

Python Programming Project of student Examination portal

Submitted by

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Enrolment Number: 12022002020027

Section: C

Class Roll Number: 29

Stream: CSE AI

Subject: Programming for Problem Solving with Python

Subject Code: IVC101

Department: Basic Science and Humanities

Under the supervision of
prof. Swarnendu Ghosh

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 **Honey Raj** entitled **Python programming project of 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

Introduction:- This project is made on the behalf of data analysis. By reading csv files we have created gradecard, average performance list and many more. This has also enhanced our knowledge in this field.

1.1 Objective

The main objective of this project is to write a python program which upon execution can show all the below mentioned details and provide the necessary graphs and charts to determine the progress of students and such while generating a datasheet of their own performance.

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

2 Database Description

There are four databases:

1) STUDENT: Stores details of a student

2) COURSE: Stores details of all courses

3) BATCH: Stores details of all courses

4) DEPARTMENT: Stores details of all courses

2.1 Database Samples

1)

	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

2)

	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 Pro	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						

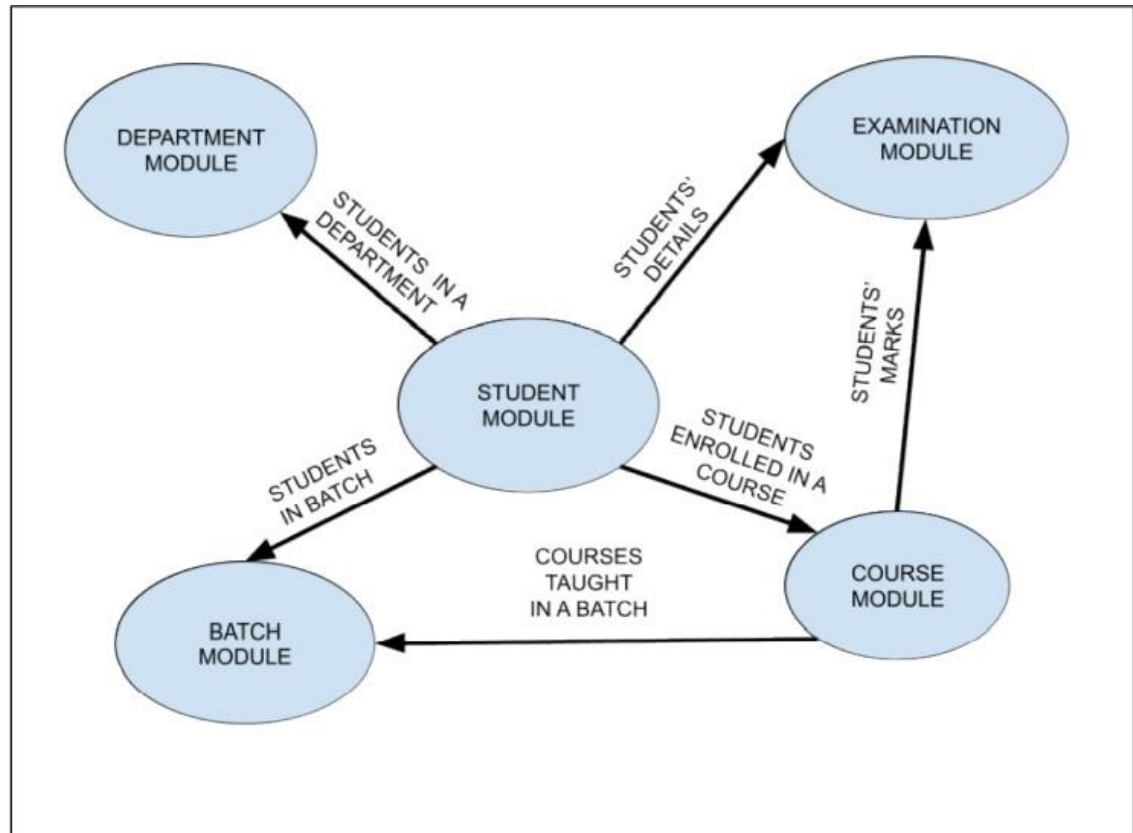
3)

