import os

import csv

import subprocess

import time

import sys

try:

import matplotlib.pyplot as plt

except:

subprocess.run(['pip', 'install', 'matplotlib'])

import matplotlib.pyplot as plt

path='C:/PythonProgrammingProject\_main-folder'

print('-'\*50)

#All the Functions used Throughout the code

def loading\_screen():

for i in range(10):

sys.stdout.write("\rLoading" + "." \* i)

sys.stdout.flush()

time.sleep(0.5)

sys.stdout.write("\rLoading complete!")

def createfile(name,lst):

with open(f'{path}/{name}','a',newline='')as f:

script= csv.writer(f)

script.writerow(lst)

print(f"{name} file has been UPDATED")

def percent(num):

if stream.lower()=='cse' or stream.lower()=='cseai' or stream.lower()=='cseaiml' or stream.lower()=='cseiotcsbs':

num=(num\*100)//600

elif stream.lower()=='it' or stream.lower()=='ece' or stream.lower()=='me' or stream.lower()=='ee':

num=(num\*100)//600

return num

def grade(num):

if num>=90:

return("Outstanding Performance... You have passed the exam with grade A.")

elif num<90 and num>=80:

return("Excellent Performance... You have passed the exam with grade B.")

elif num<80 and num>=70:

return("Good Performance... You have passed the exam with grade C.")

elif num<70 and num>=60:

return("Your performance is average... Work hard... You have passed the exam with grade D.")

elif num<60 and num>=50:

return("Your performance is below average... There is massive scope of improvement... You have barely passed the exam with grade E.")

else:

return("Extremely poor performance... You have Failed the Exam and got F.")

def count(lst):

num=0

for i in lst:

if str(type(i))=="<class 'int'>":

num+=1

else:

pass

return num

def add(lst):

plus=0

for i in lst:

try:

plus+=i

except:

pass

return plus

def duplicate(file,attr,pos=0):

with open(f'{path}/{file}','r') as f:

reader = csv.reader(f)

dup\_lst=[]

for i in reader:

dup\_lst+=[i[pos]]

if attr in dup\_lst:

return True

else:

return False

def choice(stream):

if stream.lower()=='cse' or stream.lower()=='cseai' or stream.lower()=='cseaiml' or stream.lower()=='cseiotcsbs':

return ("C001:C002:C003:C004:C005:C006")

elif stream.lower()=='it' or stream.lower()=='ece' or stream.lower()=='me' or stream.lower()=='ee':

return ("C002:C003:C004:C005:C006")

def get\_batch():

with open(f'{path}/Batch.csv','r') as f:

reader=csv.reader(f)

rows=[row for row in reader]

column=[]

for i in range(len(rows)):

if i==0:

pass

else:

column+=[rows[i][0]]

return column

def remove(string):

with open(f'{path}/Student.csv','r+',newline='') as f:

script=csv.reader(f)

rows=[row for row in script]

for i in rows:

if i[0]==string:

rows[rows.index(i)]=['','','','']

else:

pass

f.seek(0)

f.truncate()

writer=csv.writer(f)

writer.writerows(rows)

def course\_graph():

color\_lst=['#C70039','#9BB1F2','#FFC300','#FF5733','#DAAFB1','#86B7C8']

fig, ax = plt.subplots()

legend\_properties = {'weight':'heavy'}

ax.set\_facecolor("Black")

ax.tick\_params(axis="both", colors="white")

fig.set\_facecolor("Black")

ax.set\_xlabel('Grades--------->', color="white")

ax.set\_ylabel('No. of Students--------->', color="white")

ax.spines["bottom"].set\_color("white")

ax.spines["left"].set\_color("white")

ax.xaxis.label.set\_weight("heavy")

ax.yaxis.label.set\_weight("heavy")

count=0

with open(f'{path}/Course.csv','r')as f:

script= csv.reader(f)

rows=[row for row in script]

req=[]

for i in range(len(rows)):

if i==0:

pass

else:

req+=[rows[i][2]]

lst=[['Python',(req[0].split('-'))[0:-1]],

['Math',(req[1].split('-'))[0:-1]],

['Physics',(req[2].split('-'))[0:-1]],

['Chemistry',(req[3].split('-'))[0:-1]],

['Biology',(req[4].split('-'))[0:-1]],

['English',(req[5].split('-'))[0:-1]]]

for i in range(len(lst)):

for j in range(len(lst[i][1])):

try:

lst[i][1][j]=grade(int((lst[i][1][j].split(':'))[-1]))[-2]

except:

lst[i][1][j]=''

for k in range(6):

a=lst[k][1].count('A')

b=lst[k][1].count('B')

c=lst[k][1].count('C')

d=lst[k][1].count('D')

