STUDENT EXAMINATION PORTAL

Submitted by

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Section: D

Class Roll Number: 31

Stream: C.S.E. (AIML)

Subject: Programming for Problem Solving with Python

Subject Code: IVC101

Department: Basic Science and Humanities

Under the supervision of

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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 Name of the Student, 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   Project Supervisor

Basic Sciences and Humanities

IEM, Kolkata

INTRODUCTION:-

If we see the present scenario we can clearly understand that every educational institutions or big companies need a system to keep a record of the data of their students and employees respectively. The best way to maintain these records is by creating separate Databases and storing the necessary data. In this project we have mainly used the PYTHON Programming Language to make a database which can be further used to store necessary data. PYTHON is an easy to understandable and user friendly language so anyone can make a program to make such data bases according to their needs.

OBJECTIVE:-

The main objective of this project is to develop a program for creating a database by which we can take data from the user and store it in the desired cells, Because of these project we got to learn "How to create a Database", "Relationship between several databases" , and "How to create a database using PYTHON Programming Language".

The objective of the project is to make the students data easily accessible. The project also makes the data more organisable. It also helps to find the statistical data for each enrolled student.

Also the objective of this product is to display the functionality of databases in Python by creating and operating on 4 different databases which will store details of students, courses, batches and departments of a college.

ORGANISATION 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 from the user the code analyses data and store it in its respective databases.

DATABASE DESCRIPTIONS:-

There are 4 CSV files that act as databases in this project. They are **student.csv, course.csv, batch.csv, department.csv**.

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.csv

StudentID	Name	Roll	Batch
CSE201	SARNAAVHO PAL	31	CSE22
CSE101	ROHIT KOHLI	30	ECE22

StudentID	Name	Roll	Batch
CSE201	SARNAAVHO PAL	31	CSE22
CSE101	ROHIT KOHLI	30	ECE22

