STUDENT EXAMINATION PORTAL

Submitted by

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Section: H

Class Roll Number: 71

Stream: ECE

Subject: Programming for Problem Solving with 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 p	repared under our supervision by
Jatin kumar sinha, entitled Student Exami	nation Portal be accepted in partial
fulfillment of the requirements for the degree	ee of partial fulfillment of the first
semester.	
Head of the Department	Project Supervisor
Basic Sciences and Humanities	J

IEM, Kolkata

1 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

• <u>Database Sample</u>

	student ID	Name	Class Roll I	Batch ID
0	CSE2200	Rohan Das	1	CSE22
1	CSE2201	Souma Dut	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

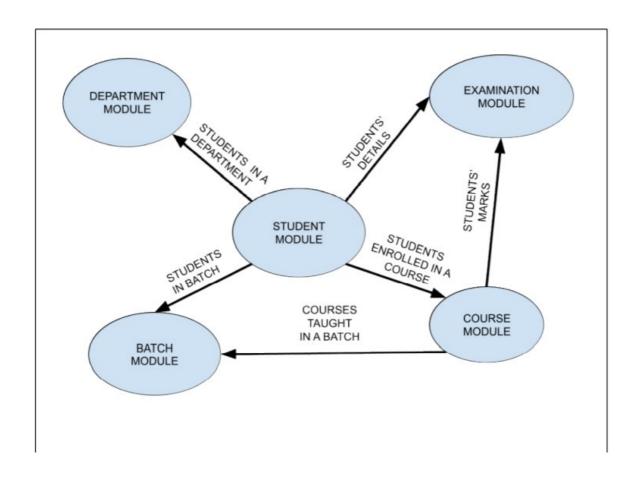
	Course ID	Course Na	Marks Obt	ained					
0	C001	Physics	CSE2200:9	2-CSE2201	:35-CSE220	2:84-ECE2	200:99-ECE	2201:67-E	CE2202:88
1	C002	Chemistry	CSE2200:7	9-CSE2201	:52-CSE220	2:86-ECE2	200:87-ECE	2201:62-E	CE2202:79
2	C003	Python Pro	CSE2200:8	3-CSE2201	:72-CSE220	2:43-ECE2	200:22-ECE	2201:59-E	CE2202:84
3	C004	Maths	CSE2200:9	8-CSE2201	:18-CSE220	2:64-ECE2	200:34-ECE	2201:72-E	CE2202:96

	Batch ID	Batch Nan	Departmen	List of Cou	List of Stud	dents	
0	CSE22	CSE2022-2	CSE	C001:C002	CSE2200:C	SE2201:CSI	E2202
1	ECE22	ECE2022-2	ECE	C001:C002	ECE2200,E	CE2201,EC	E2202

	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 1st:
        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 1st:
        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','#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 1st:
            x=list(j[1].keys())
            y=list(j[1].values())
            ax.plot(x,
y, marker=",", color=color lst[count], label=j[0], linewidt
h=3)
            leg=plt.legend(fontsize=10,loc="upper"
right",
facecolor="Black", edgecolor="Black", prop=legend propert
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':
            qrade lst+=[qrade((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)[-
211
            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,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 propert
ies)
    for text in leq.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:
        avq=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:-
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        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[arq]=avq
    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'])
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'1)
        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.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(nam
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,choi
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 1st:
            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() == 'v':
            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.
                                                                 100% Windows (CRLF)
                                                      In 1. Col 1
                                                                              UTF-8
```

