STUDENT EXAMINATION PORTAL

Submitted by

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Subject: PROGRAMMING FOR PROBLEM SOLVING
Subject Code: ESC103
Department: BASIC SCIENCE AND HUMANITIES

Under the supervision of

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Academic Year: 2022-2026

PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE FIRST SEMESTER

DEPARTMENT OF BASIC SCIENCE AND HUMANITITES
INSTITUTE OF ENGINEERING AND MANAGEMENT, KOLKATA

CERTIFICATE OF RECOMMENDATION

We hereby recommend that the project prepared under our supervision by ***Avi Kundu*** entitled **STUDENT EXAMINATION POTAL** accepted in partial fulfillment of the requirements for the degree of partial fulfillment of the first semester.

Head of the Department Basic Sciences and Humanities IEM, Kolkata	Project Supervisor

1》 Introduction :

There are multiple instances where the teachers are overwhelmed by the huge number of students and when they have to keep track of their marks during the exam time. So, a program has been created in python keeping this problem in our mind so as to help the teachers to overcome this problem. This program aims to help the teachers in doing their work. The databases that are created here helps the teachers to access the data that is being already organized by the program created here into separate files which are in-turn related to each other via well defined data relationships in order to ease the process of viewing the data, the program creates several spreadsheets (in *.csv format) and also displays different graphs in multiple forms for easier understanding at a glance.

1.1》 Objective:

This program carefully sorts the students into various branches as per their courses and academic year.

1.2》 Organization of the Project:

This project consists of two sections ~

i)Taking data from the user:
When we run the programme a few terminal prompts instruct us to give the correct input.

ii)Storing the data into different databases:
After taking the inputs.

2》 Database Descriptions :

There are four databases:

1) STUDENT: **Stores details of a student**
2)COURSE: **Stores details of all courses**
3)BATCH: **Stores details of all courses**
4)DEPARTMENT: **Stores details of all courses**

2.1》 Database Samples :

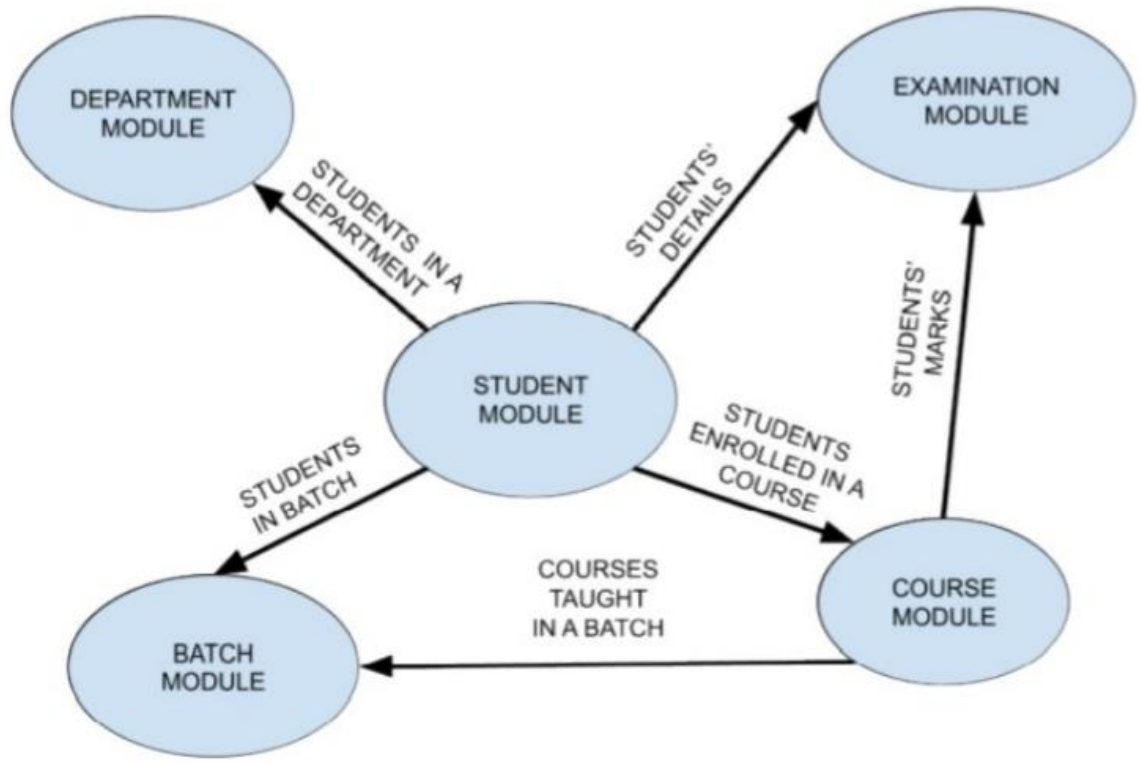
	student ID	Name	Class Roll I	Batch ID
0	CSE2200	Rohan Das	1	CSE22
1	CSE2201	Souma Du	2	CSE22
2	CSE2202	Subhadeep	3	CSE22
3	ECE2200	Avi Pal	1	ECE22
4	ECE2201	Sourav Kur	2	ECE22
5	ECE2202	Biplab Jana	3	ECE22