	Batch ID	Batch Nam	Departme	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			

4)

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

3 Data Flow and E-R Diagram



4 Programs

STUDENT

```
1) #creating students details
d={"student
ID":["CSE2200","CSE2201","CSE2202","ECE2200","ECE2201","ECE2202","ECE2203"],"Name
":["Rohan Das","Souma Dutta","Subhadeep Sarkar","Avi Pal","Sourav Kumar","Biplab
Jana","Sourik Dey"],"Class Roll Number":["01","02","03","01","02","03","04"],"Batch
ID":["CSE22","CSE22","CSE22","ECE22","ECE22","ECE22","ECE22"]}
data=pd.DataFrame(d)
print(data)
```

```

2) #removing a student
Data=data.drop(6)
Data.to_csv("students information.csv")
pd.read_csv("students information.csv")

```

```

3) #students marks
g={"subject":["Physics","Chemistry","Python Programming","Maths"],"Rohan
Das":["92","79","83","98"],"Souma Dutta":["35","52","72","18"],"Subhadeep
Sarkar":["84","86","43","64"],"Avi Pal":["99","87","22","34"],"Sourav
Kumar":["67","62","59","72"],"Biplab Jana":["88","79","84","96"]}
students_marks=pd.DataFrame(g)

print(students_marks)

```

```

4) #Gradecard
data_new=students_marks.drop(["subject"],axis=1)
l3=np.array(data_new,dtype=float)
l5=l3.ravel()
l5=(l5.astype('int64')).tolist()
l6=[]
for i in range(0,len(l5)):
    if (l5[i]>=90):
        l6.append("A")
    elif (l5[i]>=80):
        l6.append("B")
    elif (l5[i]>=70):
        l6.append("C")
    elif (l5[i]>=60):
        l6.append("D")
    elif (l5[i]>=40):
        l6.append("E")
    else:
        l6.append("F")

Grades=pd.Series(l6,index=["Rohan Das(Physics)","Rohan Das(Chemistry)","Rohan Das(Python
Programming)","Rohan Das(Maths)","Souma Dutta(Physics)","Souma Dutta(Chemistry)","Souma
Dutta(Python Programming)","Souma Dutta(Maths)",
        "Subhadeep Sarkar(Physics)","Subhadeep Sarkar(Chemistry)","Subhadeep
Sarkar(Python Programming)","Subhadeep Sarkar(Maths)","Avi Pal(Physics)","Avi
Pal(Chemistry)","Avi Pal(Python Programming)","Avi Pal(Maths)",

```

```
"Sourav Kumar(Physics)","Sourav Kumar(Chemistry)","Sourav Kumar(Python
Programming)","Sourav Kumar(Maths)","Biplab Jana(Physics)","Biplab Jana(Chemistry)","Biplab
Jana(Python Programming)","Biplab Jana(Maths)"]]
```

```
print(Grades)
```

```
5) #percentage marks
l4=(l3.sum(axis=0))/4
percentage=pd.Series(l4,index=data_new.columns.values.tolist())
print(percentage)
Gradecard=(str(Grades)+str(percentage))
#Generating text file
file=open("grades.txt","a")
file.write(Gradecard)
file.close()
```

COURSE

```
6) #courses
t={"Course ID":["C001","C002","C003","C004"],"Course Name":["Physics","Chemistry","Python
Programming","Maths"],"Marks
Obtained":["CSE2200:92-CSE2201:35-CSE2202:84-ECE2200:99-ECE2201:67-ECE2202:88","CS
E2200:79-CSE2201:52-CSE2202:86-ECE2200:87-ECE2201:62-ECE2202:79","CSE2200:83-CSE
2201:72-CSE2202:43-ECE2200:22-ECE2201:59-ECE2202:84","CSE2200:98-CSE2201:18-CSE22
02:64-ECE2200:34-ECE2201:72-ECE2202:96"]}
courses=pd.DataFrame(t)
courses.to_csv("course.csv")
pd.read_csv("course.csv")
```

```
7) #performance of students in specific courses
data_new=students_marks.drop(["subject"],axis=1)
new_col=["C001","C002","C003","C004"]
performance=data_new.copy()
performance.insert(loc=0,column="Courses",value=new_col)
performance.loc[4]=["Roll Number", 1,2,3,1,2,3]
print(performance)
```

