A PROJECT

On

STUDENT DATABASE ANALYSIS USING PYTHON

BACHELOR OF TECHNOLOGY

By

DEPARTMENT OF DATA SCIENCE

THOTA SOWJANYA   **21KP1A44B6**

Under the esteemed Guidance of

Er. S AKSHAY KUMAR

CS CODENZ

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CS CODENZ

GUDIVADA – 521 323, ANDHRA PRADESH., INDIA

2022-2023

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<u>CERTIFICATE</u>

This is to certify that dissertation entitled **"STUDENT DATABASE ANALYSIS USING PYTHON"** submitted by **THOTA SOWJANYA(21KP1A44B6)** in the **BACHELOR OF TECHNOLOGY** from **CS CODENZ** is a record of Bonafide work carried out by them under my guidance and supervision during the year 2022-2023

Signature of the Supervisor   **Signature of the HOD**

Er. S AKSHAY KUMAR   **D. KOTESWARA RAO, MTech**

   CS CODENZ   Associate professor & HOD

                                                         Data Science, NRIIT

<u>DECLARATION</u>

I **THOTA SOWJANYA(21KP1A44B6)** declared that the dissertation report entitled **"STUDENT DATABASE ANALYSIS USING PYTHON"** is no more than 1,00,000 words in length including quotes and exclusive of tables, figures, bibliography, and references.

Roll No	**Name**	**Signature**
21KP1A44B6	THOTA SOWJANYA	————

Date:

Place:

ACKNOWLEDGEMENT

This report dissertation could not have been written without the support of our guide **Er. S AKSHAY KUMAR** who not only served as our superior but also encouraged and challenged us throughout our academic program our foremost thanks goes to his. Without his this dissertation would not have been possible. We appreciate him vast knowledge in many areas, and his insights, suggestions and guidance that helped to shape our research skills

It is needed with a great sense of pleasure and immense sense of gratitude that we acknowledge the help of these individuals. We owe many thanks to many people who helped and supported us during the writing of this report

We are thankful to our project coordinator **Er. S AKSHAY KUMAR , CS CODENZ** for his continuous support

We express our sincere thanks to our respected for bet valuable suggestion and constant motivation that greatly helped us in successful completion of project We also take the privilege to express our heartfelt gratitude to **Er. S AKSHAY KUMAR ,CS CODENZ**

We are thankful to all faculty members for extending their kind cooperation and assistance Finally, we are extremely thankful to our parents and friends for their constant helped moral support

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ABSTRACT

This internship offers an immersive experience in the realm of data analytics, focusing on **"STUDENTS DATABASE ANALYSIS"**. As an intern, you will delve into data cleaning, exploratory data analysis, and feature engineering to extract meaningful insights.

The program also includes hands-on experience with predictive modelling, employing machine learning algorithms to anticipate academic outcomes. Through data visualization techniques, you will communicate findings effectively, creating informative dashboards. The internship emphasizes documentation and reporting skills, ensuring comprehensive records of the analysis process. This opportunity not only enhances proficiency in Python for data analytics but also provides a practical understanding of leveraging data to make informed decisions in an educational con

REQUIREMENTS

HARDWARE REQUIREMENTS

- RAM (Memory) , Storage (Hard Drive/SSD)
- Graphics Processing Unit (GPU)
- Operating System, Monitor
- Internet Connection

SOFTWARE REQUIREMENTS

- Python installation
- Integrated Development Environment (IDE)
- Package Management
- Data Manipulation and Analysis ,Statistical Analysis
- Data Visualization, Machine Learning

FUNCTIONAL REQUIREMENTS

- Help in manipulating data and easy process.
- Graphical representation of Datasets

<u>DESCRIPTION</u>

In the realm of educational institutions, understanding student performance and behaviour is essential for effective decision-making and improvement strategies. This project focuses on analysing a student database using Python, a versatile programming language well-suited for data manipulation, analysis, and visualization.

STEPS OF DATA ANALYSIS

1. Collecting the data
2. Cleaning the data
3. Analysing the data
4. Sharing your results
5. Summary

CODE

1) COLLECTING THE DATA

Pandas - Helps to create a dataset and it is also a library in python.

Pandas Package – It's a group of Panadas Data's which are used to analyse the labelled data and relational data.

NumPy- Numerical computing library for mathematical operations and array manipulation.

Matplotlib- Matplotlib is a powerful Python library used for creating static, interactive, and publication-quality visualizations

IMPORTING THE PYTHON LIBRARIES

```
import pandas as pd import numpy as np import
matplotlib.pyplot as plt
df=pd.read_excel('dsdbx.xlsx')
df.drop(['EMAIL','Timestamp'],inplace=True,axis=1)
print(df)
```