	Course ID	Course Na	Marks Obtained
0	C001	Physics	CSE2200:92-CSE2201:35-CSE2202:84-ECE2200:99-ECE2201:67-ECE2202:88
1	C002	Chemistry	CSE2200:79-CSE2201:52-CSE2202:86-ECE2200:87-ECE2201:62-ECE2202:79
2	C003	Python Prc	CSE2200:83-CSE2201:72-CSE2202:43-ECE2200:22-ECE2201:59-ECE2202:84
3	C004	Maths	CSE2200:98-CSE2201:18-CSE2202:64-ECE2200:34-ECE2201:72-ECE2202:96

	Batch ID	Batch Nan	Departmer	List of Cou	List of Students
0	CSE22	CSE2022-2	CSE	C001:C002	CSE2200:CSE2201:CSE2202
1	ECE22	ECE2022-2	ECE	C001:C002	ECE2200,ECE2201,ECE2202

	Departmer	Departmer	List of Batches
0	CSE	Computer	CSE22
1	ECE	Electronics	ECE22

2.2 Data Flow and E-R Diagrams:



3》 Programs :

```
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':
        num=(num*100)//500
    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':
        return ("C002:C003:C004:C005:C006")

def get_batch():
    with open(f'C:/PythonProgrammingProject_main-
folder/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'C:/PythonProgrammingProject_main-
folder/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','#8
6B7C8']
    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)//500)[-2]]
            lst[i][1]=grade((lst[i][1]*100)//500)[-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','#8
6B7C8']
    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)/500
    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'])
    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')
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'])
```

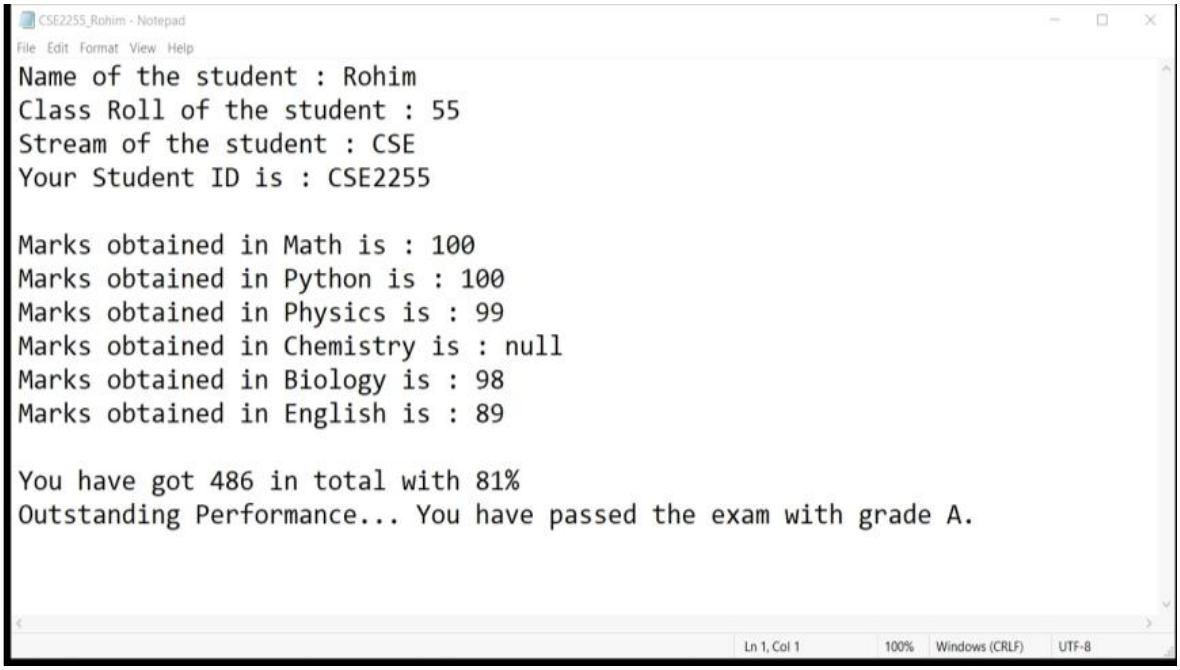
```
            f.write('\n')
            f.write(f'You have got {total_marks} in total with
{percent(total_marks)}%\n')
            f.write(grade(total_marks/count(marks_lst)))
        createfile('Student.csv',[student_id,name,roll,batch_id])
        print(f"You can find your report card here :
{path}/ReportCards/{student_id}_{''.join(name.split())}.txt")

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
```