course.csv

C001	PYTHON PROGRAMMING	{'CSE201': '85'}
C002	PHYSICS	{'CSE201': '85'}

C001	PYTHON PROGRAMMING	{'CSE201': '85'}
C002	PHYSICS	{'CSE201': '85'}

DATA FLOW AND E-R DIAGRAMS:-
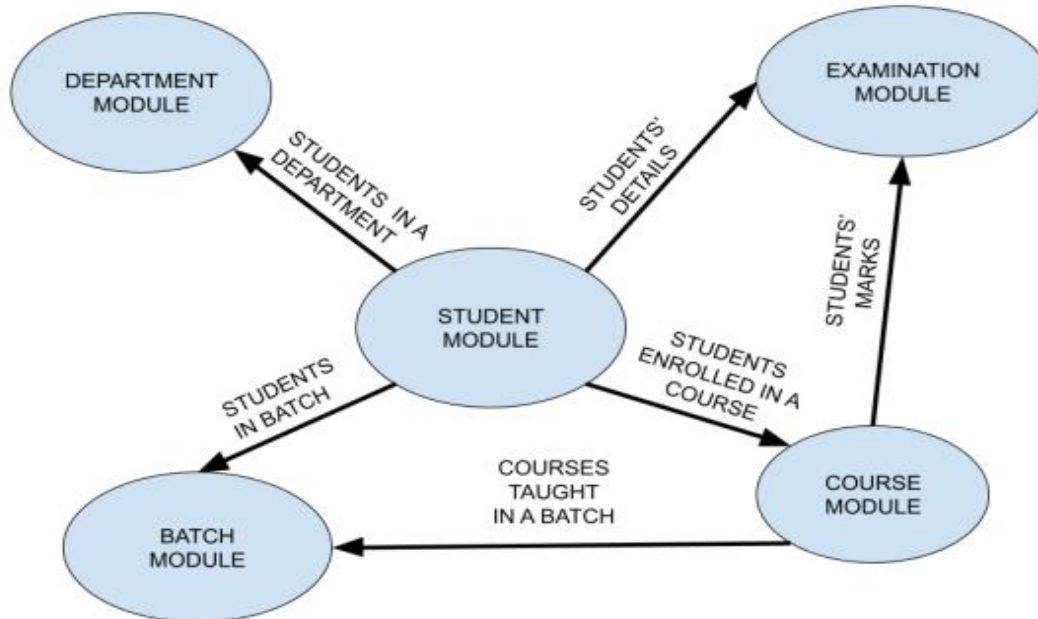
PROGRAMS:-

```
import csv

import pandas as pnd

import numpy as nmp

from matplotlib import pyplot as pplt

import time


while True:

ch=int(input("\nType:\n0.Exit\n1.Student\n2.Course\n3.Batch\n4.Department\n5.
Examination\nEnter u r choice:"))

    def grades(marks):

        if marks>=90:
```

```python
        return ["A","Pass"]
    elif marks>=80:
        return ["B","Pass"]
    elif marks>=70:
        return ["C","Pass"]
    elif marks>=60:
        return ["D","Pass"]
    elif marks>=50:
        return ["E","Pass"]
    else:
        return ["F","Fail"]


def mrkgrd(df):
    L1=[]
    L2=[]
    for i in df.loc[:,"Marks"]:
        L=g(i)
        L1.append(L[0])
        L2.append(L[1])
    df['Grade']=L1
    df['Pass/Fail']=L2
    return df


def add1(L,a):
    str1=''
    for i in L:
        str1=str1+i+a
    str1=str1[:-1]
```

```python
        return str1



    if ch==0:

        break

    elif ch==1:

        ch1=int(input("TYPE:\n0.Create Database\n1.input student
details\n2.Update data\n3.Delete data\n4.Report card(To be generated as a
text file result.txt)\nEnter u r choice:"))

        if ch1==0:

            L1=[['StudentID','Name','Roll','Batch']]

            with open("student.csv","a") as r1:

                csvwrit=csv.writer(r1)

                csvwrit.writerows(L1)


        elif ch1==1:

            n=int(input("Enter the no. of entries:"))

            L1=[]

            for i in range(n):

                L=[]

                StudentID=input("Enter student id:")

                Name=input("Enter name:")

                Roll=input("Enter roll:")

                Batch=input("Enter batch:")

                L=[StudentID,Name,Roll,Batch]

                L1.append(L)

            with open("student.csv","a") as r1:

                csvwrit=csv.writer(r1)

                csvwrit.writerows(L1)
```

```python
        df=pnd.read_csv("student.csv")
        print(df)


    elif ch1==3:
        df=pnd.read_csv("student.csv")
        np_ar = df.to_numpy()
        nmp.delete(np_ar,0,axis=1)
        p=input("Enter student Id :")
        L=[]
        for i in np_ar:
            if i[0]!=p:
                print(i)
                L.append(i)
        df = pnd.DataFrame(L, columns =
['StudentID','Name','Roll','Batch'])
        print(df)
        df.to_csv('student.csv', mode='w',index=False)


    elif ch1==2:
        df=pnd.read_csv("student.csv")
        np_ar = df.to_numpy()
        nmp.delete(np_ar,0,axis=1)
        print(np_ar)
        p=input("Enter student Id :")
        L=[]
        for i in np_ar:
          print(i)
          if i[0]!=p:
```

```python
                L.append(i)
            else:
                p1=input("1.Name\n2.Roll\n3.Batch\n")
                if p1=='1':
                    print(i)
                    p2=input("Enter new name:")
                    i[1]=p2
                    print(i)
                    L.append(i)
                elif p1=='2':
                    print(i)
                    p2=input("Enter new roll:")
                    i[2]=p2
                    print(i)
                    L.append(i)
                elif p1=='3':
                    print(i)
                    p2=input("Enter new batch:")
                    i[3]=p2
                    print(i)
                    L.append(i)
        print(L)
        df = pnd.DataFrame(L, columns =
['StudentID','Name','Roll','Batch'])
        print(df)
        df.to_csv('student.csv', mode='w',index=False)
    elif ch1==4:
        df1=pnd.read_csv("student.csv")
        df2=pnd.read_csv("course1.csv")
```

```python
        df=pnd.merge(df1,df2,on='StudentID')

        p=mrkgrd(df)


dup_df=p.loc[:,["StudentID","Name","Roll","CourseName","Marks","Grade","Pass/
Fail"]]

        with open("Result.txt", 'w') as f:

            grp =dup_df.groupby(['StudentID'])

            for i,j in grp:

                f.write("\n"+i+"\n")

                str1 = j.to_string(header=True, index=False)

                f.write(str1)



    elif ch==2:

        ch2=int(input("0.Create Course database\n1.input course
details\n2.View Student performance\n3.Show course histogram\nEnter u r
choice:"))

        if ch2==0:

            L1=[['CourseID','CourseName','Marks']]

            L3=[['CourseID','CourseName','Marks','StudentID']]

            with open("course.csv","a") as r1:

                csvwrit=csv.writer(r1)

                csvwrit.writerows(L1)

