Student Examination Portal

Submitted by

Name of the Students: Chandreyee Mandal
Enrolment Number: 12022002003196
Section: I
Class Roll Number: 64
Stream: ECE
Subject: Programming for Problem Solving using Python
Subject Code: IVC101
Department: Basic Science and Humanities

Under the supervision of
Mrs. Sumana Sinha

Academic Year: 2022-26

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 **Chandreyee Mandal,** entitled Student Examination Portal be accepted in partial fulfilment of the requirements for the degree of partial fulfilment of the first semester.

Head of the Department
Basic Sciences and Humanities
IEM, Kolkata

Project Supervisor

- # Introduction

A CSV file is a type of plain text file which uses specific structure to arrange tabular data and sql stands for Structural Query Language which let you access and manipulate databases. We are making Students' Examination portal using python programming through sql and csv implement.

- ## Objective

The objective of this project is to make better understanding of csv file in python programming as well as to manage the details of all information like students' batch, courses, profiles etc. The purpose of the project is to build an application program to reduce the manual work for managing the required information which tracks all the details of any student.

- ## Organization of the Project

This project consists of three 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

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

- **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

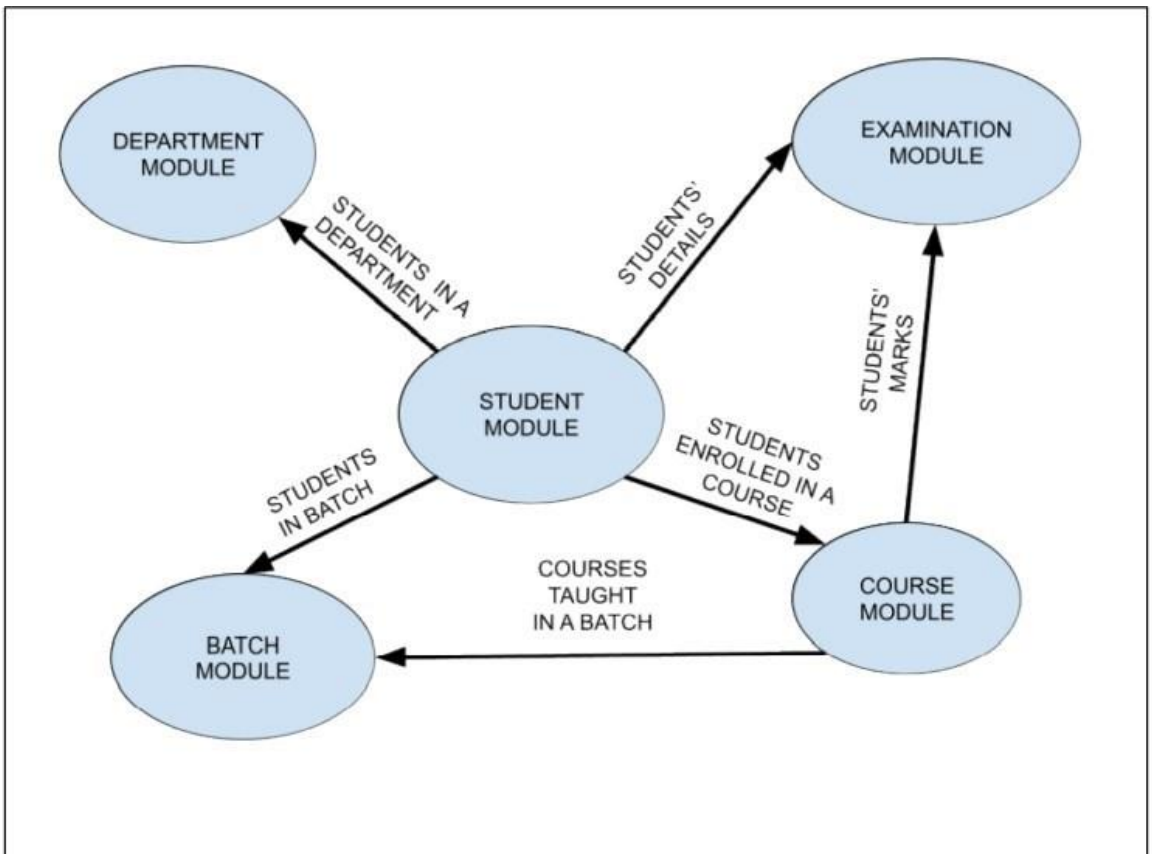
	Course ID	Course Na	Marks Obtained
0	C001	Physics	CSE2200:92-CSE2201:35-CSE2202:84-ECE2200:99-ECE2201:67-ECE2202:88
1	C002	Chemistry	CSE2200:79-CSE2201:52-CSE2202:86-ECE2200:87-ECE2201:62-ECE2202:79
2	C003	Python Prc	CSE2200:83-CSE2201:72-CSE2202:43-ECE2200:22-ECE2201:59-ECE2202:84
3	C004	Maths	CSE2200:98-CSE2201:18-CSE2202:64-ECE2200:34-ECE2201:72-ECE2202:96