OUTPUT:

```
                Email address                    STUDENT NAME
0           vennachandana1@gmail.com            Venna Chandana
1           adilakshmi4765@gmail.com               N.Venkatesh
2           sravankumar7156@gmail.com             Sravan Kumar
3          sandeepyeruva1124@gmail.com     Yeruva sandeep reddy
4            sivajibejjanki@gmail.com                 B.sivaji
5          ramyayalabolu123r@gmail.com                  Y.Ramya
6           charithareddy3914@gmail.com        P.charitha reddy
7        gayathripolepalli70@gmail.com       POLEPALLI. GAYATHRI
8            syedtasleem07@gmail.com        Syed Tasleem Afroze
9           sowjanyathota11@gmail.com               T.SOWJANYA
10           tammasahithi1@gmail.com             Tamma Sahithi
11           podilisarayu6@gmail.com        PODILI LAKSHMISARAYU
12          shaikkarishma811@gmail.com            shaik karishma
13         kumarvalaparla890@gmail.com   Venkata Aravind Kumar.V
14           patchachinnu3@gmail.com            Patcha Jaswanth
15            manu952041@gmail.com        Pachipulusu Manohar
16         vanukuri.raghava@gmail.com
Raghava
```

```
17              shaiksakina05@gmail.com                      Shaik sameer
18                 us465249@gmail.com                          S sk usman
19           vallu.srinu756939@gmail.com   Vallu Srinu Siva Subrahmanyam
20   undelachandraobulareddy@gmail.com        Undela Chandra Obula Reddy
21              farukh.786syed@gmail.com                        SYED.FARUKH
22            anushayalabolu12@gmail.com                   Anusha yalabolu
23             madhulathasure9@gmail.com                 SURE. MADHULATHA
24   thammisettysrikanthraj9@gmail.com                       T.Srikanth
25             shiakmobin2002@gmail.com                        Shaikmobin
26             abdulkhadar6842@gmail.com             Shaik.Abdul Khadar
27                ravuakshaya@gmail.com                      Ravu.akshaya
28   hemasanjushasanikommu828@gmail.com                    hema sanjusha
29             ynagasasikumar@gmail.com               Y Naga Sasi Kumar
30         rahamtunnisashaik09@gmail.com            Shaik Rahamtunnisa
31           harikabangaram313@gmail.com                            Harika
32              indupriya72216@gmail.com              Indu Priya Patcha
33        bhavyasrisajja2003@gmail.com                        Bhavya sri
34         sudhamshavejendla@gmail.com    Vejendla Devi Sri Sudhamsha
35             bhanuthanirru@gmail.com    Thanirru  Bhanu venkata prasad
36          nikitharayapati9@gmail.com                Nikhitha Rayapati
37             indhupotla123@gmail.com                        indhu priya
38            abdulabdul22070@gmail.com             Syed.Abdul Rehaman
39            jaffershaik718@gmail.com                      Jaffer shaik
40          rabbanishaik7356@gmail.com                    SHAIK RABBANI
41         reshmayalamanchi@gmail.com               Reshma yalamanchi
42   thiriveedhinagajyothi@gmail.com                    T. Nagajyothi
43          paladugudurga1@gmail.com                      P. Durga Sri
44            saidashaik371@gmail.com      SHAIK SAIDA ANWAR BASHA
45                mvkbn1312@gmail.com            R.M.V.K.Brahma Naidu
46        nrajasambasivarao@gmail.com    Narra Raja Samba Siva Rao
47            saisairam068@gmail.com                            Sairam
48     sriharshanallabothu@gmail.com        Nallabothu. Sri Harsha
49          bhuvanstarpuli@gmail.com              Puli bhuvaneswar
50           arundathi0508@gmail.com            PANDA UMA ARUNDATHI
51          chinnivignesh144@gmail.com    chinni vignesh teja yadav

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0   21KP1A44C5          Venna Ramanareddy         Venna Lakshmidevi
1   21KP1A4468               N.Manikya Rao              N.Sri Lakshmi
2   21KP1A4488              Rama Chandra Rao           Venkateswaramma
3   21KP1A44D1      Yeruva Ajay Kumar reddy         Yeruva Anjali Devi
4   22kp5a4402                 B.lakshmaiah                   B.veramma
5   21KP1A44C8                    Y.Anjaiah          Y Lakshmi Rajyam
6   21KP1A4475              P.Madhava Reddy                 P.Kavitha
7   21KP1A4481   POLEPALLI. GURUBRAHMA CHARI         POLEPALLI.SRIDEVI
8   21KP1A44A9                 Syed Rahiman               Syed Naseema
9   21KP1A44B6             T.SAMBA SIVA RAO           T.ARUNA KUMARI
10  21KP1A44B0          Tamma krishna reddy           Tamma Padmavathi
11  21KP1A4480                PODILI RAMESH         PODILI ADILAKSHMI
12  21KP1A4496                   SHAIK BAJI             SHAIK  KHADRUN
```

```
13   21KP1A44C0                Veeraswamy.v                    Lakshmi.v
14   21KP1A4477               Patcha apparao                Patcha sukanya
15   21KP1A4472           Pachipulusu Prasad          Pachipulusu Bhavani
16   21KP1A44C3               Srinivasa reddy                      Jyothi
17   21KP1A44A3             Shaik Rahim babu                 Shaik Raziya
18   21KP1A4492              S sk mastan vali                   Mahabobba
19   21KP1A44C1           Vallu Srinivasa Rao           Vallu Surya kumari
20   21KP1A44B9      Undela Chinna Obula Reddy         Undela GuruLakshmi
21   21KP1A44A7                    SYED.BAJI            SYED.SARTHAJ BEGUM
22   21KP1A44C7                Chinna anjayya           Lakshmi narayanama
23   21KP1A44A4              SURE.VISWANADHAM              SURE.SAI LAKSHMI
24   21KP1A44B5                       T.vasu                       T.jaya
25   21KP1A4497               shaik karimullah                Shaik rihana
26   21KP1A4493                 Shaik.Kareem                Shaik.Farjana
27   21KP1A4485               Ravu.srinivasrao           Ravu.aruna kumari
28   21KP1A4491                   musalareddy                 sivaparvathi
29   21KP1A44D0              Y Rama mohanarao                    Y Lalitha
30   21KP1A44A0             Shaik.mahaboobjani                 Shaik.munni
31   22KP5A4401                A.Subramanyam             A.Dhana Bhagyam
32   21KP1A4476               Appa rao Patcha                 Renuka Patcha
33   21KP1A4490                 Mohan krishna                    Usha rani
34   21KP1A44C4         Vejendla Srinivass Rao    Vejendla Laxmi Prasanna
35   21KP1A44B2               T sathyanarayana                  T rama devi
36   21KP1A4487             Rayapati hanumathrao       Rayapati malleswari
37   21KP1A4483                Lakshmanarayana                    Sujatha
38   21KP1A44A6              Syed.Meera Sharif          Bandi.Krishna veni
39   21KP1A4495                  shaik.LaiLaha             shaik.Ramjan bee
40   21KP1A4499          SHAIK MOHAMMAD HANIF                  SHAIK MALIN
41   21KP1A44C9           Yalamanchi  subba Rao        Yalamanchi sunitha
42   21KP1A44B7                    T. Venkayya               T. Ramanjamma
43   21KP1A4473              P. Amareswara rao             P. Seshu Kumari
44   21KP1A44A2             SHAIK KUDHAN VALI          SHAIK SAIDA HUSSANBI
45   21KP1A4489                    Yedukondalu                     Nirmala
46   21KP1A4471             Narra SrinivasaRao             Narra Ramadevi
47   21kp1a44b4               Venkata subbiah                   Ravanamma
48   21KP1A4469          Nallabothu. Anjaneyulu         Nallabothu. Anitha
49   21KP1A4484             Puli mallikarjuna               Puli ramadevi
50   21KP1A4474             PANDA NARAYANA RAO     PANDA PRASANNA LAKSHMI
51   21KP1A44C6            Chinni Pratap Kumar             Chinni Bhargavi

     COURSE   CGPA  AGE                                      BRANCH   \
0        DS      8   19                              Data science
1       CSE     83   19                                    CSE-DS
2      MECH      7   20                                      mech
3       CSE    9.5   20                                       CSE
4        DS   0.72   23                          Computer science
5        DS     80   19                                       CSD
6        DS     70   19                                       CSD
7        DS     10   19                              Data Science
8      MECH      8   19                                        DS
```