            with open("course1.csv","a") as r1:

                csvwrit=csv.writer(r1)

                csvwrit.writerows(L3)

        elif ch2==1:

            n=int(input("Enter the no. of entries:"))

            L1=[]

            L3=[]

            Dict={}
```

```python
        for i in range(n):
            L=[]
            CourseID=input("Enter course id:")
            CourseName=input("Enter course name:")
            StudentID=input("Enter student id:")
            Marks=input("Enter marks:")
            Dict[StudentID]=Marks
            L=[CourseID,CourseName,Dict]
            L2=[CourseID,CourseName,Marks,StudentID]
            L1.append(L)
            L3.append(L2)
        with open("course.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L1)
        with open("course1.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L3)


        df=pnd.read_csv("course.csv")
        print(df)
    elif ch2==2:
        df1=pnd.read_csv("student.csv")
        df2=pnd.read_csv("course1.csv")


        df=pnd.merge(df1,df2,on='StudentID')
        print(df.loc[:,["Roll","Name","Marks"]])
        grp=df.groupby(['CourseName'])
        for i,j in grp:
```

```python
            print("\n"+i)
            print(j.loc[:,["Roll","Name","Marks"]])
        elif ch2==3:
            df1=pnd.read_csv("student.csv")
            df2=pnd.read_csv("course1.csv")
            df=pnd.merge(df1,df2,on='StudentID')
            p=mrkgrd(df)

dup_df=p.loc[:,["StudentID","Name","Roll","CourseName","Marks","Grade","Pass/
Fail"]]
            pplt.hist(df['Grade'])
            pplt.xlabel('Grade')
            pplt.ylabel('No. of students')
            pplt.title('Course statistics')



    elif ch==3:
        ch2=int(input("0.Create Batch database\n1.input Batch Details\n2.View
list of all students in a batch\n3.View list of all courses taught in the
batch\n4.View complete performance of all students in a batch\n5.Pie Chart of
Percentage of all students\nEnter u r choice:"))
        if ch2==0:
            L1=[['BatchID','BatchName','Department Name','List of
course','List of students']]
            with open("batch.csv","a") as r1:
                csvwrit=csv.writer(r1)
                csvwrit.writerows(L1)
            L2=[['BatchID','BatchName','Department Name','CourseID']]
            L3=[['BatchID','BatchName','Department Name','StudentID']]
            with open("batch2.csv","a") as r1:
                csvwrit=csv.writer(r1)
```

```python
            csvwrit.writerows(L2)
        with open("batch3.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L3)


elif ch2==1:
    n=int(input("Enter the no. of entries:"))
    L1=[]
    L2=[]
    L3=[]
    for i in range(n):
        L=[]
        BatchID=input("Enter BatchID:")
        BatchName=input("Enter BatchName:")
        DepartmentName=input("Enter department name:")
        t1=list(eval(input("Enter list of courses:")))
        t2=list(eval(input("Enter list of students:")))
        str1=add1(t1,";")
        str2=add1(t2,",")
        L=[BatchID,BatchName,DepartmentName,str1,str2]
        L1.append(L)
        if len(t1)!=1:
            for i in t1:
                L2p=[BatchID,BatchName,DepartmentName,i]
                L2.append(L2p)
        else:
            L2p=[BatchID,BatchName,DepartmentName,t1[0]]
            L2.append(L2p)
```

```python
            if len(t2)!=1:
                for i in t2:
                    L3p=[BatchID,BatchName,DepartmentName,i]
                    L3.append(L3p)
            else:
                L3p=[BatchID,BatchName,DepartmentName,t2[0]]
                L3.append(L3p)


        with open("batch.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L1)
        with open("batch2.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L2)
        with open("batch3.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L3)


        df=pnd.read_csv("batch.csv")
        print(df)
    elif ch2==2:
        df2=pnd.read_csv("batch3.csv")
        df1=pnd.read_csv("student.csv")
        df=pnd.merge(df1,df2,on='StudentID')
        grp=df.groupby(['BatchName'])
        for i,j in grp:
            print("\n"+i)
            print(j.loc[:,["Roll","Name","StudentID"]])
```

```python
        elif ch2==3:
            df2=pnd.read_csv("batch2.csv")
            df1=pnd.read_csv("course1.csv")
            df=pnd.merge(df1,df2,on='CourseID')
            grp=df.groupby(['BatchName'])
            for i,j in grp:
                print("\n"+i)

print(j.loc[:,["BatchID","BatchName","CourseName","CourseID"]])
        elif ch2==4:
            df2=pnd.read_csv("batch2.csv")
            df1=pnd.read_csv("course1.csv")
            df4=pnd.merge(df1,df2,on='CourseID')