8) #histogram on grades vs students

```
%matplotlib inline
x=["A","B","C","D","E","F"]
y=[l6.count("A"),l6.count("B"),l6.count("C"),l6.count("D"),l6.count("E"),l6.count("F")]
plt.bar(x,y,color=["r","b","y","c","g","m"])
plt.xlabel("Grades")
plt.ylabel("No of Students")
plt.title("Grades vs No of Students")
plt.show()
```

BATCH

9) #creating batch details

```
h={"Batch ID":["CSE22","ECE22"],"Batch Name":["CSE2022-26","ECE2022-26"],"Department Name":["CSE","ECE"],"List of Courses":["C001:C002:C003:C004","C001:C002:C003:C004"],"List of Students":["CSE2200:CSE2201:CSE2202","ECE2200,ECE2201,ECE2202"]}
Batches=pd.DataFrame(h)
Batches.to_csv("Batches.csv")
pd.read_csv("Batches.csv")
```

10) #percentage of all students in a batch

```
c={"Name":data_new.columns.values.tolist(),"Class Roll Number":[1,2,3,1,2,3],"Percentage Obtained":[percentage[0],percentage[1],percentage[2],percentage[3],percentage[4],percentage[5]],"Batch ID":["CSE22","CSE22","CSE22","ECE22","ECE22","ECE22"]}
Batch_performance=pd.DataFrame(c)
print(Batch_performance)
```

11) #pie chart of performance

```
a=Batch_performance["Percentage Obtained"]
z=Batch_performance["Name"]
plt.pie(a,labels=z)
plt.title("Pie chart of Performance")
plt.show()
```



```

12) #pie chart of performance
a=Batch_performance["Percentage Obtained"]
z=Batch_performance["Name"]
plt.pie(a,labels=z)
plt.title("Pie chart of Performance")
plt.show()

```

DEPARTMENT

```

13) #department stats
o={"Department ID":["CSE","ECE"],"Department Name":["Computer Science and
Engineering","Electronics and Communication Engineering"],"List of
Batches":["CSE22","ECE22"]}
Department=pd.DataFrame(o)
Department.to_csv("Department.csv")
pd.read_csv("Department.csv")

```

```

14) #Average performance in batches
CSE_batch=(Batch_performance.iloc[0,2]+Batch_performance.iloc[1,2]+Batch_performance.iloc[2,2])/3
ECE_batch=(Batch_performance.iloc[3,2]+Batch_performance.iloc[4,2]+Batch_performance.iloc[5,2])/3
m=[CSE_batch,ECE_batch]
n=["CSE2022-26","ECE2022-26"]
plt.plot(n,m,color="r",marker="*",markeredgecolor="b")
plt.xlabel("Batch Name")
plt.ylabel("Average Percentage")
plt.title("Average Percentage of Students for each Batch")
plt.show()

```

EXAMINATION

15) #marks of all students in specific examination
 print(performance)
 #performance in examination
 print(Batch_performance)