	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

- # Data Flow and E-R Diagrams

Demonstrate the dependency of all the python modules written using data flow diagrams



- # 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_mainfolder/B
atch.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_mainfolder/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','#
DA AFB1','#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],linewi
dt h=3)
```

```
            leg=plt.legend(fontsize=10,loc="upper
right",
facecolor="Black",edgecolor="Black",prop=legend_prope
rt ies)
            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.
co
unt('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','#DA AFB1','#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,startang
le
= -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_prope
rt ies)     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','#
DA AFB1','#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 Science and
Engineering'])
        script.writerow(['CSEAI','Computer Science
and
Engineering and Artificial Intelligence'])
script.writerow(['CSEAIML','Computer Science and
Engineering and Artificial Intelligence and Machine
Learning'])
        script.writerow(['CSEIOTCSBS','Computer
Science 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 Science and
Engineering :
CSE','\n',
      'Computer Science and Engineering and
Artificial Intelligence : CSEAI','\n',
      'Computer Science and Engineering and
Artificial
Intelligence and Machine Learning : CSEAIML','\n',
      'Computer Science 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.
sp lit())}.txt",'w') as f:

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

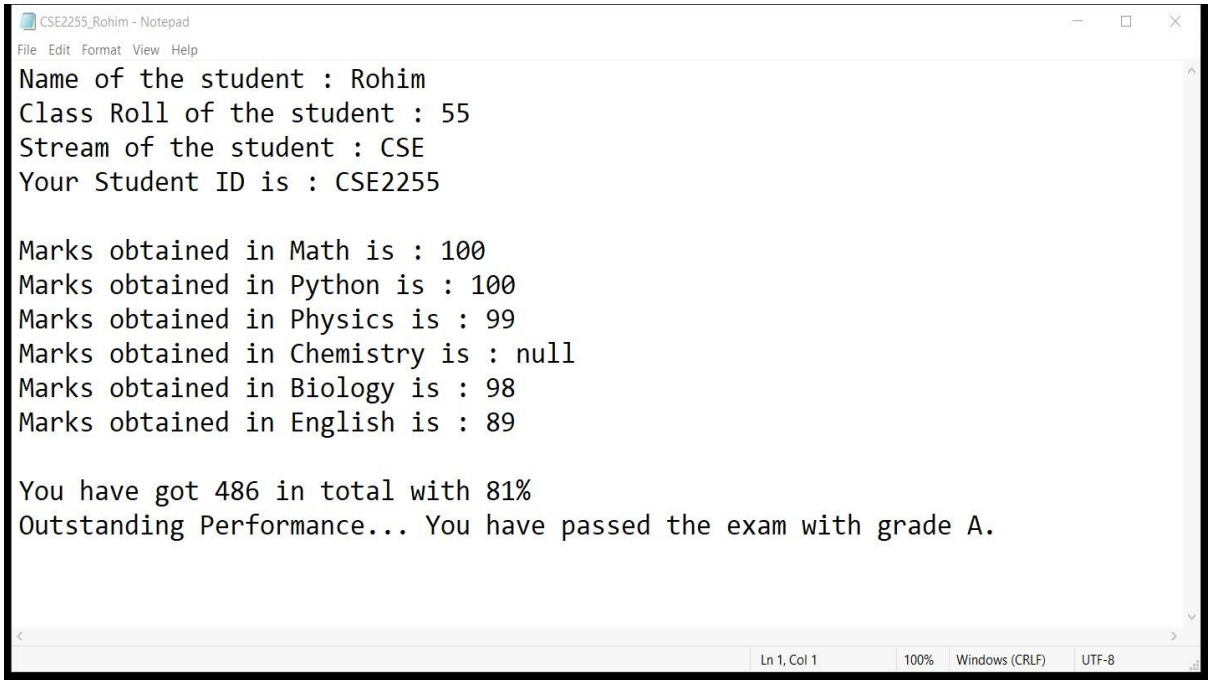
```
                            f'Stream of the student :
{stream} \n',                                f'Your
Student ID is :
{student_id}\n',
                            '\n',
f'Marks obtained in Math is :
{marks_lst[1]} \n',
                            f'Marks obtained in Python
is
: {marks_lst[0]} \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(n
am
e.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='')
```