            df3=pnd.read_csv("student.csv")
            df=pnd.merge(df3,df4,on='StudentID')
            grp=df.groupby(['BatchName'])
            for i,j in grp:
                print("\n"+i)

print(j.loc[:,["Roll","Name","StudentID",'CourseName','Marks']])
        elif ch2==5:
            df1=pnd.read_csv("student.csv")
            df2=pnd.read_csv("department1.csv")
            df=pnd.merge(df1,df2,on='BatchID')
            df3=pnd.read_csv("course1.csv")
            df4=pnd.merge(df,df3,on='StudentID')
            df5=df4.groupby('StudentID')['Marks'].mean()
            df5.plot(kind='pie')
    elif ch==4:
```

```python
        ch2=int(input("0.Create Department database\n1.input
Department\n2.View all batches in a department \n3.View average performance
of all batches in the department\n4.Show department statistics Line plot-
Average percentage of all students for each batch)\nEnter u r choice:"))
        if ch2==0:
            L1=[['DepartmentID','Department Name','List of batches']]
            with open("department.csv","a") as r1:
                csvwrit=csv.writer(r1)
                csvwrit.writerows(L1)
            L9=[['DepartmentID','Department Name','Batch']]
            with open("department1.csv","a") as r1:
                csvwrit=csv.writer(r1)
                csvwrit.writerows(L9)
        elif ch2==1:
            n=int(input("Enter the no. of entries:"))
            L1=[]
            L2=[]

            for i in range(n):
                L=[]
                L3=[]

                DepartmentID=input("Enter departmentid:")
                DepartmentName=input("Enter department name:")
                t1=list(eval(input("Enter list of batches:")))
                str1=add1(t1,":")
                L=[DepartmentID,DepartmentName,str1]
                L1.append(L)
                if len(t1)!=1:
                    for i in t1:
```

```python
                        L3=[DepartmentID,DepartmentName,i]
                        L2.append(L3)
                else:
                    L3=[DepartmentID,DepartmentName,t1[0]]
                    L2.append(L3)
        with open("department1.csv","a") as r2:
            csvwrit=csv.writer(r2)
            csvwrit.writerows(L2)
        with open("department.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L1)


        df=pnd.read_csv("department.csv")
        print(df)
elif ch2==2:
    df=pnd.read_csv("department1.csv")
    grp=df.groupby(['DepartmentID'])
    for i,j in grp:
        print("\n"+i)
        print(j.loc[:,["BatchID"]])
elif ch2==3:
    df1=pnd.read_csv("student.csv")
    df2=pnd.read_csv("department1.csv")
    df=pnd.merge(df1,df2,on='BatchID')
    df3=pnd.read_csv("course1.csv")
    df4=pnd.merge(df,df3,on='StudentID')
    df5=df4.groupby('BatchID')['Marks'].mean()
    print(df5)
```

```python
        elif  ch2==4:
            df1=pnd.read_csv("student.csv")
            df2=pnd.read_csv("department1.csv")
            df=pnd.merge(df1,df2,on='BatchID')
            df3=pnd.read_csv("course1.csv")
            df4=pnd.merge(df,df3,on='StudentID')
            df5=df4.groupby('BatchID')['Marks'].mean()
            df5.plot(kind='line')


    elif ch==5:
        ch2=int(input("0.Create Examination database\n1.input Examination
details\n2.View performance of all students in the examination\n3.Show
examination statistics:\nEnter u r choice:"))
        if ch2==0:
            L1=[['Marks','CourseName','StudentID']]
            with open("examination.csv","a") as r1:
                csvwrit=csv.writer(r1)
                csvwrit.writerows(L1)
        elif ch2==1:
            n=int(input("Enter the no. of entries:"))
            L1=[]

            for i in range(n):
                L=[]
                Marks=input("Enter marks:")
                CourseName=input("Enter coursename:")
                StudentID=input("Enter studentid:")
                L=[Marks,CourseName,StudentID]
                L1.append(L)
```

```python
        with open("examination.csv","a") as r1:
            csvwrit=csv.writer(r1)
            csvwrit.writerows(L1)


        df=pnd.read_csv("examination.csv")
        print(df)
elif ch2==2:
    df1=pnd.read_csv("student.csv")
    df2=pnd.read_csv("course1.csv")
    df=pnd.merge(df1,df2,on='StudentID')
    grp =df.groupby(['StudentID'])
    for i,j in grp:
        print("\n"+i)
        print(j.loc[:,["CourseName","Marks"]])
elif ch2==3:
    df1=pnd.read_csv("student.csv")
    df2=pnd.read_csv("course1.csv")
    df=pnd.merge(df1,df2,on='StudentID')
    grp =df.groupby(['BatchName'])
    for i,j in grp:
        print("\n"+i)
        print(j.loc[:,["Roll","Name","Marks"]])
```