16) #scatter plot of performance
 CSE_physics=(int(data_new.iloc[0,0])+int(data_new.iloc[0,1])+int(data_new.iloc[0,2]))
 ECE_physics=(int(data_new.iloc[0,3])+int(data_new.iloc[0,4])+int(data_new.iloc[0,5]))
 CSE_chemistry=(int(data_new.iloc[1,0])+int(data_new.iloc[1,1])+int(data_new.iloc[1,2]))
 ECE_chemistry=(int(data_new.iloc[1,3])+int(data_new.iloc[1,4])+int(data_new.iloc[1,5]))
 CSE_python=(int(data_new.iloc[2,0])+int(data_new.iloc[2,1])+int(data_new.iloc[2,2]))
 ECE_python=(int(data_new.iloc[2,3])+int(data_new.iloc[2,4])+int(data_new.iloc[2,5]))
 CSE_maths=(int(data_new.iloc[3,0])+int(data_new.iloc[3,1])+int(data_new.iloc[3,2]))
 ECE_maths=(int(data_new.iloc[3,3])+int(data_new.iloc[3,4])+int(data_new.iloc[3,5]))
 x1=[CSE_physics,CSE_chemistry,CSE_python,CSE_maths,ECE_physics,ECE_chemistry,ECE_python,ECE_maths]
 y1=["CSE2022-26:Physics","CSE2022-26:Chemistry","CSE2022-26:Python","CSE2022-26:Maths",
 "ECE2022-26:Physics","ECE2022-26:Chemistry","ECE2022-26:Python","ECE2022-26:Maths"]
 plt.scatter(x1,y1,color=["r","b","y","g","r","b","y","g"],marker='o')
 plt.xlabel("Marks")
 plt.ylabel("Batch")
 plt.title("Marks vs Batch")
 plt.show()

OUTPUT

1)

	student ID	Name	Class Roll Number	Batch ID
0	CSE2200	Rohan Das	01	CSE22
1	CSE2201	Souma Dutta	02	CSE22
2	CSE2202	Subhadeep Sarkar	03	CSE22
3	ECE2200	Avi Pal	01	ECE22
4	ECE2201	Sourav Kumar	02	ECE22
5	ECE2202	Biplab Jana	03	ECE22
6	ECE2203	Sourik Dey	04	ECE22

2)

	Unnamed: 0	student ID	Name	Class Roll Number	Batch ID
0	0	CSE2200	Rohan Das	1	CSE22
1	1	CSE2201	Souma Dutta	2	CSE22
2	2	CSE2202	Subhadeep Sarkar	3	CSE22
3	3	ECE2200	Avi Pal	1	ECE22
4	4	ECE2201	Sourav Kumar	2	ECE22
5	5	ECE2202	Biplab Jana	3	ECE22

3)

	subject	Rohan Das	Souma Dutta	Subhadeep Sarkar	Avi Pal	\
0	Physics	92	35	84	99	
1	Chemistry	79	52	86	87	
2	Python Programming	83	72	43	22	
3	Maths	98	18	64	34	

	Sourav Kumar	Biplab Jana
0	67	88
1	62	79
2	59	84
3	72	96

Rohan Das(Physics)	A
Rohan Das(Chemistry)	F
Rohan Das(Python Programming)	B
Rohan Das(Maths)	A
Souma Dutta(Physics)	D
Souma Dutta(Chemistry)	B
Souma Dutta(Python Programming)	C
Souma Dutta(Maths)	E
Subhadeep Sarkar(Physics)	B
Subhadeep Sarkar(Chemistry)	B
Subhadeep Sarkar(Python Programming)	D
Subhadeep Sarkar(Maths)	C
Avi Pal(Physics)	B
Avi Pal(Chemistry)	C
Avi Pal(Python Programming)	E
Avi Pal(Maths)	F
Sourav Kumar(Physics)	E
Sourav Kumar(Chemistry)	B

4)

```
Sourav Kumar(Python Programming)      A
Sourav Kumar(Maths)                    F
Biplab Jana(Physics)                   D
Biplab Jana(Chemistry)                 F
Biplab Jana(Python Programming)        C
Biplab Jana(Maths)                     A
dtype: object
```

```
Rohan Das          88.00
Souma Dutta        44.25
Subhadeep Sarkar   69.25
Avi Pal            60.50
Sourav Kumar       65.00
Biplab Jana        86.75
dtype: float64
```

5)