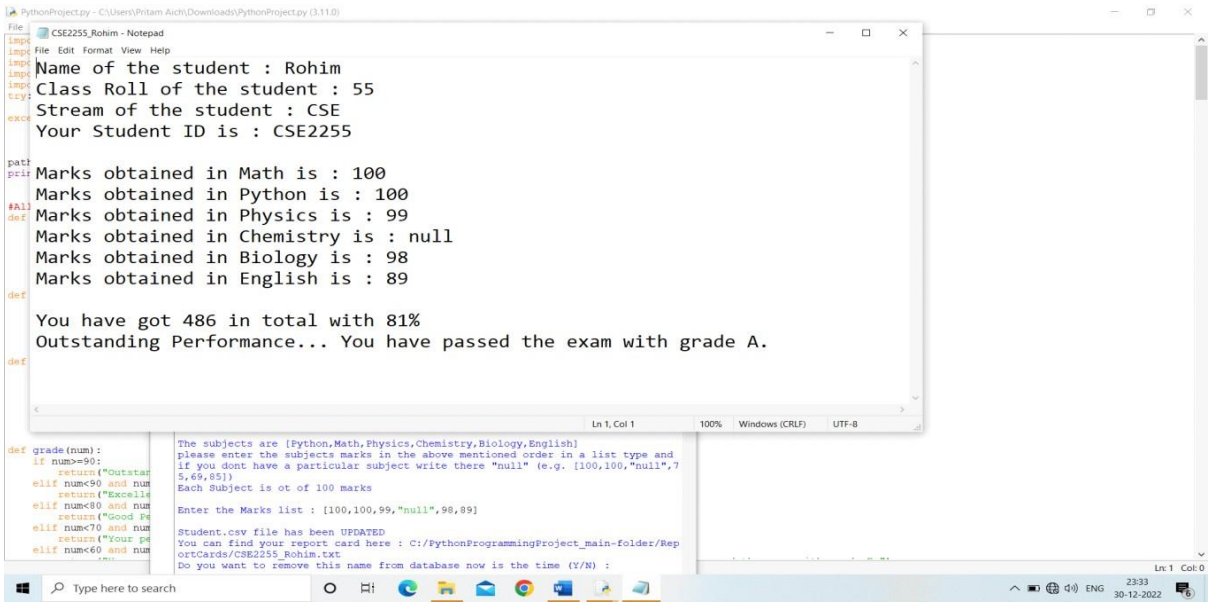
```
as f:                    script=csv.reader(f)
rows=[row for row in script]
for i in rows:                          if
batch_id==i[0]:

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,ch
oi ce(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)
```

- **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


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