e=lst[k][1].count('E')

f=lst[k][1].count('F')

lst[k][1]={'A':a,'B':b,'C':c,'D':d,'E':e,'F':f}

for j in lst:

x=list(j[1].keys())

y=list(j[1].values())

ax.plot(x, y,marker=",",color=color\_lst[count],label=j[0],linewidth=3)

leg=plt.legend(fontsize=10,loc="upper right", facecolor="Black",edgecolor="Black",prop=legend\_properties)

count+=1

for text in leg.get\_texts():

text.set\_color('White')

plt.show()

def batch\_graph(arg):

with open(f'{path}/Batch.csv','r') as f:

reader=csv.reader(f)

req=''

rows=[row for row in reader]

for i in range(len(rows)):

if arg==rows[i][0]:

req=rows[i][4]

break

req\_lst=req.split(':')

with open(f'{path}/Course.csv','r') as f:

reader=csv.reader(f)

rows=[row for row in reader]

column=[]

for i in range(len(rows)):

if i==0:

pass

else:

column+=[rows[i][2]]

new\_column=[]

for j in range(len(column)):

new\_column+=(column[j].split('-'))[0:-1]

new\_req\_lst=[]

temp=[]

for i in req\_lst:

for j in range(len(new\_column)):

if i in new\_column[j]:

temp+=[(new\_column[j].split(':'))[-1]]

new\_req\_lst+=[[[i]]+[temp]]

temp=[]

lst=[]

temp=0

grade\_lst=[]

for i in range(len(new\_req\_lst)):

for j in range(6):

try:

temp+=int(new\_req\_lst[i][1][j])

except:

pass

lst+=[new\_req\_lst[i][0]+[temp]]

temp=0

for i in range(len(lst)):

if lst[i][0][:3]=='CSE':

grade\_lst+=[grade((lst[i][1]\*100)//600)[-2]]

lst[i][1]=grade((lst[i][1]\*100)//600)[-2]

else:

grade\_lst+=[grade((lst[i][1]\*100)//600)[-2]]

lst[i][1]=grade((lst[i][1]\*100)//600)[-2]

grade\_no\_lst={'A':grade\_lst.count('A'),'B':grade\_lst.count('B'),'C':grade\_lst.count('C'),'D':grade\_lst.count('D'),'E':grade\_lst.count('E'),'F':grade\_lst.count('F')}

labels = list(grade\_no\_lst.keys())

sizes = list(grade\_no\_lst.values())

color\_lst=['#C70039','#9BB1F2','#FFC300','#FF5733','#DAAFB1','#86B7C8']

explode = (0.01,0.1,0.02,0.05,0.03,0.1)

new\_labels=[]

for i in range(len(labels)):

new\_labels+=[f'{labels[i]} : {str(sizes[i])}']

fig,ax = plt.subplots()

ax.set\_facecolor("Black")

fig.set\_facecolor("Black")

plt.rcParams['font.weight'] = 'heavy'

#plt.rcParams['font.size'] = '1'

patches, texts=ax.pie(sizes, labels=new\_labels, colors=color\_lst,explode=explode,shadow=True,startangle= -90,textprops={'fontsize': 0})

centre\_circle = plt.Circle((0,0),0.60,fc='black')

fig = plt.gcf()

fig.gca().add\_artist(centre\_circle)

legend\_properties = {'weight':'heavy'}

leg=plt.legend(fontsize=10,loc="center", facecolor="Black",edgecolor="Black",prop=legend\_properties)

for text in leg.get\_texts():

text.set\_color('white')

plt.title('Overall Grades vs No. of Students',color='White',weight='heavy')

plt.axis('equal')

plt.show()

def department\_graph():

need={}

with open(f'{path}/Batch.csv','r') as f:

reader=csv.reader(f)

batch=[batch[0] for batch in reader]

batch=batch[1:]

for arg in batch:

avg=0

with open(f'{path}/Batch.csv','r') as f:

reader=csv.reader(f)

req=''

rows=[row for row in reader]

for i in range(len(rows)):

if arg==rows[i][0]:

req=rows[i][4]

break

req\_lst=req.split(':')

with open(f'{path}/Course.csv','r') as f:

reader=csv.reader(f)

rows=[row for row in reader]

column=[]

for i in range(len(rows)):

if i==0:

pass

else:

column+=[rows[i][2]]

new\_column=[]

for j in range(len(column)):

new\_column+=(column[j].split('-'))[0:-1]

new\_req\_lst=[]

temp=[]

for i in req\_lst:

for j in range(len(new\_column)):

if i in new\_column[j]:

temp+=[(new\_column[j].split(':'))[-1]]

new\_req\_lst+=[[[i]]+[temp]]

temp=[]

lst=[]

