STUDENT EXAMINATION PORTAL

Submitted by

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Subject: Programming for Problem Solving with Python
Subject Code: IVC101
Department: Basic Science and Humanities

Under the supervision of
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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

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CERTIFICATE OF RECOMMENDATION

We hereby recommend that the project prepared under our supervision by **Adrija Ghosh,** entitled Student Examination portal be 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

This is a student examination portal that stores every necessary detail of a student and show the examination result both in text form as well as graphical form.

1.1 Objective

This program carefully sorts the students into various branches as per their courses and academic year. This program aims to efficiently:-
i)sort the students into their individual batches
ii)enroll them into their specific courses
iii)While keeping them under the supervision of their core department.

1.2 Organization of the Project

This program fetches the following data from the user :-
i)Name of the student
ii) batch year in which they are studying
iii) stream in which they are studying
iv) class roll no. of the student.

After fetching the data from the user the program provides the user with a detailed overview of the: -
i)Student details such as - Student Name, Student ID, Batch ID, and Class Roll No.
ii) Batch details such as - Batch ID , Department name, Batch name, Course list, Student list
iii) Department details such as- Department ID, Department name, Batch list
iv) Course details such as- Course ID, Course name, Marks obtained by the students.

2 Database Descriptions

Student Database: It contains the Student Name, Student ID, Batch ID, and Class Roll No. It contains the basic information related to a student. It contains data in VARCHAR format. The student ID is the Primary Key.

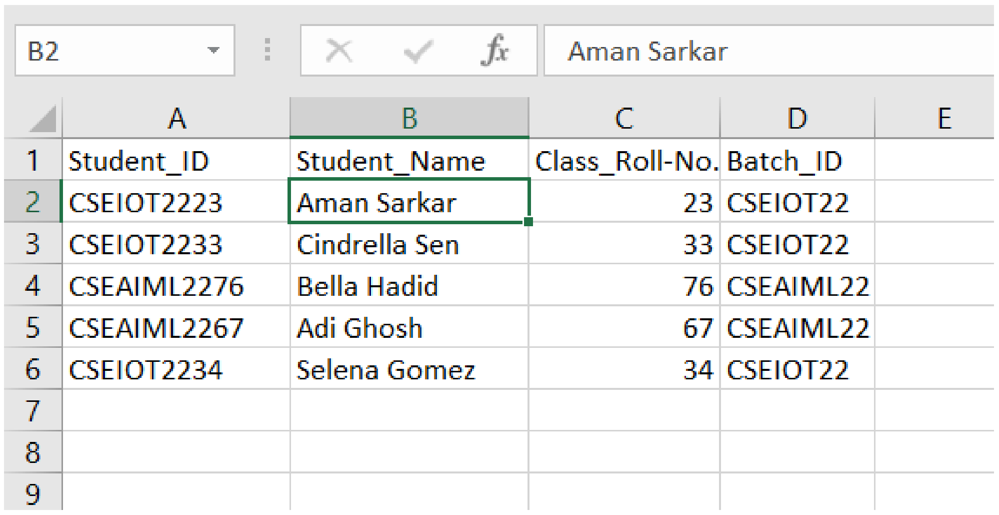
 Batch Database: It contains the various batches, their ids, the courses which are offered under those batches and the list of students who are under the batch.It consists of Batch ID , Department name, Batch name, Course list, Student list. It contains data in VARCHAR format. Batch ID is the primary key here. ·

Department Database: It contains Department ID, Department name, Batch list. It contains data in VARCHAR format. Department ID is the primary key here. ·

Course Database: It contains the course names which fall under all the departments along with their ids and also the marks received by all the students in the respective courses. It consists of Course ID, Course name, Marks obtained by the students. It contains data in VARCHAR format. Course ID is the primary key here.

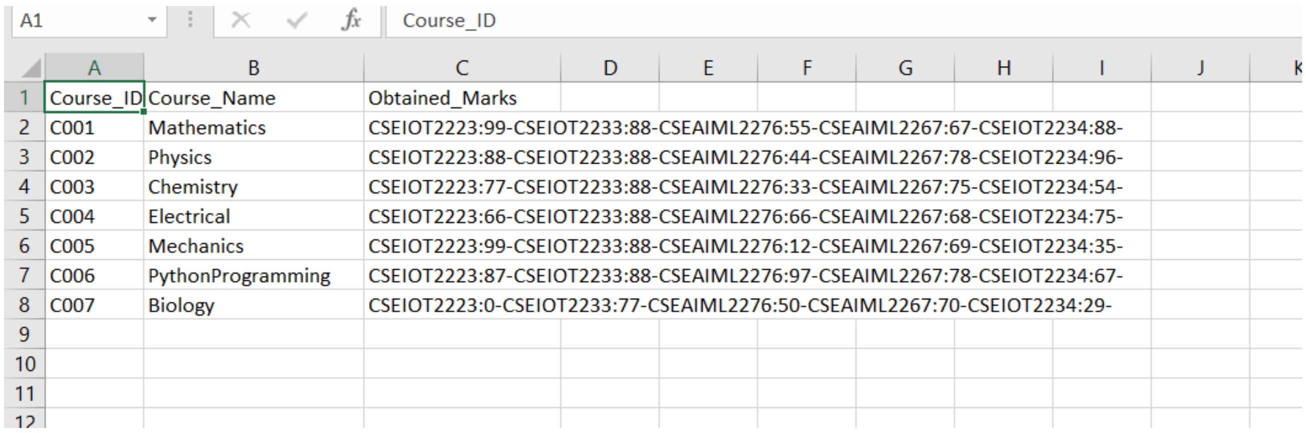
2.1 Database Samples

i)Student Records:


B2
Aman Sarkar

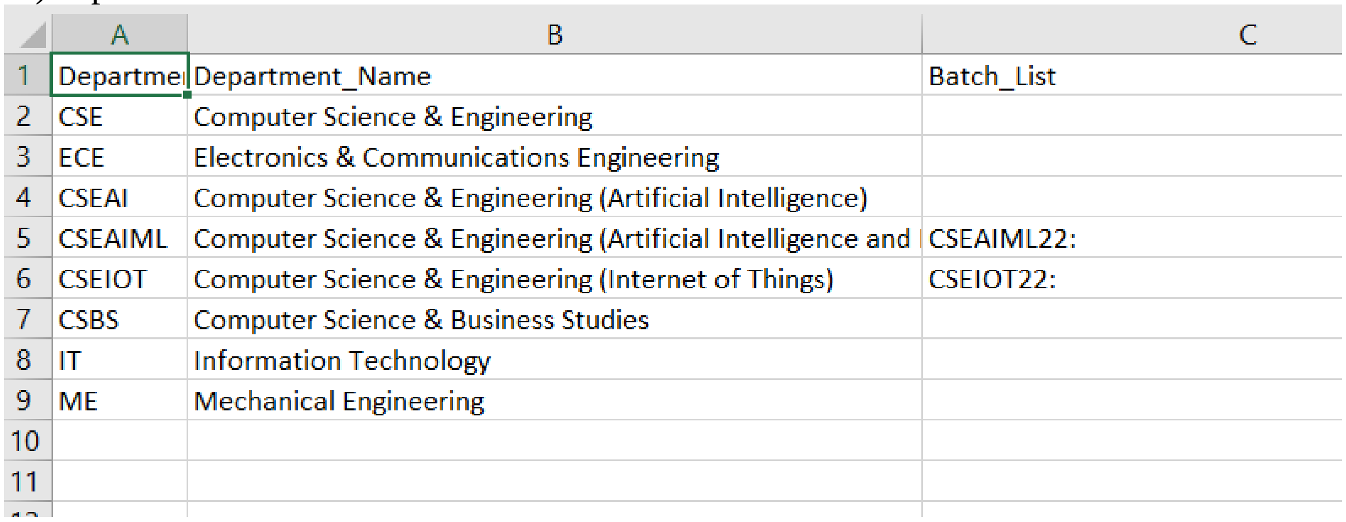
Student_ID	Student_Name	Class_Roll-No.	Batch_ID
CSEIOT2223	Aman Sarkar	23	CSEIOT22
CSEIOT2233	Cindrella Sen	33	CSEIOT22
CSEAIML2276	Bella Hadid	76	CSEAIML22
CSEAIML2267	Adi Ghosh	67	CSEAIML22
CSEIOT2234	Selena Gomez	34	CSEIOT22

ii)Batch Records:



