
To enable them in other operations, rebuild TensorFlow with the appropriate compiler flag
2021-02-05 16:52:20.766297: I tensorflow/compiler/jit/xla_gpu_device.cc:99] Not creating
2021-02-05 16:52:20.795286: I tensorflow/compiler/mlir/mlir_graph_optimization_pass.cc:19
2021-02-05 16:52:21.138090: I tensorflow/compiler/jit/xla_gpu_device.cc:99] Not creating
D:\Winter2021\CloudComputing\pythonProject\Python-Assignment\venv\lib\site-packages\tenso
  warnings.warn('`Model.state_updates` will be removed in a future version. '
Seema Sharanappa Kanaje is happy in the image

Process finished with exit code 0
```

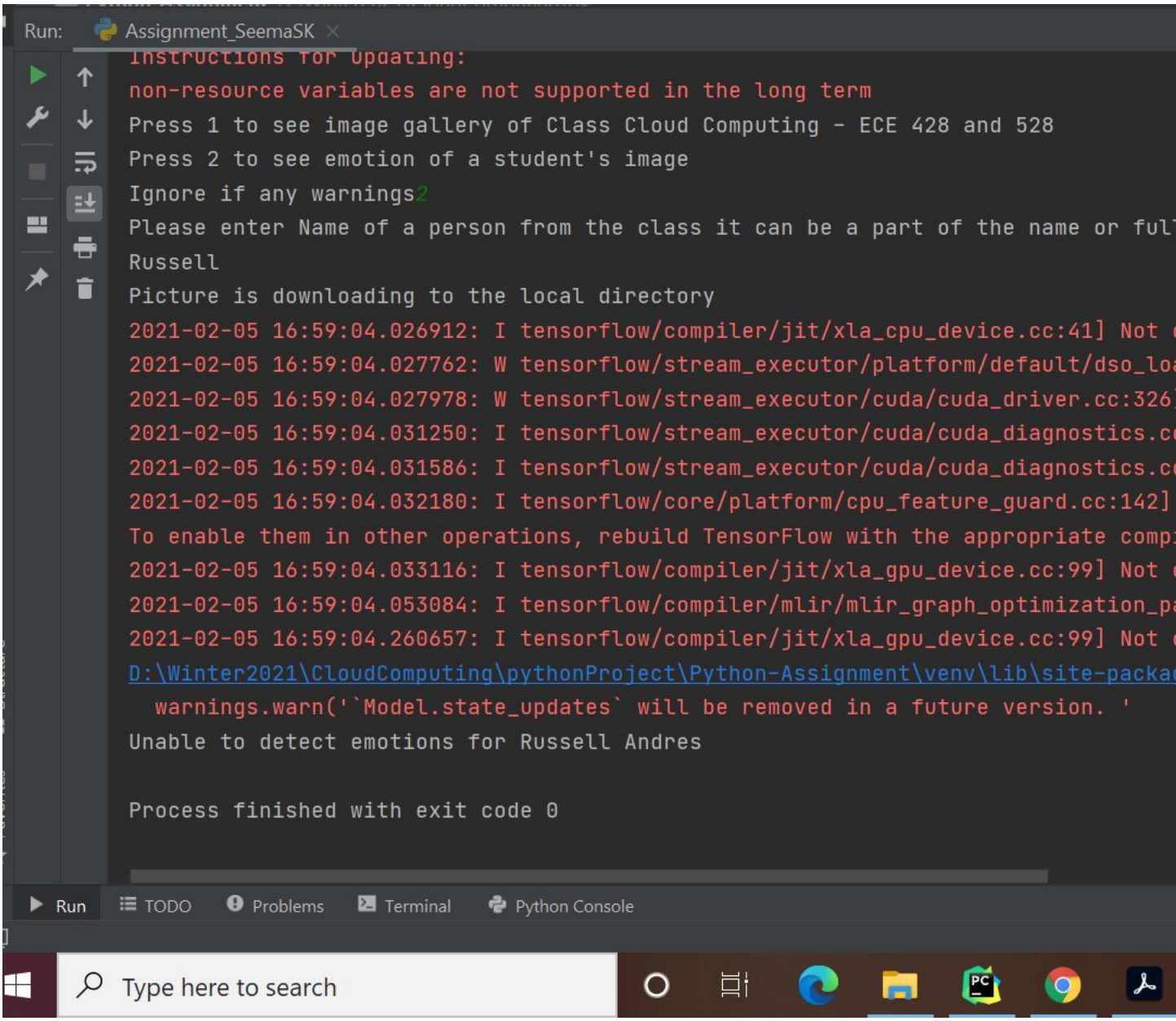
For Sanjay Kumar Khambam, it shows as a sad one.



For David Wade, it's Neutral



For Russell Andres, in the image its covered with COVID kit. So, program wasn't able to detect his emotions in the picture


Run:
Assignment_SeemaSK
Instructions for updating:
non-resource variables are not supported in the long term
Press 1 to see image gallery of Class Cloud Computing - ECE 428 and 528
Press 2 to see emotion of a student's image
Ignore if any warnings2
Please enter Name of a person from the class it can be a part of the name or ful
Russell
Picture is downloading to the local directory
2021-02-05 16:59:04.026912: I tensorflow/compiler/jit/xla_cpu_device.cc:41] Not
2021-02-05 16:59:04.027762: W tensorflow/stream_executor/platform/default/dso_lo
2021-02-05 16:59:04.027978: W tensorflow/stream_executor/cuda/cuda_driver.cc:326
2021-02-05 16:59:04.031250: I tensorflow/stream_executor/cuda/cuda_diagnostics.c
2021-02-05 16:59:04.031586: I tensorflow/stream_executor/cuda/cuda_diagnostics.c
2021-02-05 16:59:04.032180: I tensorflow/core/platform/cpu_feature_guard.cc:142]
To enable them in other operations, rebuild TensorFlow with the appropriate comp
2021-02-05 16:59:04.033116: I tensorflow/compiler/jit/xla_gpu_device.cc:99] Not
2021-02-05 16:59:04.053084: I tensorflow/compiler/mlir/mlir_graph_optimization_p
2021-02-05 16:59:04.260657: I tensorflow/compiler/jit/xla_gpu_device.cc:99] Not
D:\Winter2021\CloudComputing\pythonProject\Python-Assignment\venv\lib\site-packa
warnings.warn('`Model.state_updates` will be removed in a future version. '
Unable to detect emotions for Russell Andres
Process finished with exit code 0
Run
TODO
Problems
Terminal
Python Console
Type here to search

4 Code