temp=0

grade\_lst=[]

for i in range(len(new\_req\_lst)):

for j in range(6):

try:

temp+=int(new\_req\_lst[i][1][j])

except:

pass

lst+=[new\_req\_lst[i][0]+[temp]]

temp=0

for i in range(len(lst)):

if lst[i][0][:3]=='CSE':

lst[i][1]=(lst[i][1]\*100)/600

else:

lst[i][1]=(lst[i][1]\*100)/600

for i in range(len(lst)):

avg+=lst[i][1]

avg=int(avg//len(lst))

need[arg]=avg

xdata = list(need.keys())

ydata = list(need.values())

color\_lst=['#C70039','#9BB1F2','#FFC300','#FF5733','#DAAFB1','#86B7C8']

fig,ax = plt.subplots()

ax.set\_facecolor("Black")

fig.set\_facecolor("Black")

ax.set\_xlabel("X axis", color="white")

ax.set\_ylabel("Y axis", color="white")

ax.spines["bottom"].set\_color("white")

ax.spines["left"].set\_color("white")

ax.spines['bottom'].set\_linewidth(2)

ax.spines['left'].set\_linewidth(2)

ax.xaxis.label.set\_weight("heavy")

ax.yaxis.label.set\_weight("heavy")

ax.tick\_params(axis='x', labelcolor='white', labelsize=10,color='white',width=2)

ax.tick\_params(axis='y', labelcolor='white', labelsize=10,color='white',width=2)

plt.barh(xdata,ydata,color=color\_lst,height=0.3,align='center')

plt.title('Histogram of Average of Students vs Batch',color='white',pad=17,fontweight='bold')

plt.xlabel('Average----------------->')

plt.ylabel('Batch----------------->', labelpad=15)

plt.show()

#Creation of Folder and all the Modules recquired...

try:

os.makedirs(f'{path}/ReportCards')

message=True

except:

message=False

while message:

createfile('Batch.csv',['Batch ID','Batch Name','Department Name','List of Courses','List of Students'])

createfile('Course.csv',['Course ID','Course Name','Marks Obtained'])

with open(f'{path}/Course.csv','a',newline='')as f:

script= csv.writer(f)

script.writerow(['C001','Python Programming'])

script.writerow(['C002','Math'])

script.writerow(['C003','Physics'])

script.writerow(['C004','Chemistry'])

script.writerow(['C005','Biology'])

script.writerow(['C006','English'])

createfile('Department.csv',['Department ID','Department Name','List of Batches'])

with open(f'{path}/Department.csv','a',newline='')as f:

script= csv.writer(f)

script.writerow(['CSE','Computer Sience and Engineering'])

script.writerow(['CSEAI','Computer Sience and Engineering and Artificial Intelligence'])

script.writerow(['CSEAIML','Computer Sience and Engineering and Artificial Intelligence and Machine Learning'])

script.writerow(['CSEIOTCSBS','Computer Sience and Engineering and Internet of Things and Business Studies'])

script.writerow(['IT','Information Technology'])

script.writerow(['ECE','Electrical and Communications Engineering'])

script.writerow(['ME','Mechanical Engineering'])

script.writerow(['EE','Electrical Engineering'])

createfile('Student.csv',['Student ID','Name','Class Roll Number','Batch ID'])

createfile('Examination.csv',['Course Name','Student ID','Marks'])

break

print('\n','Computer Sience and Engineering : CSE','\n',

'Computer Sience and Engineering and Artificial Intelligence : CSEAI','\n',

'Computer Sience and Engineering and Artificial Intelligence and Machine Learning : CSEAIML','\n',

'Computer Sience and Engineering and Internet of Things and Business Studies : CSEIOTCSBS','\n',

'Information Technology : IT','\n',

'Electrical and Communications Engineering : ECE','\n',

'Mechanical Engineering : ME','\n',

'Electrical Engineering : EE','\n')

print("Please write all the stream name in short form as mentioned above and in capital letters only!!!")

print()

student\_no=int(input("Enter the no. of students whose data you want to input : "))

print()

print('-'\*50)

for i in range(student\_no):

name=input("Enter Student's Name : ")

batch=input("Which batch they are in (e.g. 2022-26) : ")

stream=input("Which Stream are you in (e.g. CSE) : ")

roll=input("What is your Class Roll Number : ")

batch\_id=stream+batch[2:4]

student\_id=batch\_id+roll

batch\_name=stream+batch

if duplicate('Student.csv',student\_id,0):

print("the student is already present in the directory")

print(f"You can find your report card here : {path}/ReportCards/{student\_id}\_{name}.txt")

else:

print()

print("The subjects are [Python,Math,Physics,Chemistry,Biology,English]")