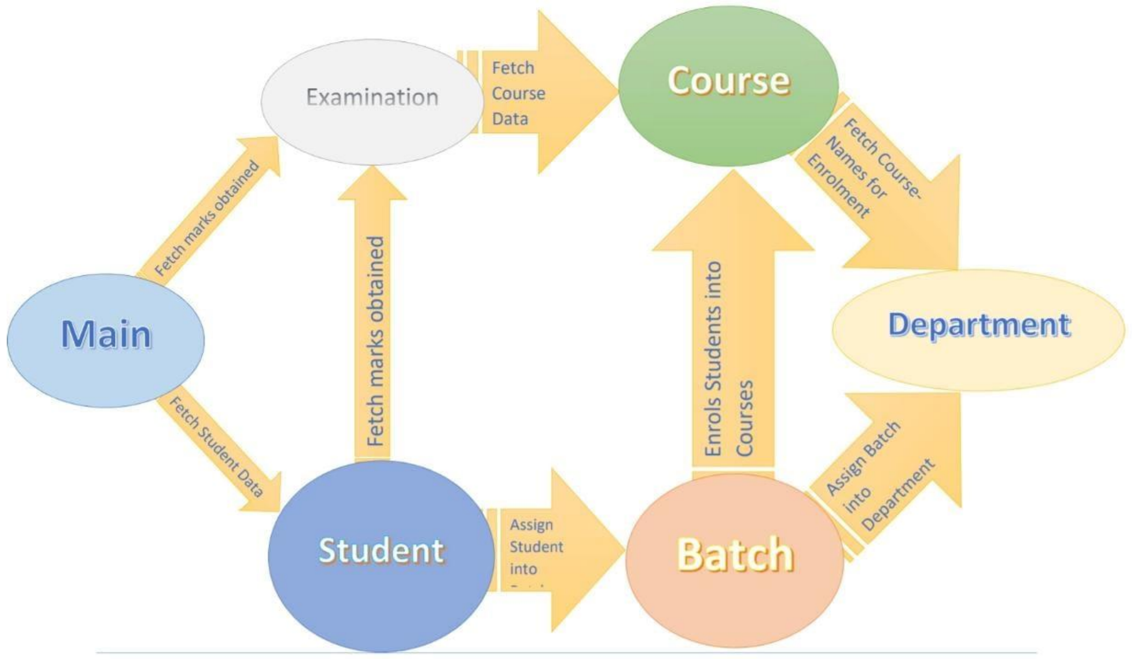
	A	B	C
1	Course_ID	Course_Name	Obtained_Marks
2	C001	Mathematics	CSEIOT2223:99-CSEIOT2233:88-CSEAIML2276:55-CSEAIML2267:67-CSEIOT2234:88-
3	C002	Physics	CSEIOT2223:88-CSEIOT2233:88-CSEAIML2276:44-CSEAIML2267:78-CSEIOT2234:96-
4	C003	Chemistry	CSEIOT2223:77-CSEIOT2233:88-CSEAIML2276:33-CSEAIML2267:75-CSEIOT2234:54-
5	C004	Electrical	CSEIOT2223:66-CSEIOT2233:88-CSEAIML2276:66-CSEAIML2267:68-CSEIOT2234:75-
6	C005	Mechanics	CSEIOT2223:99-CSEIOT2233:88-CSEAIML2276:12-CSEAIML2267:69-CSEIOT2234:35-
7	C006	PythonProgramming	CSEIOT2223:87-CSEIOT2233:88-CSEAIML2276:97-CSEAIML2267:78-CSEIOT2234:67-
8	C007	Biology	CSEIOT2223:0-CSEIOT2233:77-CSEAIML2276:50-CSEAIML2267:70-CSEIOT2234:29-

iii)Department Records:



	A	B	C
1	Departme	Department_Name	Batch_List
2	CSE	Computer Science & Engineering	
3	ECE	Electronics & Communications Engineering	
4	CSEAI	Computer Science & Engineering (Artificial Intelligence)	
5	CSEAIML	Computer Science & Engineering (Artificial Intelligence and	CSEAIML22:
6	CSEIOT	Computer Science & Engineering (Internet of Things)	CSEIOT22:
7	CSBS	Computer Science & Business Studies	
8	IT	Information Technology	
9	ME	Mechanical Engineering	

3 Data Flow and E-R Diagrams



4 Program

Python programs fulfilling the various modules are provided as follows :-

1) <u>All import functions used in the program</u>

```
#All imports
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:/ProgrammingProject2022_Database'
print('->'*15," Welcome to Student Database !!!!! ",'->'*15)
```

2) <u>All sub-functions repeatedly used in the program</u>

```
#All the Functions used Throughout the code
```

2)i) Loading function

```
#A simple loading function
def loading_screen():
    for i in range(6):
        sys.stdout.write("\r Loading" + "." * 3)
        sys.stdout.flush()
        time.sleep(0.3)
    sys.stdout.write("\r Loading complete !!!")
```

ii) file creation

```
#file-creation
def createfile(name,lst):
    with open(f'{path}/{name}','a',newline='')as x:
        script= csv.writer(x)
        script.writerow(lst)
        print(f" The Directory : {name} has been duly Updated
!!!!! ")
```

iii) marks% calculation

```
#marks % calculation
def percent(num):
    if stream.lower()=='cse' or stream.lower()=='cseai' or
stream.lower()=='cseaiml' or stream.lower()=='cseiot' or
stream.lower()=='csbs':
        num=(num*100)//600
    elif stream.lower()=='it' or stream.lower()=='ece' or
stream.lower()=='me':
        num=(num*100)//600
    return num
```

iv) gradation according to marks obtained

```
# Gradation according to marks obtained in total
def grade(num):
    if num>=90:
        return("Your Performance has been Outstanding ...\n
Grade obtained is :- A.")
    elif num>=80 and num<90:
        return("Your Performance has been Excellent...\n Grade
Obtained is :- B.")
    elif num>=70 and num<80:
        return("Your Performance has been Very Good...\n Grade
obtained is :- C.")
    elif num>=60 and num<70:
        return("Your performance is Good...\n Grade obtained is
:- D.")
    elif num>=50 and num<60:
        return("Your performance is Average and just have been
Passed...\nGrade Obtained is :- E.")
    else:
        return("Your performance has been extremely Poor and
have been Failed...\n Grade Obtained is :- F.")
```

v) counter function

```
#counter
def count(lst):
    num=0
    for i in lst:
        if str(type(i))=="<class 'int'>":
            num+=1
        else:
            pass
    return num
```

vi) adder function

```
#adder
def add(lst):
    plus=0
    for i in lst:
        try:
            plus+=i
        except:
            pass
    return plus
```

vii) duplicate record check function

```
#Function for duplication check
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
```

viii) stream choice an course assigner function

```
#Stream choice and course assigner
def choice(stream):
    if stream.lower()=='cse' or stream.lower()=='cseai' or 
stream.lower()=='cseaiml' or stream.lower()=='cseiot' or 
stream.lower()=='csbs':
        return ("C001:C002:C004:C005:C006:C007")
    elif stream.lower()=='it' or stream.lower()=='ece' or 
stream.lower()=='me':
        return ("C001:C003:C004:C005:C006:C007")
```

ix) function for the assignment of batch

```
#batch assigner
def get_batch():
    with 
open(f'C:/ProgrammingProject2022_Database/batchrecords.csv','r') 
as x:
        reader=csv.reader(x)
        rows=[row for row in reader]
        column=[]
        for i in range(len(rows)):
            if i==0:
                pass
            else:
                column+=[rows[i][0]]
    return column
```

x) function for removing a particular student data from the directory

```
#Removal of a particular student from whole directory
def remove(string):
    with 
open(f'C:/ProgrammingProject2022_Database/studentrecords.csv','r
+',newline='') as x:
        script=csv.reader(x)
        rows=[row for row in script]
        for i in rows:
            if i[0]==string:
                rows[rows.index(i)]=['','','','']
            else:
                pass
        x.seek(0)
        x.truncate()
        writer=csv.writer(x)
        writer.writerows(rows)
```

3) Creation of Course graph

```
#creation of graph for course
def course_graph():

color_lst=['#6666FF','#FF8000','#00FFFF','#1A7DE1','#FFFF00','#F
F007F']
    fig, ax = plt.subplots()
    legend_properties = {'weight':'heavy'}
    ax.set_facecolor("Blue")
    ax.tick_params(axis="both", colors="white")
    fig.set_facecolor("#B2FF66")
    ax.set_xlabel('Grades--------->', color="#FF8000")
    ax.set_ylabel('No. of Students--------->', color="#FF8000")
    ax.spines["bottom"].set_color("black")
    ax.spines["left"].set_color("black")
    ax.xaxis.label.set_weight("heavy")
    ax.yaxis.label.set_weight("heavy")
    count=0
    with open(f'{path}/courserecords.csv','r')as x:
        script= csv.reader(x)
        rows=[row for row in script]
        req=[]
        for i in range(len(rows)):
            if i==0:
                pass
            else:
                req+=[rows[i][2]]
        lst=[['Mathematics',(req[0].split('-'))[0:-1]],
             ['Physics',(req[1].split('-'))[0:-1]],
             ['Chemistry',(req[2].split('-'))[0:-1]],
             ['Electrical',(req[3].split('-'))[0:-1]],
             ['Mechanics',(req[4].split('-'))[0:-1]],
             ['PythonProgramming',(req[5].split('-'))[0:-1]],
             ['Biology',(req[6].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(7):
            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-
1],label=j[0],linewidth=5)
            leg=plt.legend(fontsize=12,loc="upper right",
facecolor="Violet",edgecolor="Blue",prop=legend_properties)
            count+=1

        for text in leg.get_texts():
            text.set_color('Brown')

        plt.show()
```

4) Creation of batch graph

```
#creation of graph for different Batch
def batch_graph(arg):
    with open(f'{path}/batchrecords.csv','r') as x:
        reader=csv.reader(x)
        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}/courserecords.csv','r') as x:
        reader=csv.reader(x)
        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(7):
            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)):
            grade_lst+=[grade(((lst[i][1]*100)//600)+10)[-2]]
            lst[i][1]=grade(((lst[i][1]*100)//600)+10)[-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=['#F5DF53','#55EFBC','#895CC3','#1A7DE1','#A9F513','#7
24706']
    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("White")
    fig.set_facecolor("orange")
    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),0.8,fc='blue')
    fig = plt.gcf()
    fig.gca().add_artist(centre_circle)

    legend_properties = {'weight':'heavy'}

    leg=plt.legend(fontsize=12,loc="center",
facecolor="#FFCCCC",edgecolor="#990000",prop=legend_properties)
    for text in leg.get_texts():
        text.set_color('#FF3399')

    plt.title('Grades vs No. of Students in a
Batch',color='#3333FF',weight='heavy')
    plt.axis('equal')
    plt.show()
```