9	DS	8	19	DATA SCIENCE
10	DS	7.7	19	CSE (Data science)
11	DS	7.5	19	DATA SCIENCE
12	DS	9	19	ds
13	DS	0.98	20	Data Science
14	CSE	0.99	20	Data science
15	MECH	8.5	19	NaN
16	DS	7	19	Data science
17	DS	80	20	DS
18	DS	50	19	DS
19	DS	73	20	Computer Science Engineering& Data Science
20	DS	9.2	20	Computer Science
21	DS	0.7	19	DS
22	DS	75	19	CSD
23	DS	10	20	Data science
24	DS	0.75	19	Data Science
25	DS	8.8	21	Ds
26	ECE	8	20	NaN
27	DS	80	19	Ds
28	CSE	73	18h	cse
29	DS	9.2	20	NaN
30	DS	8	18	Data science
31	DS	75	19	Data science
32	DS	0.75	18	Data Science
33	DS	70	19	Ds
34	CSE	70	19	Cse- Data Science
35	DS	9.6	19	NaN
36	DS	80	19	Ds
37	CSE	72	19	cse
38	DS	90	20	DS
39	CSE	70	19	cse
40	DS	9.5	21	CSD
41	DS	75	19	DS
42	DS	75	19	DS
43	DS	80	20	CSD(Data Science)
44	DS	80	20	DATASCIENCE
45	DS	7	20	Data science
46	DS	7.5	19	CSD (Data science)
47	CSE	10	19	Da
48	DS	90	21	CSD
49	DS	8.3	21	Data science
50	DS	87	19	CSD
51	DS	80	19	Data Science

	CURRENT SEMISTER	AADHAAR NO
0	2-2	636336922883
1	II-II	602515258256
2	4	930319053088
3	2-3	576154990146
4	2-2	895444662410

5	2-2	724574588425
6	2.2	810177524502
7	2-2	721819168061
8	2-2	617020354793
9	2-2	338666948901
10	2-2	685349832128
11	2-2	458689741091
12	2-2	663048521599
13	2-2	510305345824
14	2-2	744020413963
15	2-2	559366114423
16	2-2	424973081348
17	2-2	529261464345
18	2-2	568753875709
19	4	************
20	2-2	693621780842
21	2-2	764320730678
22	2-2	830785066037
23	2-2	776486062608
24	2-2	673112205183
25	2.2	904355656468
26	2-2	334708289154
27	2.2	544305783128
28	2-2	422314863763
29	2-2	448172496292
30	2-2	406976169351
31	2-2	574930568520
32	2-2	573041880949
33	2-2	274736890047
34	2_2	587480445790
35	2-2	357228202835
36	2-2	963360828294
37	2-2	524345891620
38	2-2	347853509974
39	2nd	912229276699
40	2-2	205933956204
41	4	742366316353
42	4	330477145525
43	2-2	692162661608
44	2-2	466722650274
45	2-2	2387 7088 9424
46	4	835457902826
47	2-2	746109575146
48	2-2	208611060176
49	2.2	950519207474
50	2-2	652650486629
51	4th semester	639534870436

***PRINTING THE INFORMATION OF THE DATASET ***

```
df.info()
```

OUTPUT:

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 52 entries, 0 to 51
Data columns (total 11 columns):
 #   Column            Non-Null Count  Dtype
---  ----------        --------------  --------
 0   Email address     52 non-null     object
 1   STUDENT NAME      52 non-null     object
 2   ROLL NUMBER       52 non-null     object
 3   FATHER NAME       52 non-null     object
 4   MOTHER NAME       52 non-null     object
 5   COURSE            52 non-null     object
 6   CGPA              52 non-null     object
 7   AGE               52 non-null     object
 8   BRANCH            48 non-null     object
 9   CURRENT SEMISTER  52 non-null     object
 10  AADHAAR NO        52 non-null     object
dtypes: object(11)
memory usage: 4.6+ K
```

***REPLACING THE NULL VALUES ***

```
df.ffill(inplace=True,axis=1)
```

```
df.isnull().sum()
```

OUTPUT:

```
Email address      0
STUDENT NAME       0
ROLL NUMBER        0
FATHER NAME        0
MOTHER NAME        0
COURSE             0
CGPA               0
AGE                0
BRANCH             0
CURRENT SEMISTER   0
AADHAAR NO         0
dtype: int64
```

```
df.shape
```

(52, 11)

DESCRIPTION OF DATASET

```
df.describe()
```

OUTPUT:

	Email address	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	CURRENT SEMISTER	AADHAAR NO
count	52	52	52	52	52	52	52	52	52	52	52
unique	52	52	52	52	52	4	27	6	24	9	52
top	vennachandana1@gmail.com	Venna Chandana	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi	DS	80	19	DS	2-2	636336922883
freq	1	1	1	1	1	40	7	30	7	37	1

****REPLACING THE SPECIFIC VALUE****

```
df.replace(['************'],'223678754646')
```

OUTPUT:

	Email address	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	CURRENT SEMISTER	AADHAAR NO
0	vennachandana1@gmail.com	Venna Chandana	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi	DS	8	19	Data science	2-2	636336922883
1	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A44S8	N.Manikya Rao	N.Sri Lakshmi	CSE	83	19	CSE-DS	II-II	602515258256
2	sravankumar7156@gmail.com	Sravan Kumar	21KP1A44B8	Rama Chandra Rao	Venkateswaramma	MECH	7	20	mech	4	930319053088
3	sandeepyeruva1124@gmail.com	Yeruva sandeep reddy	21KP1A44D1	Yeruva Ajay Kumar reddy	Yeruva Anjali Devi	CSE	9.5	20	CSE	2-3	576154990146
4	sivajibejjanki@gmail.com	B.sivaji	22kp5a4402	B.lakshmaiah	B.veramma	DS	0.72	23	Computer science	2-2	895444662410
5	ramyayalabolu123r@gmail.com	Y.Ramya	21KP1A44C8	Y.Anjaiah	Y Lakshmi Rajyam	DS	80	19	CSD	2-2	724574588425
6	charithareddy3914@gmail.com	P.charitha reddy	21KP1A44B5	P.Madhava Reddy	P.Kavitha	DS	70	19	CSD	2.2	810177524502
7	gayathripolepalli70@gmail.com	POLEPALLI. GAYATHRI	21KP1A44B1	POLEPALLI. GURUBRAHMA CHARI	POLEPALLI.SRIDEVI	DS	10	19	Data Science	2-2	721819168061
8	syedtasleem07@gmail.com	Syed Tasleem Afroze	21KP1A44A9	Syed Rahiman	Syed Naseema	MECH	8	19	DS	2-2	617020354793
9	sowjanyathota11@gmail.com	T.SOWJANYA	21KP1A44B6	T.SAMBA SIVA RAO	T.ARUNA KUMARI	DS	8	19	DATA SCIENCE	2-2	338666948901
10	tammasahithi@gmail.com	Tamma Sahithi	21KP1A44B0	Tamma krishna reddy	Tamma Padmavathi	DS	7.7	19	CSE (Data science)	2-2	685349832128
11	podilisarayu6@gmail.com	PODILI LAKSHMISARAYU	21KP1A44B0	PODILI RAMESH	PODILI ADILAKSHMI	DS	7.5	19	DATA SCIENCE	2-2	458689741091
12	shaikkarishma811@gmail.com	shaik karishma	21KP1A44B6	SHAIK BAJI	SHAIK KHADRUN	DS	9	19	ds	2-2	663048521599
13	kumarvalaparla890@gmail.com	Venkata Aravind Kumar.V	21KP1A44C0	Veeraswamy.v	Lakshmi.v	DS	0.98	20	Data Science	2-2	510305345824

```
df.columns#displaying the column names
```

OUTPUT:

```
Index(['Email address', 'STUDENT NAME', 'ROLL NUMBER', 'FATHER NAME', 'MOTHER NAME',
'COURSE', 'CGPA', 'AGE', 'BRANCH', 'CURRENT SEMISTER', 'AADHAAR NO'], dtype='object')
```

Rename function is used for renaming the columns

```
df.rename(columns={'Email address':'Gmail','CURRENT
SEMISTER':'SEMISTER','AADHAAR N print(df.columns)#renaming the columns
name
```

OUTPUT:

```
Index(['Gmail', 'STUDENT NAME', 'ROLL NUMBER', 'FATHER NAME', 'MOTHER NAME',
'COURSE', 'CGPA', 'AGE', 'BRANCH', 'SEMISTER', 'UIDAI NO'], dtype='object')
```

```
df.replace({'7O':70}, inplace=True)
print(df)
```

OUTPUT:

```
-                                     Gmail                    STUDENT NAME  \
0              vennachandana1@gmail.com              Venna Chandana
1               adilakshmi4765@gmail.com                 N.Venkatesh
2               sravankumar7156@gmail.com                Sravan Kumar
3             sandeepyeruva1124@gmail.com         Yeruva sandeep reddy
4               sivajibejjanki@gmail.com                    B.sivaji
5             ramyayalabolu123r@gmail.com                    Y.Ramya
6              charithareddy3914@gmail.com           P.charitha reddy
7           gayathripolepalli70@gmail.com         POLEPALLI. GAYATHRI
8               syedtasleem07@gmail.com         Syed Tasleem Afroze
9             sowjanyathota11@gmail.com                 T.SOWJANYA
10             tammasahithi1@gmail.com              Tamma Sahithi
11             podilisarayu6@gmail.com         PODILI LAKSHMISARAYU
12            shaikkarishma811@gmail.com              shaik karishma
13            kumarvalaparla890@gmail.com     Venkata Aravind Kumar.V
14             patchachinnu3@gmail.com             Patcha Jaswanth
15               manu952041@gmail.com          Pachipulusu Manohar
16            vanukuri.raghava@gmail.com                     Raghava
17             shaiksakina05@gmail.com                Shaik sameer
18                us465249@gmail.com                   S sk usman
19          vallu.srinu756939@gmail.com  Vallu Srinu Siva Subrahmanyam
20    undelachandraobulareddy@gmail.com      Undela Chandra Obula Reddy
21             farukh.786syed@gmail.com                 SYED.FARUKH
22            anushayalabolu12@gmail.com              Anusha yalabolu
```

23	madhulathasure9@gmail.com	SURE. MADHULATHA
24	thammisettysrikanthraj9@gmail.com	T. Srikanth
25	shiakmobin2002@gmail.com	Shaikmobin
26	abdulkhadar6842@gmail.com	Shaik.Abdul Khadar
27	ravuakshaya@gmail.com	Ravu.akshaya
28	hemasanjushasanikommu828@gmail.com	hema sanjusha
29	ynagasasikumar@gmail.com	Y Naga Sasi Kumar
30	rahamtunnisashaik09@gmail.com	Shaik Rahamtunnisa
31	harikabangaram313@gmail.com	Harika
32	indupriya72216@gmail.com	Indu Priya Patcha
33	bhavyasrisajja2003@gmail.com	Bhavya sri
34	sudhamshavejendla@gmail.com	Vejendla Devi Sri Sudhamsha
35	bhanuthanirru@gmail.com	Thanirru Bhanu venkata prasad
36	nikitharayapati9@gmail.com	Nikhitha Rayapati
37	indhupotla123@gmail.com	indhu priya
38	abdulabdul22070@gmail.com	Syed.Abdul Rehaman
39	jaffershaik718@gmail.com	Jaffer shaik
40	rabbanishaik7356@gmail.com	SHAIK RABBANI
41	reshmayalamanchi@gmail.com	Reshma yalamanchi
42	thiriveedhinagajyothi@gmail.com	T. Nagajyothi
43	paladugudurga1@gmail.com	P. Durga Sri
44	saidashaik371@gmail.com	SHAIK SAIDA ANWAR BASHA
45	mvkbn1312@gmail.com	R.M.V.K.Brahma Naidu
46	nrajasambasivarao@gmail.com	Narra Raja Samba Siva Rao
47	saisairam068@gmail.com	Sairam
48	sriharshanallabothu@gmail.com	Nallabothu. Sri Harsha
49	bhuvanstarpuli@gmail.com	Puli bhuvaneswar
50	arundathi0508@gmail.com	PANDA UMA ARUNDATHI
51	chinnivignesh144@gmail.com	chinni vignesh teja yadav

	ROLL NUMBER	FATHER NAME	MOTHER NAME \
0	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi
1	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi
2	21KP1A4488	Rama Chandra Rao	Venkateswaramma
3	21KP1A44D1	Yeruva Ajay Kumar reddy	Yeruva Anjali Devi
4	22kp5a4402	B.lakshmaiah	B.veramma
5	21KP1A44C8	Y.Anjaiah	Y Lakshmi Rajyam
6	21KP1A4475	P.Madhava Reddy	P.Kavitha
7	21KP1A4481	POLEPALLI. GURUBRAHMA CHARI	POLEPALLI.SRIDEVI
8	21KP1A44A9	Syed Rahiman	Syed Naseema
9	21KP1A44B6	T. SAMBA SIVA RAO	T. ARUNA KUMARI
10	21KP1A44B0	Tamma krishna reddy	Tamma Padmavathi
11	21KP1A4480	PODILI RAMESH	PODILI ADILAKSHMI
12	21KP1A4496	SHAIK BAJI	SHAIK KHADRUN
13	21KP1A44C0	Veeraswamy.v	Lakshmi.v
14	21KP1A4477	Patcha apparao	Patcha sukanya
15	21KP1A4472	Pachipulusu Prasad	Pachipulusu Bhavani
16	21KP1A44C3	Srinivasa reddy	Jyothi
17	21KP1A44A3	Shaik Rahim babu	Shaik Raziya
18	21KP1A4492	S sk mastan vali	Mahabobba
19	21KP1A44C1	Vallu Srinivasa Rao	Vallu Surya kumari