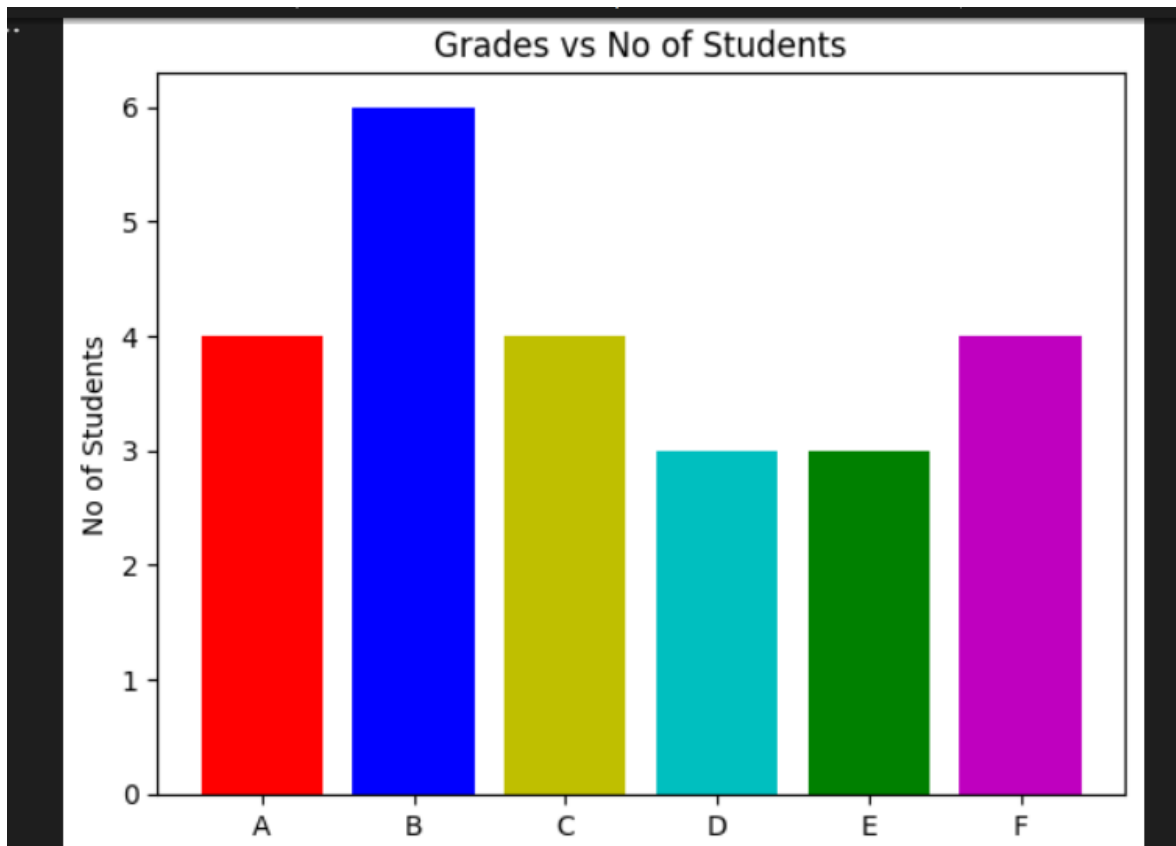
6)

Unnamed: 0	Course ID	Course Name	Marks Obtained
0	0	C001 Physics	CSE2200:92-CSE2201:35-CSE2202:84-ECE2200:99-EC...
1	1	C002 Chemistry	CSE2200:79-CSE2201:52-CSE2202:86-ECE2200:87-EC...
2	2	C003 Python Programming	CSE2200:83-CSE2201:72-CSE2202:43-ECE2200:22-EC...
3	3	C004 Maths	CSE2200:98-CSE2201:18-CSE2202:64-ECE2200:34-EC...

7)

	Courses	Rohan Das	Souma Dutta	Subhadeep Sarkar	Avi Pal	Sourav Kumar	\
0	C001	92	35	84	99	67	
1	C002	79	52	86	87	62	
2	C003	83	72	43	22	59	
3	C004	98	18	64	34	72	
4	Roll Number	1	2	3	1	2	
Biplab Jana							
0	88						
1	79						
2	84						
3	96						
4	3						

8)