<u>5) Creation of department graph</u>

```
#creation of graph for different departments
def department_graph():
    need={}
    with open(f'{path}/batchrecords.csv','r') as x:
        reader=csv.reader(x)
        batch=[batch[0] for batch in reader]
        batch=batch[1:]
    for arg in batch:
        avg=0
        with open(f'{path}/batchrecords.csv','r') as x:
            reader=csv.reader(x)
            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}/courserecords.csv','r') as x:
            reader=csv.reader(x)
            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)):
                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=['#F5DF53','#55EFBC','#895CC3','#1A7DE1','#A9F513','#7
24706']
    fig,ax = plt.subplots()
    ax.set_facecolor("White")
    fig.set_facecolor("#F29B18")
    ax.set_xlabel("X axis", color="black")
    ax.set_ylabel("Y axis", color="black")
    ax.spines["bottom"].set_color("#C0BBBB")
    ax.spines["left"].set_color("#F3E3E3")
    ax.spines['bottom'].set_linewidth(5)
    ax.spines['left'].set_linewidth(5)
    ax.xaxis.label.set_weight("heavy")
    ax.yaxis.label.set_weight("heavy")
    ax.tick_params(axis='x', labelcolor='#99FF33',
labelsize=10,color='#994C00',width=4)
    ax.tick_params(axis='y', labelcolor='#FFFF00',
labelsize=10,color='#994C00',width=4)


plt.barh(xdata,ydata,color=color_lst,height=0.6,align='center')

    plt.title('Histogram depicting Average-score of Students in
each Batch',color='#990000',pad=20,fontweight='bold')
    plt.xlabel('Average->->->->->->->->->->->->->->->->-
>',labelpad=20)
    plt.ylabel('Batch->->->->->->->->->->->->->->->->->',
labelpad=20)
    plt.show()
```

<u>6) Directory and sub folder creation</u>

```
 #Directory and subfolder creation
try:
    os.makedirs(f'{path}/StudentReportCards')
    message=True
except:
    message=False

while message:
    #Batch-file creation

createfile('batchrecords.csv',['Batch_ID','Batch_Name','Departme
nt_Name','Course_List','Student_List'])
    #Course-file creation

createfile('courserecords.csv',['Course_ID','Course_Name','Obtai
ned_Marks'])
    with open(f'{path}/courserecords.csv','a',newline='')as x:
        script= csv.writer(x)
        script.writerow(['C001','Mathematics'])
        script.writerow(['C002','Physics'])
        script.writerow(['C003','Chemistry'])
        script.writerow(['C004','Electrical'])
        script.writerow(['C005','Mechanics'])
        script.writerow(['C006','PythonProgramming'])
        script.writerow(['C007','Biology'])

createfile('departmentrecords.csv',['Department_ID','Department_
Name','Batch_List'])
    with open(f'{path}/departmentrecords.csv','a',newline='')as
x:
        script= csv.writer(x)
        script.writerow(['CSE','Computer Science &
Engineering'])
        script.writerow(['ECE','Electronics & Communications
Engineering'])
        script.writerow(['CSEAI','Computer Science & Engineering
(Artificial Intelligence)'])
        script.writerow(['CSEAIML','Computer Science &
Engineering (Artificial Intelligence and Machine Learning)'])
        script.writerow(['CSEIOT','Computer Science &
Engineering (Internet of Things)'])
        script.writerow(['CSBS','Computer Science & Business
Studies'])
        script.writerow(['IT','Information Technology'])
        script.writerow(['ME','Mechanical Engineering'])

createfile('studentrecords.csv',['Student_ID','Student_Name','Cl
ass_Roll-No.','Batch_ID'])

createfile('examresults.csv',['Course_Name','Student_ID','Obtain
ed_Marks'])
    break
```

<u>7) Main-screen directions for know-how to use</u>

```
#Main-screen directions for know-how to use
print('\n',
      ' #1 Computer Science & Engineering :
CSE\n',
      ' #2 Electronics & Communications Engineering :
ECE\n',
      ' #3 Computer Science & Engineering and Artificial
Intelligence :                          CSEAI\n',
      ' #4 Computer Science & Engineering and Artificial
Intelligence and Machine Learning :   CSEAIML\n',
      ' #5 Computer Science & Engineering and Internet of Things
and Business Studies :          CSEIOT\n',
      ' #6 Computer Science & Business Studies :
CSBS\n',
      ' #7 Information Technology :
IT\n',
      ' #8 Mechanical Engineering :
ME\n')
print("\n!!!!!! Stream Names to be written in short form as
mentioned above and in CAPITAL LETTERS only !!!!!\n\n")
print()
student_no=int(input("No. of students whose data are to be taken
input :- "))
print()
print('->'*35)
for i in range(student_no):
    name=input("Name of the Student : ")
    batch=input("Batch-year (e.g. 2019-23) : ")
    stream=input("Stream (e.g. CSE,ECE,CSEAI) : ")
    roll=input("Class Roll-Number : ")
```

8) ID creation

```
#id-creations
    batch_id=stream+batch[2:4]
    student_id=batch_id+roll
    batch_name=stream+batch
```

9) Student duplicate record check

```
#Student duplicate record check
    if duplicate('studentrecords.csv',student_id,0):
        print("Record of the student with Student_id :
",student_id," is already present in the Student-directory")
        print(f"Report card for the student can be found here :
{path}/StudentReportCards/{student_id}_{name}.txt")
    else:
        print("The subjects are
[Mathematics,Physics,Chemistry,Electrical,Mechanics,PythonProgra
mming,Biology]")
        print("Subjects marks are to be entered in the above
mentioned order in a list type and",
              "\n if you dont have a particular subject put '0'
marks there \n e.g., for a CSE student [100,0,98,75,67,85,74])")
        print('\nEach Subject carries 100 marks !!!\n')
        print()
        marks_lst=eval(input("\nMarks list : "))
        total_marks=add(marks_lst)
        print()
```

10) Text file creation for student report card

```
 #text file creation for student report card
        with
open(f"{path}/StudentReportCards/{student_id}_{''.join(name.spli
t())}.txt",'w') as x:

            x.writelines([f' Student Name : {name} \n',
                          f' Class Roll-number: {roll} \n',
                          f' Stream : {stream} \n',
                          f' Student ID : {student_id}\n',
                          '\n\n Marks obtained in the Following
subjects are\n ','->-'*15,
                          f'\n Mathematics :- {marks_lst[0]}
\n'])
            if stream.lower()=='cse' or stream.lower()=='cseai'
or stream.lower()=='cseaiml' or stream.lower()=='cseiot' or
stream.lower()=='csbs':
                        x.writelines([f' Physics :-
{marks_lst[1]} \n'])
            elif stream.lower()=='it' or stream.lower()=='ece'
or stream.lower()=='me':
                        x.writelines([f' Chemistry :-
{marks_lst[2]} \n'])
            x.writelines([f' Electrical :- {marks_lst[3]} \n',
                          f' Mechanics :- {marks_lst[4]} \n'
                          f' PythonProgramming :- {marks_lst[5]}
\n',
                          f' Biology :- {marks_lst[6]} \n'])
            x.write('\n')
            x.write(f'Total marks out of 600 is : {total_marks}
and Percentage scored is : {percent(total_marks)}%\n')
            x.write(grade(total_marks/(count(marks_lst)-1)))
            x.write('\n')

createfile('studentrecords.csv',[student_id,name,roll,batch_id])
        print(f"You can find your report card here :
{path}/StudentReportCards/{student_id}_{''.join(name.split())}.t
xt")

openpath=f"{path}/StudentReportCards/{student_id}_{''.join(name.
split())}.txt"
        subprocess.run(['start',openpath], shell=True)
```

11) Removal of student details from directory

```
#removal of student details from directory
```

```
        ask=input("Is this Student to be removed from database
now ? (Y/N) : ")

        if ask.lower()=='n':
            if duplicate('batchrecords.csv',batch_id,0):
                with
open(f'{path}/batchrecords.csv','r+',newline='') as x:
                    script=csv.reader(x)
                    rows=[row for row in script]
                    for i in rows:
                        if batch_id==i[0]:

rows[rows.index(i)][4]+=f':{student_id}'
                    x.seek(0)
                    x.truncate()
                    writer=csv.writer(x)
                    writer.writerows(rows)

                print("The Directory : batchrecords.csv has been
updated !!!")
            else:

createfile('batchrecords.csv',[batch_id,batch_name,stream,choice
(stream),student_id])

            with
open(f'{path}/courserecords.csv','r+',newline='') as x:
                script=csv.reader(x)
                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]}-')
                x.seek(0)
                x.truncate()
                writer=csv.writer(x)
                writer.writerows(rows)
        else:
            remove(student_id)
            subprocess.call("TASKKILL /F /IM notepad.exe",
shell=True)
            os.remove(openpath)
            print('Records of this Student have been
successfully removed from the Student-directory')
    print('->'*35)
    print()
```