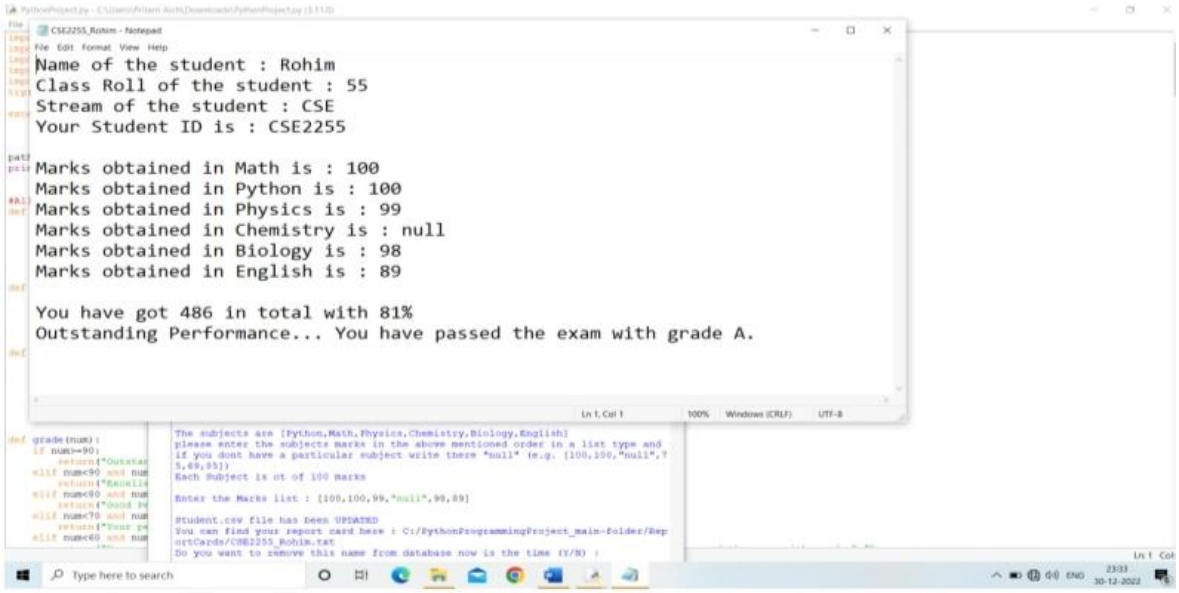
```
                else:
                    try:
                        rows[i][2]+=f'{student_id}:{marks_lst[i-1]}-'
                    except:
                        rows[i].append(f'{student_id}:{marks_lst[i-1]}-')
            f.seek(0)
            f.truncate()
            writer=csv.writer(f)
            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)
```

4》 Outputs :




CSE2255_Rohim - Notepad
File Edit Format View Help
Name of the student : Rohim
Class Roll of the student : 55
Stream of the student : CSE
Your Student ID is : CSE2255
Marks obtained in Math is : 100
Marks obtained in Python is : 100
Marks obtained in Physics is : 99
Marks obtained in Chemistry is : null
Marks obtained in Biology is : 98
Marks obtained in English is : 89
You have got 486 in total with 81%
Outstanding Performance... You have passed the exam with grade A.
Ln 1, Col 1
100%
Windows (CRLF)
UTF-8
The subjects are [Python,Math,Physics,Chemistry,Biology,English]
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",7
5,69,85])
Each Subject is ot of 100 marks
Enter the Marks list : [100,100,99,"null",98,89]
Student.csv file has been UPDATED
You can find your report card here : C:/PythonProgrammingProject_main-folder/Rep
ortCards/CSE2255_Rohim.txt
Do you want to remove this name from database now is the time (Y/N) :
Type here to search
ENG
23:33
30-12-2022