```
20    21KP1A44B9      Undela Chinna Obula Reddy        Undela GuruLakshmi
21    21KP1A44A7                    SYED.BAJI        SYED.SARTHAJ BEGUM
22    21KP1A44C7                Chinna anjayya        Lakshmi narayanama
23    21KP1A44A4              SURE.VISWANADHAM          SURE.SAI LAKSHMI
24    21KP1A44B5                       T.vasu                    T.jaya
25    21KP1A4497               shaik karimullah              Shaik rihana
26    21KP1A4493                 Shaik.Kareem              Shaik.Farjana
27    21KP1A4485               Ravu.srinivasrao          Ravu.aruna kumari
28    21KP1A4491                  musalareddy               sivaparvathi
29    21KP1A44D0              Y Rama mohanarao                  Y Lalitha
30    21KP1A44A0             Shaik.mahaboobjani               Shaik.munni
31    22KP5A4401                A.Subramanyam           A.Dhana Bhagyam
32    21KP1A4476              Appa rao Patcha              Renuka Patcha
33    21KP1A4490                Mohan krishna                  Usha rani
34    21KP1A44C4      Vejendla Srinivass Rao   Vejendla Laxmi Prasanna
35    21KP1A44B2             T sathyanarayana               T rama devi
36    21KP1A4487            Rayapati hanumathrao      Rayapati malleswari
37    21KP1A4483               Lakshmanarayana                   Sujatha
38    21KP1A44A6             Syed.Meera Sharif        Bandi.Krishna veni
39    21KP1A4495                  shaik.LaiLaha          shaik. Ramjan bee
40    21KP1A4499           SHAIK MOHAMMAD HANIF              SHAIK MALIN
41    21KP1A44C9           Yalamanchi  subba Rao       Yalamanchi sunitha
42    21KP1A44B7                  T. Venkayya            T. Ramanjamma
43    21KP1A4473              P. Amareswara rao          P. Seshu Kumari
44    21KP1A44A2            SHAIK KUDHAN VALI     SHAIK SAIDA HUSSANBI
45    21KP1A4489                  Yedukondalu                   Nirmala
46    21KP1A4471             Narra SrinivasaRao            Narra Ramadevi
47    21kp1a44b4               Venkata subbiah                Ravanamma
48    21KP1A4469          Nallabothu. Anjaneyulu       Nallabothu. Anita
49    21KP1A4484              Puli mallikarjuna          Puli ramadevi
50    21KP1A4474            PANDA NARAYANA RAO     PANDA PRASANNA LAKSHMI
51    21KP1A44C6             Chinni Pratap Kumar          Chinni Bhargavi

      COURSE    CGPA    AGE                                    BRANCH   \
0       DS      8.00     19                         Data science
1      CSE     83.00     19                                CSE-DS
2     MECH      7.00     20                                  mech
3      CSE      9.50     20                                   CSE
4       DS      0.72     23                      Computer science
5       DS     80.00     19                                   CSD
6       DS     70.00     19                                   CSD
7       DS     10.00     19                         Data Science
8     MECH      8.00     19                                    DS
9       DS      8.00     19                         DATA SCIENCE
10      DS      7.70     19                    CSE (Data science)
11      DS      7.50     19                         DATA SCIENCE
12      DS      9.00     19                                    ds
13      DS      0.98     20                         Data Science
14     CSE      0.99     20                         Data science
15    MECH      8.50     19                                    19
16      DS      7.00     19                         Data science
```

```
17     DS    80.00   20                                                     DS
18     DS    50.00   19                                                     DS
19     DS    73.00   20       Computer Science Engineering& Data Science
20     DS    9.20    20                                     Computer Science
21     DS    0.70    19                                                     DS
22     DS    75.00   19                                                    CSD
23     DS    10.00   20                                           Data science
24     DS    0.75    19                                           Data Science
25     DS    8.80    21                                                     Ds
26     ECE   8.00    20                                                     20
27     DS    80.00   19                                                     Ds
28     CSE   73.00   18h                                                   cse
29     DS    9.20    20                                                     20
30     DS    8.00    18                                           Data science
31     DS    75.00   19                                           Data science
32     DS    0.75    18                                           Data Science
33     DS    70.00   19                                                     Ds
34     CSE   70.00   19                                      Cse- Data Science
35     DS    9.60    19                                                     19
36     DS    80.00   19                                                     Ds
37     CSE   72.00   19                                                    cse
38     DS    90.00   20                                                     DS
39     CSE   70.00   19                                                    cse
40     DS    9.50    21                                                    CSD
41     DS    75.00   19                                                     DS
42     DS    75.00   19                                                     DS
43     DS    80.00   20                                      CSD (Data Science)
44     DS    80.00   20                                            DATASCIENCE
45     DS    7.00    20                                           Data science
46     DS    7.50    19                                      CSD (Data science)
47     CSE   10.00   19                                                     Da
48     DS    90.00   21                                                    CSD
49     DS    8.30    21                                           Data science
50     DS    87.00   19                                                    CSD
51     DS    80.00   19                                           Data Science


       SEMISTER      AADHAAR NO
0          2-2       636336922883
1         II-II      602515258256
2            4       930319053088
3          2-3       576154990146
4          2-2       895444662410
5          2-2       724574588425
6          2.2       810177524502
7          2-2       721819168061
8          2-2       617020354793
9          2-2       338666948901
10         2-2       685349832128
11         2-2       458689741091
12         2-2       663048521599
13         2-2       510305345824
```