12) Department record updation

```
try:
    with open(f'{path}/departmentrecords.csv','r+',newline='')
as x:
        script=csv.reader(x)
        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
        x.seek(0)
        x.truncate()
        writer=csv.writer(x)
        writer.writerows(rows)

except:
    print("No new record to be added in departmentrecords.csv")
```

13) Viewing of the graphs

```
#Creation of the Graphs...
print()
print(" Provide necessary details Below to view Graph for
various Batches(in %)")
batch=input(" Batch-year (e.g. 2019-23) : ")
stream=input(" Stream (e.g. CSE,ECE,CSEAI) : ")
```

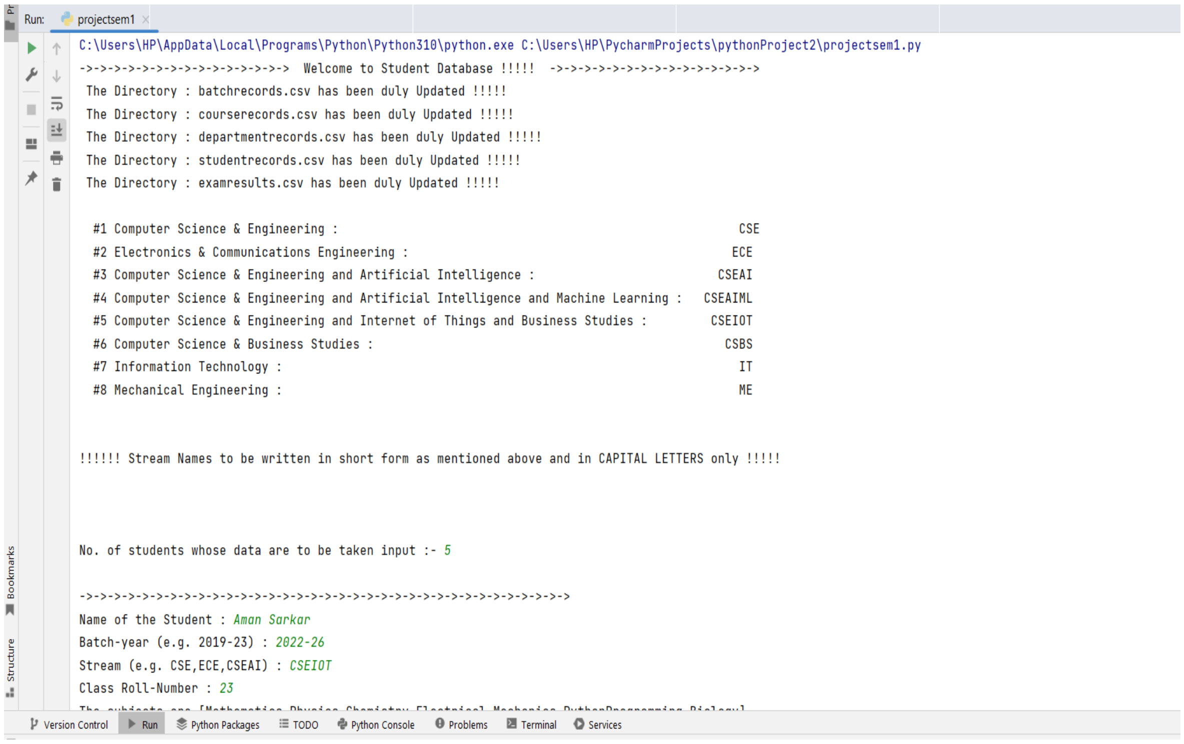
```
print('\n\n Please Close the dialog-box showing the Graph after
viewing to continue this Program !!!','\n Batch performance
Graph is Loading...','->'*15)
batch_id=stream+batch[2:4]

with open(f'{path}/batchrecords.csv','r') as x:
    reader=csv.reader(x)
    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'No Batch with Batch ID : {batch_id} exists in
the directory')
        ask=input("Do you want to View the Three Graphs ? (y/n)
: ")
        if ask.lower()=='y':
            batch=input("Batch-year (e.g. 2019-23) : ")
            stream=input("Stream (e.g. CSE,ECE,CSEAI) : ")
            batch_id=stream+batch[2:4]
            continue
        else:
            print('Okay !!!')
            break
print()
print('\n\n Please Close the dialog-box showing the Graph after
viewing to continue this Program !!!','Course graph is
Loading...','->'*15)
print()
loading_screen()
course_graph()
print()
print()
print('\n\n Please Close the dialog-box showing the Graph after
viewing to continue this Program !!!',"Department wise average
graph is Loading...",'->'*15)
loading_screen()
department_graph()
print()
print()
```

16) Viewing of all the record files

```
#viewing of all the record files
while True:
    ask2=input("Do you want to View all the Records (CSV format)
? (y/n) : ")
    if ask2.lower()=='y':
            loading_screen()
            openpath=f"{path}/batchrecords.csv"
            subprocess.run(['start',openpath], shell=True)
            print("\n ")
            print("\n ")
            loading_screen()
            openpath=f"{path}/courserecords.csv"
            subprocess.run(['start',openpath], shell=True)
            print("\n ")
            print("\n ")
            loading_screen()
            openpath=f"{path}/departmentrecords.csv"
            subprocess.run(['start',openpath], shell=True)
            print("\n ")
            print("\n ")
            loading_screen()
            openpath=f"{path}/studentrecords.csv"
            subprocess.run(['start',openpath], shell=True)
            print("\n ")
            print("\n ")
            loading_screen()
            openpath=f"{path}/examresults.csv"
            subprocess.run(['start',openpath], shell=True)
            print("\n Viewing all Record files is completed now
Program will be closed ... Thank You !!!")
            break
    else:
        break

print("\n All File operations are completed now Program will be
closed ... Thank You !!!")
last=input("Press Enter to exit !!!")
subprocess.call("TASKKILL /F /IM notepad.exe", shell=True)
```

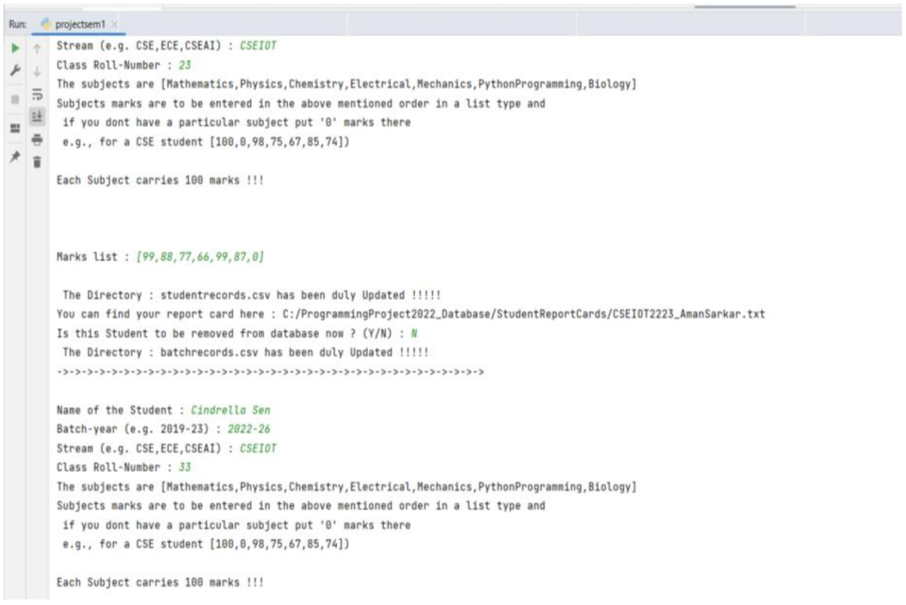
5 Outputs

i)Student portal with instructions:

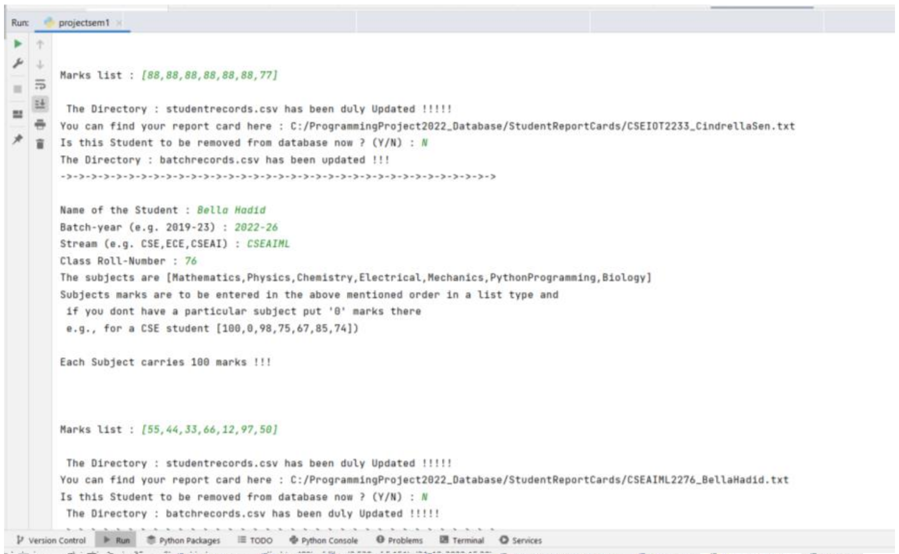


```
C:\Users\HP\AppData\Local\Programs\Python\Python310\python.exe C:\Users\HP\PycharmProjects\pythonProject2\projectsem1.py
->->->->->->->->->->->->->->->->->  Welcome to Student Database !!!!!  ->->->->->->->->->->->->->->->->->
 The Directory : batchrecords.csv has been duly Updated !!!!!
 The Directory : courserecords.csv has been duly Updated !!!!!
 The Directory : departmentrecords.csv has been duly Updated !!!!!
 The Directory : studentrecords.csv has been duly Updated !!!!!
 The Directory : examresults.csv has been duly Updated !!!!!


  #1 Computer Science & Engineering :                                                     CSE
  #2 Electronics & Communications Engineering :                                          ECE
  #3 Computer Science & Engineering and Artificial Intelligence :                      CSEAI
  #4 Computer Science & Engineering and Artificial Intelligence and Machine Learning :   CSEAIML
  #5 Computer Science & Engineering and Internet of Things and Business Studies :         CSEIOT
  #6 Computer Science & Business Studies :                                               CSBS
  #7 Information Technology :                                                              IT
  #8 Mechanical Engineering :                                                              ME



!!!!!! Stream Names to be written in short form as mentioned above and in CAPITAL LETTERS only !!!!!




No. of students whose data are to be taken input :- 5

->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->
Name of the Student : Aman Sarkar
Batch-year (e.g. 2019-23) : 2022-26
Stream (e.g. CSE,ECE,CSEAI) : CSEIOT
Class Roll-Number : 23
```