print('please enter the subjects marks in the above mentioned order in a list type and if you dont have a particular subject write there "null" (e.g. [100,100,"null",75,69,85])')

print('Each Subject is ot of 100 marks')

print()

marks\_lst=eval(input("Enter the Marks list : "))

total\_marks=add(marks\_lst)

print()

with open(f"{path}/ReportCards/{student\_id}\_{''.join(name.split())}.txt",'w') as f:

f.writelines([f'Name of the student : {name} \n',

f'Class Roll of the student : {roll} \n',

f'Stream of the student : {stream} \n',

f'Your Student ID is : {student\_id}\n',

'\n',

f'Marks obtained in Math is : {marks\_lst[1]} \n',

f'Marks obtained in Python is : {marks\_lst[0]} \n',

f'Marks obtained in Physics is : {marks\_lst[2]} \n',

f'Marks obtained in Chemistry is : {marks\_lst[3]} \n',

f'Marks obtained in Biology is : {marks\_lst[4]} \n',

f'Marks obtained in English is : {marks\_lst[5]} \n'])

f.write('\n')

f.write(f'You have got {total\_marks} in total with {percent(total\_marks)}%\n')

f.write(grade(total\_marks/count(marks\_lst)))

createfile('Student.csv',[student\_id,name,roll,batch\_id])

print(f"You can find your report card here : {path}/ReportCards/{student\_id}\_{''.join(name.split())}.txt")

openpath=f"{path}/ReportCards/{student\_id}\_{''.join(name.split())}.txt"

subprocess.run(['start',openpath], shell=True)

ask=input("Do you want to remove this name from database now is the time (Y/N) : ")

if ask.lower()=='n':

if duplicate('Batch.csv',batch\_id,0):

with open(f'{path}/Batch.csv','r+',newline='') as f:

script=csv.reader(f)

rows=[row for row in script]

for i in rows:

if batch\_id==i[0]:

rows[rows.index(i)][4]+=f':{student\_id}'

f.seek(0)

f.truncate()

writer=csv.writer(f)

writer.writerows(rows)

print("Batch.csv has been updated")

else:

createfile('Batch.csv',[batch\_id,batch\_name,stream,choice(stream),student\_id])

with open(f'{path}/Course.csv','r+',newline='') as f:

script=csv.reader(f)

rows=[row for row in script]

for i in range(len(rows)):

if i==0:

pass

else:

try:

rows[i][2]+=f'{student\_id}:{marks\_lst[i-1]}-'

except:

rows[i].append(f'{student\_id}:{marks\_lst[i-1]}-')

f.seek(0)

f.truncate()

writer=csv.writer(f)

writer.writerows(rows)

else:

remove(student\_id)

subprocess.call("TASKKILL /F /IM notepad.exe", shell=True)

os.remove(openpath)

print('Your details have been successfully removed from the directory')

print('-'\*50)

print()

try:

with open(f'{path}/Department.csv','r+',newline='') as f:

script=csv.reader(f)

rows=[row for row in script]

lst=get\_batch()

for i in lst:

for j in rows:

if i[0:-2]==j[0]:

try:

if i in j[2]:

pass

else:

rows[rows.index(j)][2]+=f'{i}:'

except:

rows[rows.index(j)].append(f'{i}:')

break

f.seek(0)

f.truncate()

writer=csv.writer(f)

writer.writerows(rows)

except:

print("Nothing to add in Department.csv")

#Creation of the Graphs...

print()

print("Give the details Below to see the Batchwise percent Graph")

batch=input("Which batch they are in (e.g. 2022-26) : ")

stream=input("Which Stream are they in (e.g. CSE) : ")

print('Please Close the Figure window after viewing to continue')

batch\_id=stream+batch[2:4]

with open(f'{path}/Batch.csv','r') as f:

reader=csv.reader(f)

batch=[batch[0] for batch in reader]

batch=batch[1:]

while True:

if batch\_id in batch:

batch\_graph(batch\_id)

break

else:

print(f'details with {batch\_id} this Batch ID is not in the directory')

ask=input("Do you want to continue (y/n) : ")

if ask.lower()=='y':

batch=input("Which batch they are in (e.g. 2022-26) : ")

stream=input("Which Stream are they in (e.g. CSE) : ")

batch\_id=stream+batch[2:4]

continue

else:

print('OK')

break

print()

print('The overall Course graph will come now')

print('Please Close the Figure window after viewing to continue')

loading\_screen()

course\_graph()

print()

print()

print("The overall Department wise average graph will come now")

print('Please Close the Figure window after viewing to continue')

loading\_screen()

department\_graph()

print()

print()

last=input("Press Enter to exit")

subprocess.call("TASKKILL /F /IM notepad.exe", shell=True)