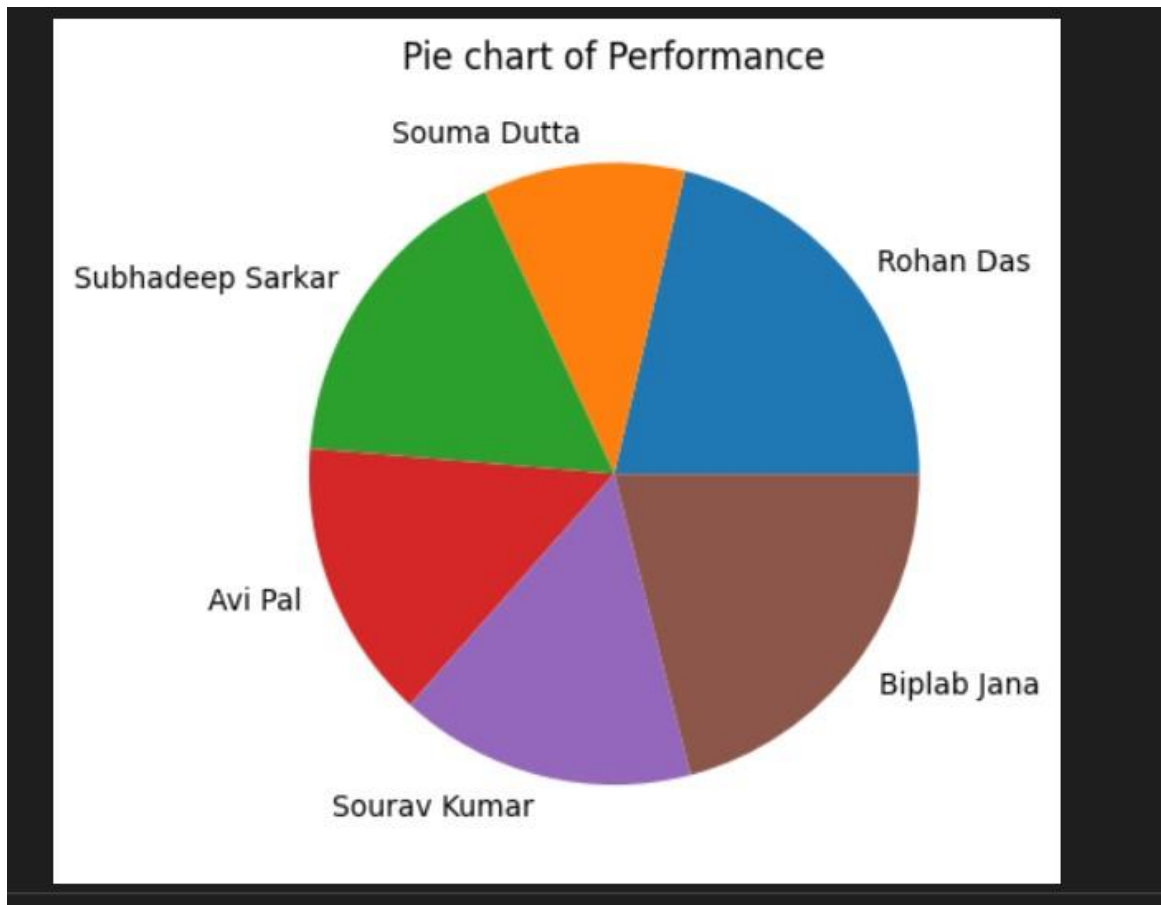
9)

Unnamed: 0	Batch ID	Batch Name	Department Name	List of Courses	List of Students
0	0	CSE22	CSE2022-26	CSE C001:C002:C003:C004	CSE2200:CSE2201:CSE2202
1	1	ECE22	ECE2022-26	ECE C001:C002:C003:C004	ECE2200,ECE2201,ECE2202

10)

	Name	Class	Roll Number	Percentage Obtained	Batch ID
0	Rohan Das		1	88.00	CSE22
1	Souma Dutta		2	44.25	CSE22
2	Subhadeep Sarkar		3	69.25	CSE22
3	Avi Pal		1	60.50	ECE22
4	Sourav Kumar		2	65.00	ECE22
5	Biplab Jana		3	86.75	ECE22