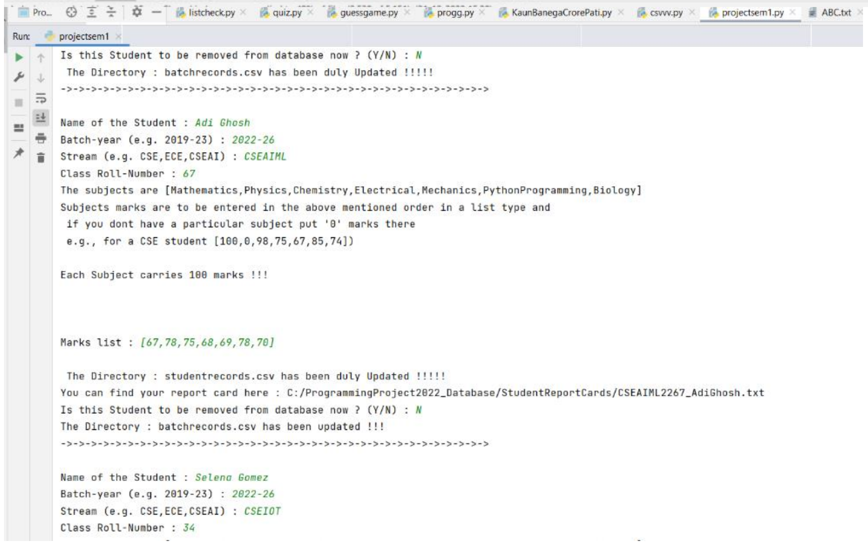
ii)User input:



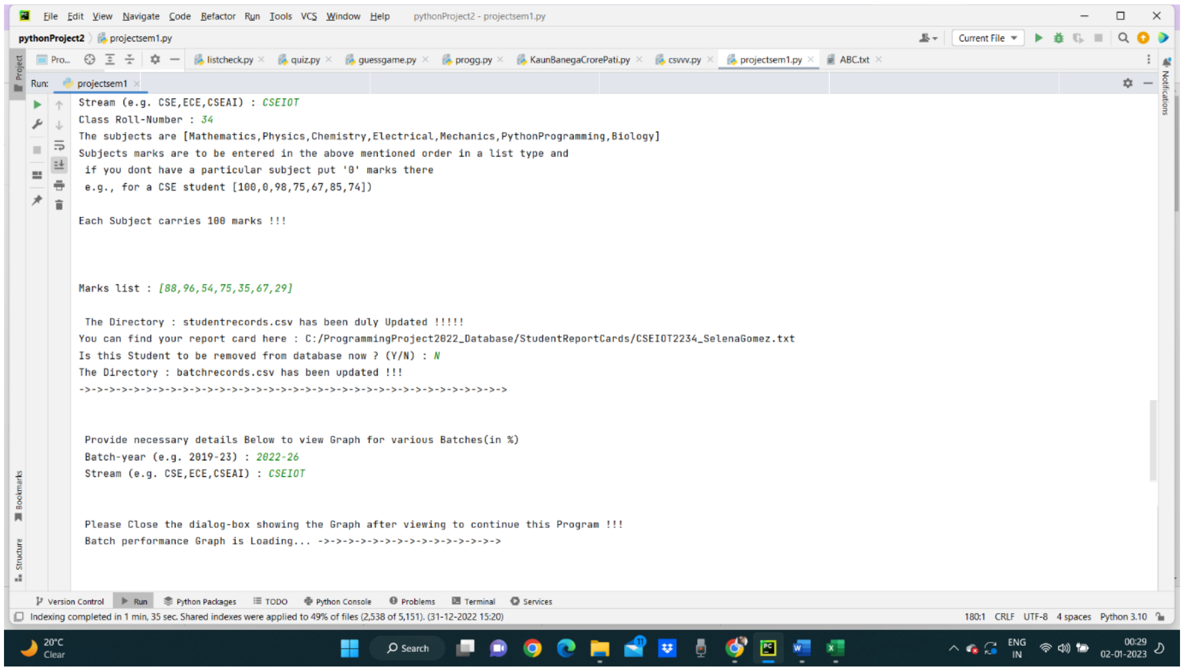
```
Stream (e.g. CSE,ECE,CSEAI) : CSEIOT
Class Roll-Number : 23
The subjects are [Mathematics,Physics,Chemistry,Electrical,Mechanics,PythonProgramming,Biology]
Subjects marks are to be entered in the above mentioned order in a list type and
 if you dont have a particular subject put '0' marks there
 e.g., for a CSE student [100,0,98,75,67,85,74])

Each Subject carries 100 marks !!!



Marks list : [99,88,77,66,99,87,0]

 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEIOT2223_AmanSarkar.txt
Is this Student to be removed from database now ? (Y/N) : N
 The Directory : batchrecords.csv has been duly Updated !!!!!
->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->

Name of the Student : Cindrella Sen
Batch-year (e.g. 2019-23) : 2022-26
Stream (e.g. CSE,ECE,CSEAI) : CSEIOT
Class Roll-Number : 33
The subjects are [Mathematics,Physics,Chemistry,Electrical,Mechanics,PythonProgramming,Biology]
Subjects marks are to be entered in the above mentioned order in a list type and
 if you dont have a particular subject put '0' marks there
 e.g., for a CSE student [100,0,98,75,67,85,74])

Each Subject carries 100 marks !!!
```



```
Marks list : [88,88,88,88,88,88,77]

 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEIOT2233_CindrellaSen.txt
Is this Student to be removed from database now ? (Y/N) : N
The Directory : batchrecords.csv has been updated !!!
->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->

Name of the Student : Bella Hadid
Batch-year (e.g. 2019-23) : 2022-26
Stream (e.g. CSE,ECE,CSEAI) : CSEAIML
Class Roll-Number : 76
The subjects are [Mathematics,Physics,Chemistry,Electrical,Mechanics,PythonProgramming,Biology]
Subjects marks are to be entered in the above mentioned order in a list type and
 if you dont have a particular subject put '0' marks there
 e.g., for a CSE student [100,0,98,75,67,85,74])

Each Subject carries 100 marks !!!



Marks list : [55,44,33,66,12,97,50]

 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEAIML2276_BellaHadid.txt
Is this Student to be removed from database now ? (Y/N) : N
 The Directory : batchrecords.csv has been duly Updated !!!!!
```

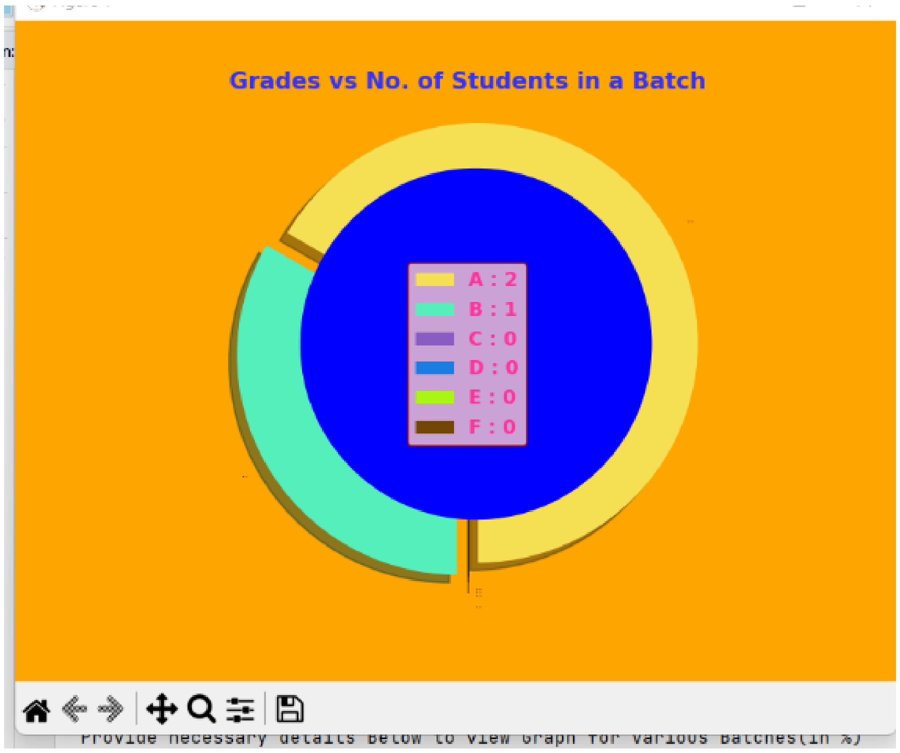


```
Is this Student to be removed from database now ? (Y/N) : N
 The Directory : batchrecords.csv has been duly Updated !!!!!
->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->

Name of the Student : Adi Ghosh
Batch-year (e.g. 2019-23) : 2022-26
Stream (e.g. CSE,ECE,CSEAI) : CSEAIML
Class Roll-Number : 67
The subjects are [Mathematics,Physics,Chemistry,Electrical,Mechanics,PythonProgramming,Biology]
Subjects marks are to be entered in the above mentioned order in a list type and
 if you dont have a particular subject put '0' marks there
 e.g., for a CSE student [100,0,98,75,67,85,74])

Each Subject carries 100 marks !!!



Marks list : [67,78,75,68,69,78,70]

 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEAIML2267_AdiGhosh.txt
Is this Student to be removed from database now ? (Y/N) : N
The Directory : batchrecords.csv has been updated !!!
->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->

Name of the Student : Selena Gomez
Batch-year (e.g. 2019-23) : 2022-26
Stream (e.g. CSE,ECE,CSEAI) : CSEIOT
Class Roll-Number : 34
```