```
14          2-2    744020413963
15          2-2    559366114423
16          2-2    424973081348
17          2-2    529261464345
18          2-2    568753875709
19            4    ************
20          2-2    693621780842
21          2-2    764320730678
22          2-2    830785066037
23          2-2    776486062608
24          2-2    673112205183
25          2.2    904355656468
26          2-2    334708289154
27          2.2    544305783128
28          2-2    422314863763
29          2-2    448172496292
30          2-2    406976169351
31          2-2    574930568520
32          2-2    573041880949
33          2-2    274736890047
34          2_2    587480445790
35          2-2    357228202835
36          2-2    963360828294
37          2-2    524345891620
38          2-2    347853509974
39          2nd    912229276699
40          2-2    205933956204
41            4    742366316353
42            4    330477145525
43          2-2    692162661608
44          2-2    466722650274
45          2-2    2387 7088 9424
46            4    835457902826
47          2-2    746109575146
48          2-2    208611060176
49          2.2    950519207474
50          2-2    652650486629
```

Calculating the CGPA

```
df. CGPA =df.CGPA.astype(float)
```

```
df. info()
```

OUTPUT:

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 52 entries, 0 to 51
Data columns (total 11 columns):
 #    Column          Non-Null Count   Dtype
-----  ---------       ------------------------------   ------------
 0    Gmail            52 non-null      object
 1    STUDENT NAME     52 non-null      object
 2    ROLL NUMBER      52 non-null      object
 3    FATHER NAME      52 non-null      object
 4    MOTHER NAME      52 non-null      object
 5    COURSE           52 non-null      object
 6    CGPA             52 non-null      float64
 7    AGE              52 non-null      object
 8    BRANCH           52 non-null      object
 9    SEMISTER         52 non-null      object
 10   AADHAAR NO       52 non-null      object
dtypes: float64(1), object(10)-
memory usage: 4.6+ KB
```

***Calculating the CGPA>8.0 ***

```
df[(df['CGPA']>8.0)]
```

OUTPUT:

25	shiakmobin2002@gmail.com	Shaikmobin	21KP1A4497	shaik karimullah	Shaik rihana	DS	8.8	21	Ds	2.2	904355656468
27	ravuakshaya@gmail.com	Ravu.akshaya	21KP1A4485	Ravu.srinivasrao	Ravu.aruna kumari	DS	80.0	19	Ds	2.2	544305783128
28	hemasanjushasanikommu828@gmail.com	hema sanjusha	21KP1A4491	musalareddy	sivaparvathi	CSE	73.0	18h	cse	2-2	422314863763
29	ynagasasikumar@gmail.com	Y Naga Sasi Kumar	21KP1A44D0	Y Rama mohanarao	Y Lalitha	DS	9.2	20	20	2-2	448172496292
31	harikabangaram313@gmail.com	Harika	22KP5A4401	A.Subramanyam	A.Dhana Bhagyam	DS	75.0	19	Data science	2-2	574930568520
33	bhavyasrisajja2003@gmail.com	Bhavya sri	21KP1A4490	Mohan krishna	Usha rani	DS	70.0	19	Ds	2-2	274736890047
34	sudhamshavejendla@gmail.com	Vejendla Devi Sri Sudhamsha	21KP1A44C4	Vejendla Srinivass Rao	Vejendla Laxmi Prasanna	CSE	70.0	19	Cse- Data Science	2_2	587480445790
35	bhanuthanirru@gmail.com	Thanirru Bhanu venkata prasad	21KP1A44B2	T sathyanarayana	T rama devi	DS	9.6	19	19	2-2	357228202835
36	nikitharayapati9@gmail.com	Nikhitha Rayapati	21KP1A4487	Rayapati hanumathrao	Rayapati malleswari	DS	80.0	19	Ds	2-2	963360828294
37	indhupotla123@gmail.com	indhu priya	21KP1A4483	Lakshmanarayana	Sujatha	CSE	72.0	19	cse	2-2	524345891620
38	abdulabdul22070@gmail.com	Syed.Abdul Rehaman	21KP1A44A6	Syed.Meera Sharif	Bandi.Krishna veni	DS	90.0	20	DS	2-2	347853509974
39	jaffershaik718@gmail.com	Jaffer shaik	21KP1A4495	shaik.LaiLaha	shaik.Ramjan bee	CSE	70.0	19	cse	2nd	912229276699
40	rabbanishaik7356@gmail.com	SHAIK RABBANI	21KP1A4499	SHAIK MOHAMMAD HANIF	SHAIK MALIN	DS	9.5	21	CSD	2-2	205933956204
41	reshmayalamanchi@gmail.com	Reshma yalamanchi	21KP1A44C9	Yalamanchi subba Rao	Yalamanchi sunitha	DS	75.0	19	DS	4	742366316353
42	thiriveedhinagajyothi@gmail.com	T. Nagajyothi	21KP1A44B7	T. Venkayya	T. Ramanjamma	DS	75.0	19	DS	4	330477145525