OUTPUTS:-

```
Type:
0.Exit
1.Student
2.Course
3.Batch
4.Department
5.Examination
Enter u r choice:3
0.Create Batch database
1.input Batch Details
2.View list of all students in a batch
3.View list of all courses taught in the batch
4.View complete performance of all students in a batch
5.Pie Chart of Percentage of all students
Enter u r choice:1
Enter the no. of entries:2
Enter BatchID:CSE22
Enter BatchName:CSE2022-26
Enter department name:CSE
Enter list of courses:"C001","C002"
Enter list of students:'CSE201','CSE202'
Enter BatchID:ECE22
Enter BatchName:ECE2022-26
Enter department name:ECE
Enter list of courses:'E001','E002'
Enter list of students:'ECE201','ECE202'
   CSE22  CSE2022-26  CSE  C001;C002  CSE201,CSE202
0  ECE22  ECE2022-26  ECE  E001;E002  ECE201,ECE202
```

```
Type:
0.Exit
1.Student
2.Course
3.Batch
4.Department
5.Examination
Enter u r choice:1
TYPE:
0.Create Database
1.input student details
2.Update data
3.Delete data
4.Report card(To be generated as a text file result.txt)
Enter u r choice:1
Enter the no. of entries:2
Enter student id:STD123
Enter name:SARNAAVHO PAL
Enter roll:31
Enter batch:CSE22-26
Enter student id:STD124
Enter name:ROHIT KOHLI
Enter roll:30
Enter batch:CSE22-26
   STD123 SARNAAVHO PAL  31  CSE22-26
0  STD124   ROHIT KOHLI  30  CSE22-26

Type:
0.Exit
1.Student
2.Course
3.Batch
4.Department
5.Examination
Enter u r choice:
```