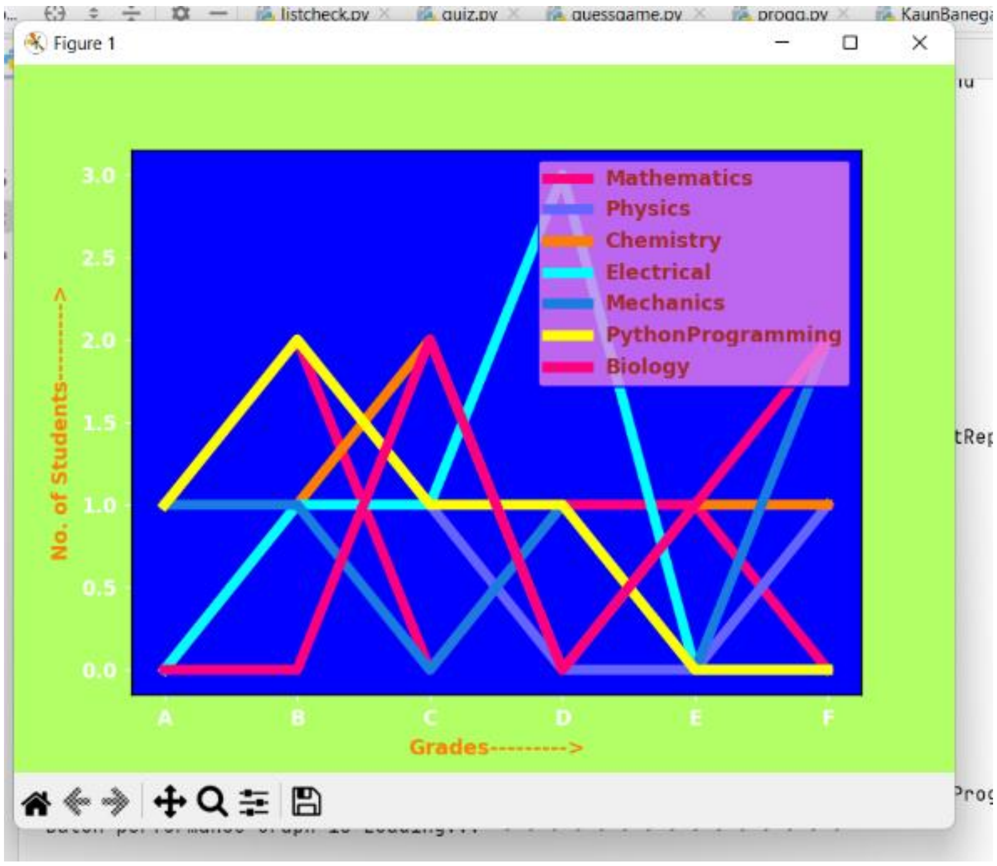


```
Stream (e.g. CSE,ECE,CSEAI) : CSEIOT
Class Roll-Number : 34
The subjects are [Mathematics,Physics,Chemistry,Electrical,Mechanics,PythonProgramming,Biology]
Subjects marks are to be entered in the above mentioned order in a list type and
 if you dont have a particular subject put '0' marks there
 e.g., for a CSE student [100,0,98,75,67,85,74])

Each Subject carries 100 marks !!!



Marks list : [88,96,54,75,35,67,29]

 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEIOT2234_SelenaGomez.txt
Is this Student to be removed from database now ? (Y/N) : N
The Directory : batchrecords.csv has been updated !!!
->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->->


 Provide necessary details Below to view Graph for various Batches(in %)
 Batch-year (e.g. 2019-23) : 2022-26
 Stream (e.g. CSE,ECE,CSEAI) : CSEIOT


 Please Close the dialog-box showing the Graph after viewing to continue this Program !!!
 Batch performance Graph is Loading... ->->->->->->->->->->->->->->->->
```

iii)pie chart showing performance of students



iv)histogram graph



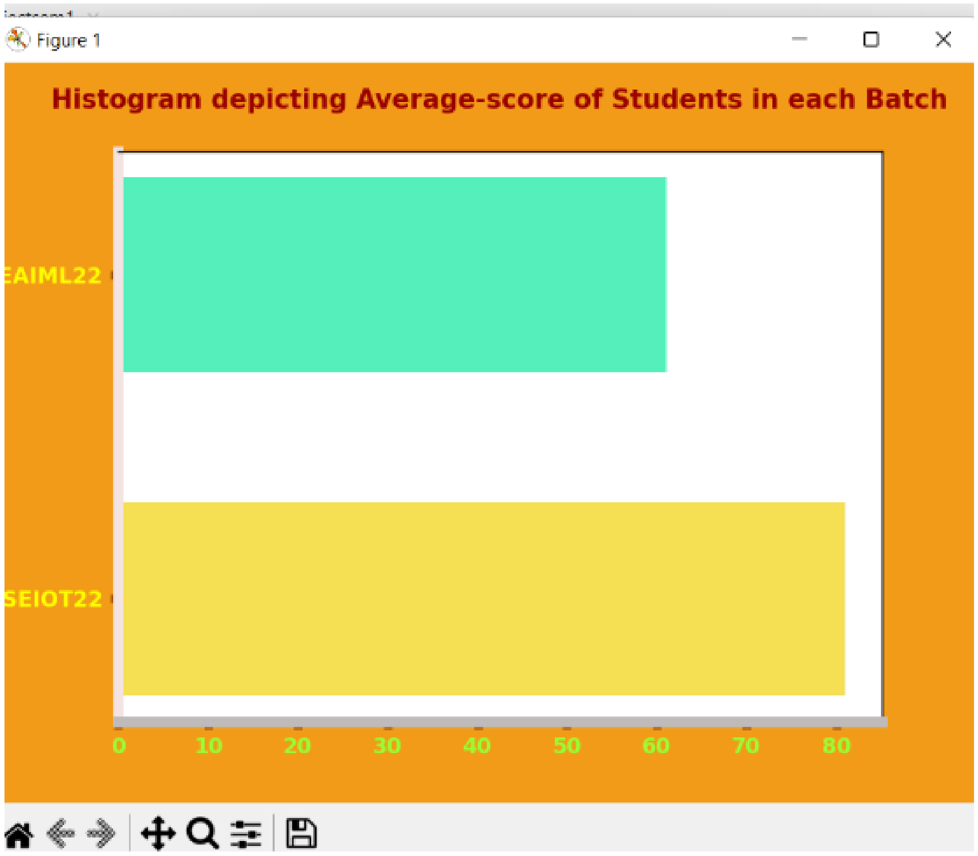
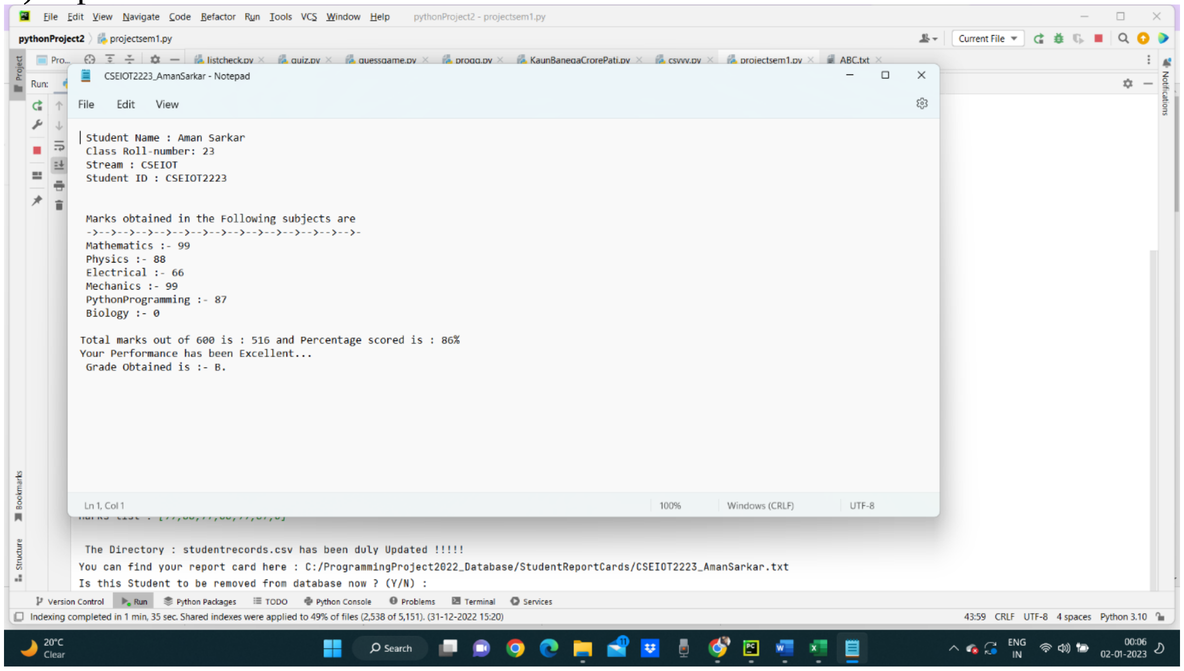