```
/*-------------------------
Author: Seema Sharanappa Kanaje
Date: Feb 7, 2020
Assignment #2
-------------------------*/
import csv
from collections import OrderedDict
import os
import cv2
import matplotlib.pyplot as plt
from fer import FER
import requests
# Reading CSV file and arranging their names in alphabetical order
students=[]
n=1
my_dpi = 200
fig = plt.figure(figsize=(30,20), dpi=my_dpi)
class_details=dict()
with open('Masterlist.csv', newline='') as myFile:
    reader = csv.reader(myFile, delimiter=',', quoting=csv.QUOTE_NONE)
    for row in reader:
        full_name=row[0]+" "+row[1]
        url=row[2]
        class_details.setdefault(full_name,url)

sorted_dict=OrderedDict(sorted(class_details.items()))


response=input("Press 1 to see image gallery of Class Cloud Computing - ECE 428
    and 528 \nPress 2 to see emotion of a student's image\nIgnore if any
    warnings")
# To display Image Gallery
if(response=='1'):
    for i in sorted_dict:
        try:
            image = plt.imread(sorted_dict[i], 'jpg')
            fig.tight_layout()
            ax = fig.add_subplot(18, 3, n)
            ax.set_xticks([])
            ax.set_yticks([])
            ax.set_xlabel(i)
            n = n + 1
            ax.imshow(image)
```

```
        except:
            print("URL is broken for ", i)
    plt.show()
#On entering name of the student. It displays emotion of the image.
elif(response=='2'):
    val = input("Please enter Name of a person from the class it can be a part of
        the name or full name")
    print(val)
    folder=r'D:\Winter2021\CloudComputing\pythonProject\Python-Assignment' #
        Enter folder path of the program
    filename='image_name.png'
    for student_name in sorted_dict:
        if(val in student_name):
            try:

                image_url=sorted_dict[student_name]

                img_data = requests.get(image_url).content
                with open('image_name.png', 'wb') as handler:
                    handler.write(img_data)
                    print("Picture is downloading to the local directory")
                img_emotion = cv2.imread(os.path.join(folder, filename))
                detector = FER(mtcnn=True)

                emotion, score = detector.top_emotion(img_emotion)
                print(student_name+" is "+emotion+" in the image")
            except:
                print("Unable to detect emotions for",student_name)
else:
    print("Invalid Response")
```