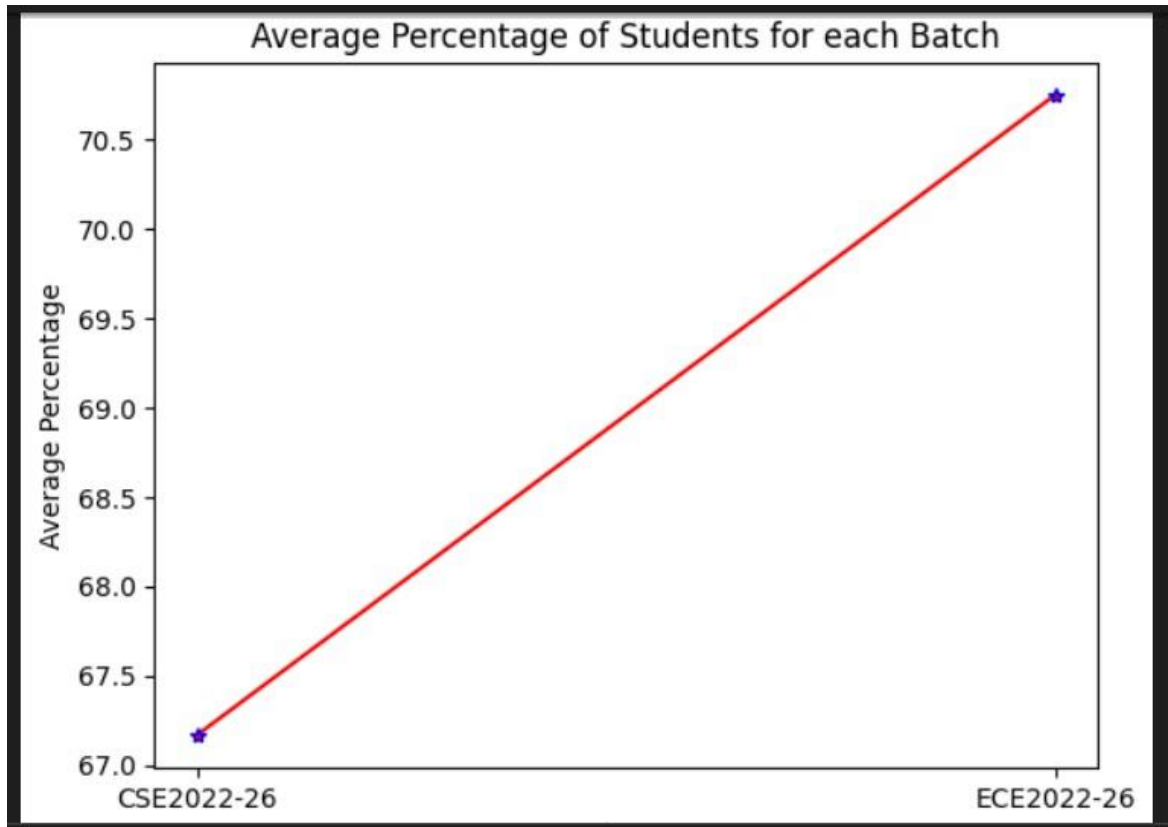
11)



12)

Unnamed: 0	Department ID	Department Name	List of Batches	
0	0	CSE	Computer Science and Engineering	CSE22
1	1	ECE	Electronics and Communication Engineering	ECE22

13)



14)

	Courses	Rohan Das	Souma Dutta	Subhadeep Sarkar	Avi Pal	Sourav Kumar	\
0	C001	92	35	84	99	67	
1	C002	79	52	86	87	62	
2	C003	83	72	43	22	59	
3	C004	98	18	64	34	72	
4	Roll Number	1	2	3	1	2	

	Biplab Jana
0	88
1	79
2	84
3	96
4	3

	Name	Class	Roll Number	Percentage Obtained	Batch ID
0	Rohan Das		1	88.00	CSE22
1	Souma Dutta		2	44.25	CSE22
2	Subhadeep Sarkar		3	69.25	CSE22
3	Avi Pal		1	60.50	ECE22
4	Sourav Kumar		2	65.00	ECE22

15)