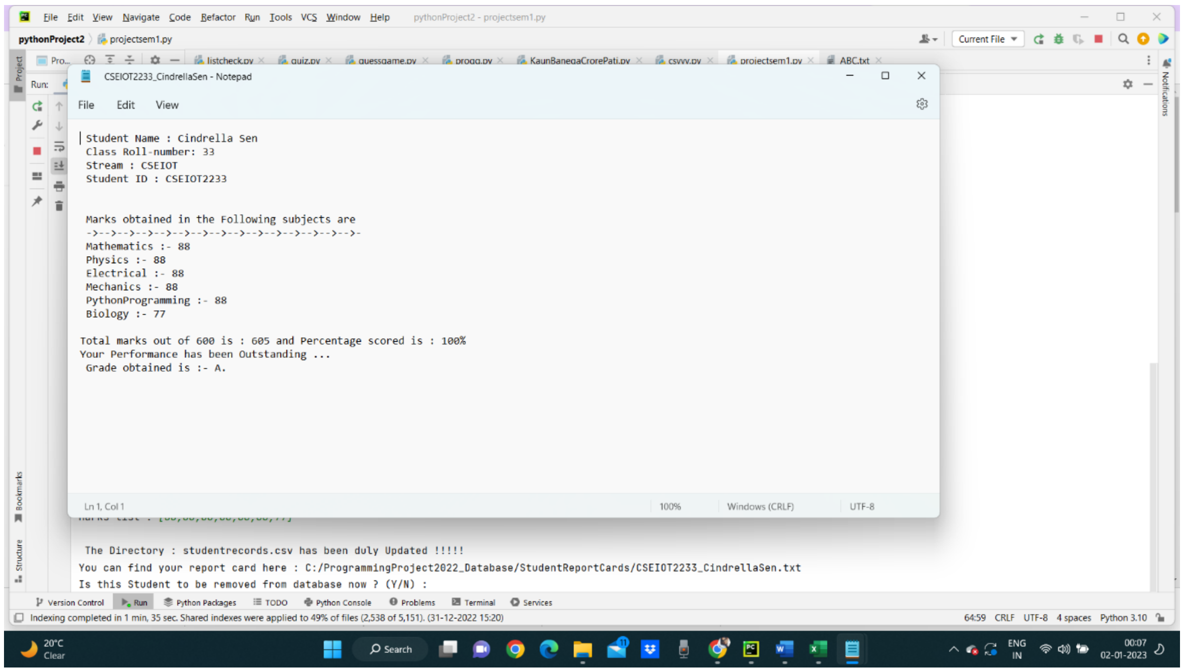
Figure 1
Histogram depicting Average-score of Students in each Batch
EAIML22
SEIOT22
0
10
20
30
40
50
60
70
80

v)Report Card of students:



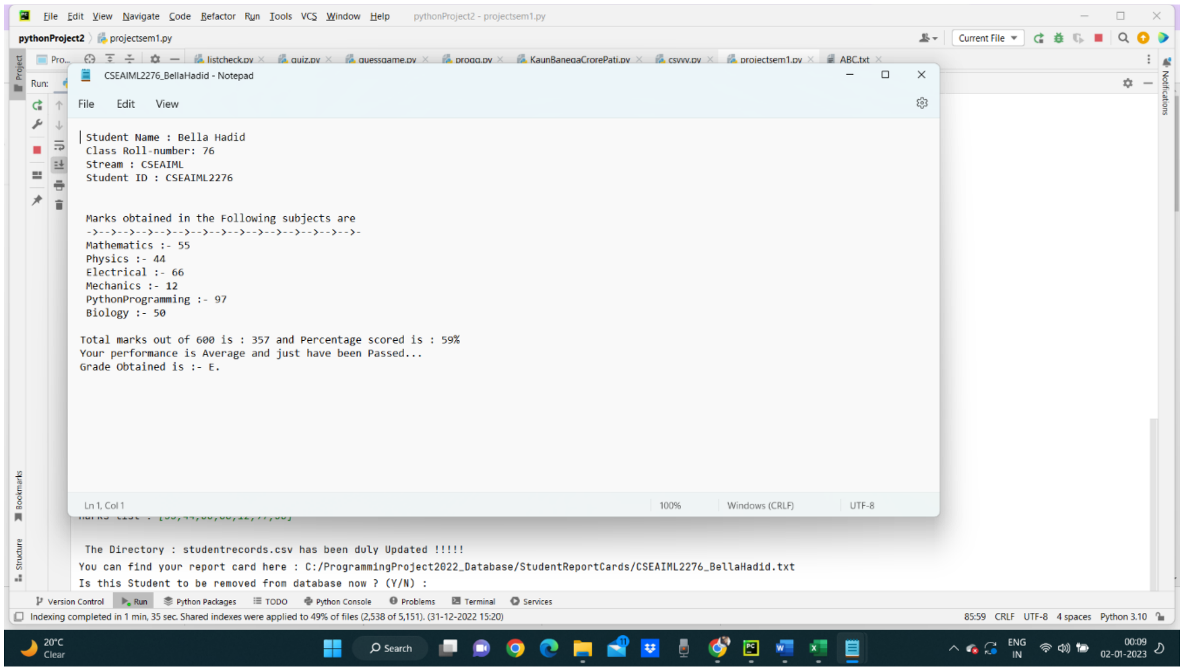
```
Student Name : Aman Sarkar
Class Roll-number: 23
Stream : CSEIOT
Student ID : CSEIOT2223


Marks obtained in the Following subjects are
->-->-->-->-->-->-->-->-->-->-->-->-->-->-
Mathematics :- 99
Physics :- 88
Electrical :- 66
Mechanics :- 99
PythonProgramming :- 87
Biology :- 0

Total marks out of 600 is : 516 and Percentage scored is : 86%
Your Performance has been Excellent...
 Grade Obtained is :- B.
```

```
 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEIOT2223_AmanSarkar.txt
Is this Student to be removed from database now ? (Y/N) :
```



```
Student Name : Cindrella Sen
Class Roll-number: 33
Stream : CSEIOT
Student ID : CSEIOT2233


Marks obtained in the Following subjects are
->-->-->-->-->-->-->-->-->-->-->-->-->-->-
Mathematics :- 88
Physics :- 88
Electrical :- 88
Mechanics :- 88
PythonProgramming :- 88
Biology :- 77

Total marks out of 600 is : 605 and Percentage scored is : 100%
Your Performance has been Outstanding ...
 Grade obtained is :- A.
```

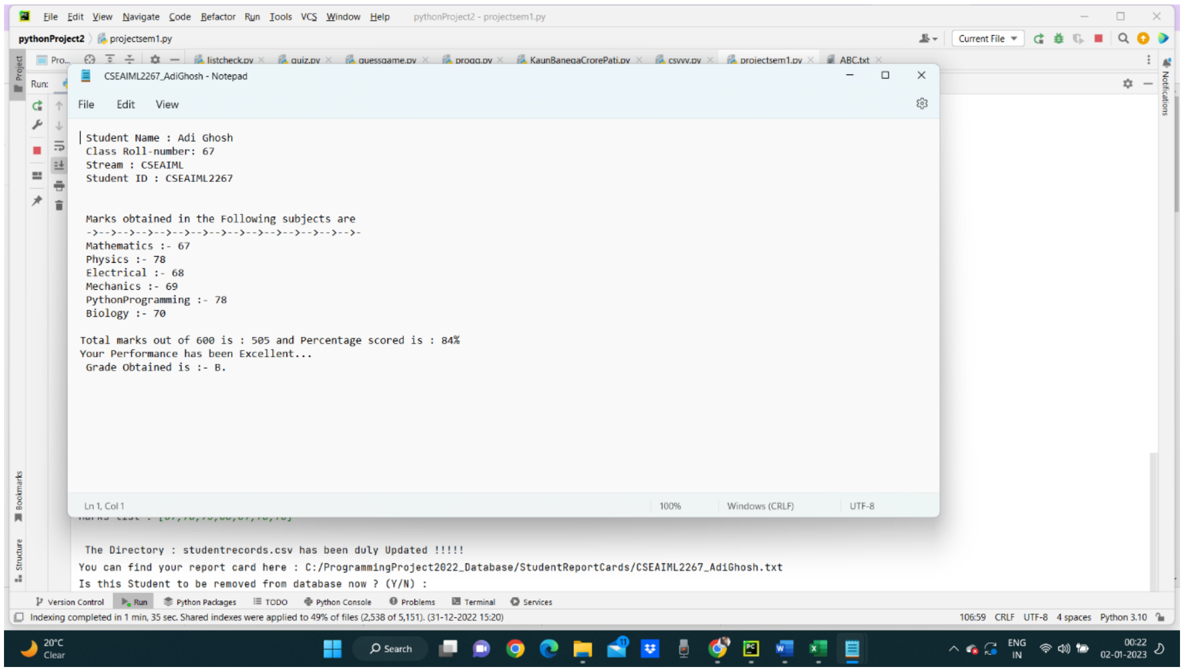
```
 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEIOT2233_CindrellaSen.txt
Is this Student to be removed from database now ? (Y/N) :
```



```
CSEAIML2276_BellaHadid - Notepad

|Student Name : Bella Hadid
 Class Roll-number: 76
 Stream : CSEAIML
 Student ID : CSEAIML2276


 Marks obtained in the Following subjects are
 ->-->-->-->-->-->-->-->-->-->-->-->-->-->-
 Mathematics :- 55
 Physics :- 44
 Electrical :- 66
 Mechanics :- 12
 PythonProgramming :- 97
 Biology :- 50

Total marks out of 600 is : 357 and Percentage scored is : 59%
Your performance is Average and just have been Passed...
Grade Obtained is :- E.
```

```
 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEAIML2276_BellaHadid.txt
Is this Student to be removed from database now ? (Y/N) :
```

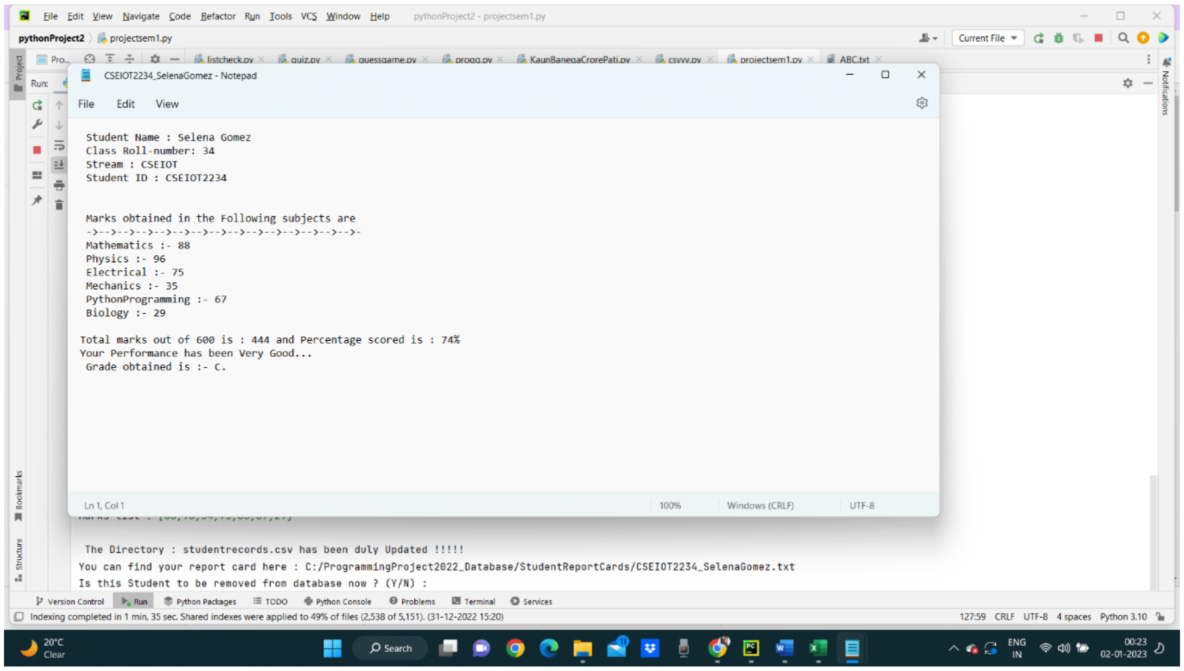
Indexing completed in 1 min, 35 sec. Shared indexes were applied to 49% of files (2,538 of 5,151). (31-12-2022 15:20)



```
CSEAIML2267_AdiGhosh - Notepad

|Student Name : Adi Ghosh
 Class Roll-number: 67
 Stream : CSEAIML
 Student ID : CSEAIML2267


 Marks obtained in the Following subjects are
 ->-->-->-->-->-->-->-->-->-->-->-->-->-->-
 Mathematics :- 67
 Physics :- 78
 Electrical :- 68
 Mechanics :- 69
 PythonProgramming :- 78
 Biology :- 70

Total marks out of 600 is : 505 and Percentage scored is : 84%
Your Performance has been Excellent...
 Grade Obtained is :- B.
```

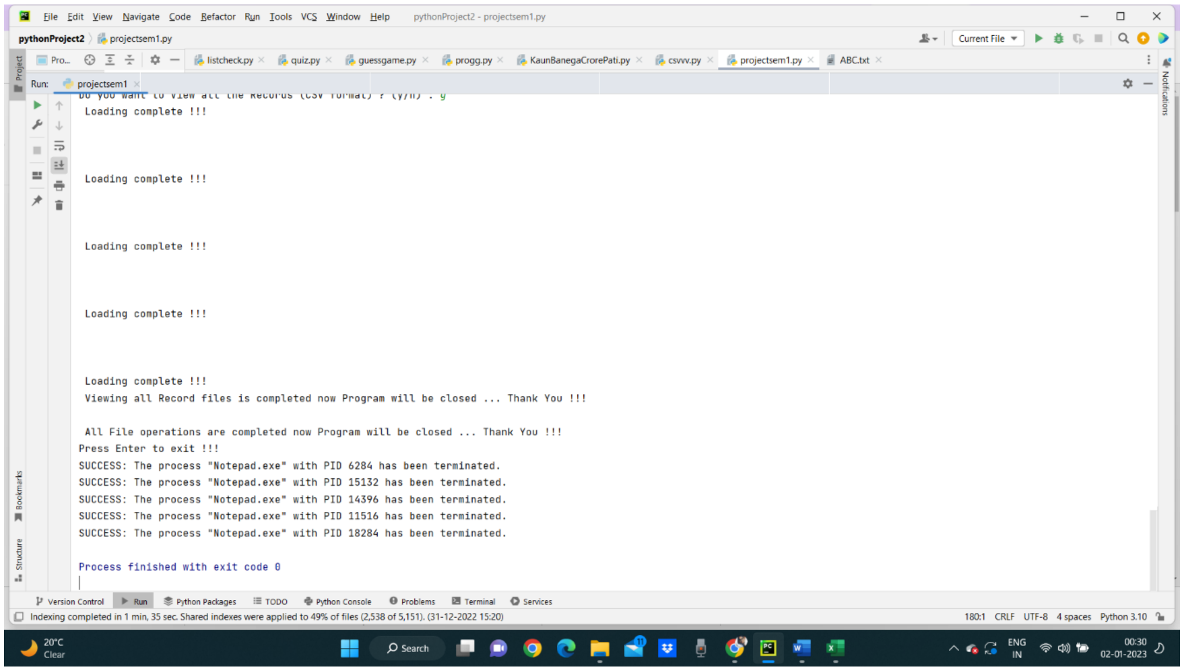
```
 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEAIML2267_AdiGhosh.txt
Is this Student to be removed from database now ? (Y/N) :
```

Indexing completed in 1 min, 35 sec. Shared indexes were applied to 49% of files (2,538 of 5,151). (31-12-2022 15:20)



```
 Student Name : Selena Gomez
 Class Roll-number: 34
 Stream : CSEIOT
 Student ID : CSEIOT2234


 Marks obtained in the Following subjects are
 ->-->-->-->-->-->-->-->-->-->-->-->-->-->-->-
 Mathematics :- 88
 Physics :- 96
 Electrical :- 75
 Mechanics :- 35
 PythonProgramming :- 67
 Biology :- 29

Total marks out of 600 is : 444 and Percentage scored is : 74%
Your Performance has been Very Good...
 Grade obtained is :- C.
```

```
 The Directory : studentrecords.csv has been duly Updated !!!!!
You can find your report card here : C:/ProgrammingProject2022_Database/StudentReportCards/CSEIOT2234_SelenaGomez.txt
Is this Student to be removed from database now ? (Y/N) :
```



```
 Loading complete !!!



 Loading complete !!!



 Loading complete !!!



 Loading complete !!!



 Loading complete !!!
 Viewing all Record files is completed now Program will be closed ... Thank You !!!

 All File operations are completed now Program will be closed ... Thank You !!!
Press Enter to exit !!!
SUCCESS: The process "Notepad.exe" with PID 6284 has been terminated.
SUCCESS: The process "Notepad.exe" with PID 15132 has been terminated.
SUCCESS: The process "Notepad.exe" with PID 14396 has been terminated.
SUCCESS: The process "Notepad.exe" with PID 11516 has been terminated.
SUCCESS: The process "Notepad.exe" with PID 18284 has been terminated.

Process finished with exit code 0
```