***Calculating the largest CGPA value ***

```
df.nlargest(10,["CGPA"])
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
38	abdulabdul22070@gmail.com	Syed.Abdul Rehaman	21KP1A44A6	Syed.Meera Sharif	Bandi.Krishna veni	DS	90.0	20	DS	2-2	347853509974
48	sriharshanallabothu@gmail.com	Nallabothu. Sri Harsha	21KP1A4469	Nallabothu. Anjaneyulu	Nallabothu. Anitha	DS	90.0	21	CSD	2-2	208611060176
50	arundathi0508@gmail.com	PANDA UMA ARUNDATHI	21KP1A4474	PANDA NARAYANA RAO	PANDA PRASANNA LAKSHMI	DS	87.0	19	CSD	2-2	652650486629
1	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi	CSE	83.0	19	CSE-DS	II-II	602515258256
5	ramyayalabolu123r@gmail.com	Y.Ramya	21KP1A44C8	Y.Anjaiah	Y Lakshmi Rajyam	DS	80.0	19	CSD	2-2	724574588425
17	shaiksakina05@gmail.com	Shaik sameer	21KP1A44A3	Shaik Rahim babu	Shaik Raziya	DS	80.0	20	DS	2-2	529261464345
27	ravuakshaya@gmail.com	Ravu.akshaya	21KP1A4485	Ravu.srinivasrao	Ravu.aruna kumari	DS	80.0	19	Ds	2.2	544305783128
36	nikitharayapati9@gmail.com	Nikhitha Rayapati	21KP1A4487	Rayapati hanumathrao	Rayapati malleswari	DS	80.0	19	Ds	2-2	963360828294
43	paladugudurga1@gmail.com	P. Durga Sri	21KP1A4473	P. Amareswara rao	P. Seshu Kumari	DS	80.0	20	CSD(Data Science)	2-2	692162661608
44	saidashaik371@gmail.com	SHAIK SAIDA ANWAR BASHA	21KP1A44A2	SHAIK KUDHAN VALI	SHAIK SAIDA HUSSANBI	DS	80.0	20	DATASCIENCE	2-2	466722650274

***Calculating the smallest CGPA value ***

```
df.nsmallest(10,['CGPA'])
```

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
21	farukh.786syed@gmail.com	SYED.FARUKH	21KP1A44A7	SYED.BAJI	SYED.SARTHAJ BEGUM	DS	0.70	19	DS	2-2	764320730678
4	sivajibejjanki@gmail.com	B.sivaji	22kp5a4402	B.lakshmaiah	B.veramma	DS	0.72	23	Computer science	2-2	895444662410
24	thammisettysrikanthraj9@gmail.com	T.Srikanth	21KP1A44B5	T.vasu	T.jaya	DS	0.75	19	Data Science	2-2	673112205183
32	indupriya72216@gmail.com	Indu Priya Patcha	21KP1A4476	Appa rao Patcha	Renuka Patcha	DS	0.75	18	Data Science	2-2	573041880949
13	kumarvalaparla890@gmail.com	Venkata Aravind Kumar.V	21KP1A44C0	Veeraswamy.v	Lakshmi.v	DS	0.98	20	Data Science	2-2	510305345824
14	patchachinnu3@gmail.com	Patcha Jaswanth	21KP1A4477	Patcha apparao	Patcha sukanya	CSE	0.99	20	Data science	2-2	744020413963
2	sravankumar7156@gmail.com	Sravan Kumar	21KP1A4488	Rama Chandra Rao	Venkateswaramma	MECH	7.00	20	mech	4	930319053088
16	vanukuri.raghava@gmail.com	Raghava	21KP1A44C3	Srinivasa reddy	Jyothi	DS	7.00	19	Data science	2-2	424973081348
45	mvkbn1312@gmail.com	R.M.V.K.Brahma Naidu	21KP1A4489	Yedukondalu	Nirmala	DS	7.00	20	Data science	2-2	2387 7088 9424
11	podilisarayu6@gmail.com	PODILI LAKSHMISARAYU	21KP1A4480	PODILI RAMESH	PODILI ADILAKSHMI	DS	7.50	19	DATA SCIENCE	2-2	458689741091

GROUPBY:

Group by() is a powerful function in pandas that allows you to group data based on a single column or more.

Grouping the values based on single column

```
df1=df.groupby('COURSE').get_group('DS').sort_values('COURSE',ascending=
True)
df1
```

COURSE	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	CGPA	AGE	BRANCH	SEMISTER	UIDAI NO
CSE	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi	83.0	19	CSE-DS	II-II	602515258256
DS	vennachandana1@gmail.com	Venna Chandana	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi	8.0	19	Data science	2-2	636336922883
ECE	abdulkhadar6842@gmail.com	Shaik.Abdul Khadar	21KP1A4493	Shaik.Kareem	Shaik.Farjana	8.0	20	20	2-2	334708289154
MECH	sravankumar7156@gmail.com	Sravan Kumar	21KP1A4488	Rama Chandra Rao	Venkateswaramma	7.0	20	mech	4	930319053088

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME		CGPA	AGE	BRANCH	SEMISTER	UIDAI NO
13	kumarvalaparla890@gmail.com	Venkata Aravind Kumar.V	21KP1A44C0	Veeraswamy.v	Lakshmi.v	DS	0.98	20	Data Science	2-2	510305345824
16	vanukuri.raghava@gmail.com	Raghava	21KP1A44C3	Srinivasa reddy	Jyothi	DS	7.00	19	Data science	2-2	424973081348
17	shaiksakina05@gmail.com	Shaik sameer	21KP1A44A3	Shaik Rahim babu	Shaik Raziya	DS	80.00	20	DS	2-2	529261464345
18	us465249@gmail.com	S sk usman	21KP1A4492	S sk mastan vali	Mahabobba	DS	50.00	19	DS	2-2	568753875709
19	vallu.srinu756939@gmail.com	Vallu Srinu Siva Subrahmanyam	21KP1A44C1	Vallu Srinivasa Rao	Vallu Surya kumari	DS	73.00	20	Computer Science Engineering& Data Science	4	************
20	undelachandraobulareddy@gmail.com	Undela Chandra Obula Reddy	21KP1A44B9	Undela Chinna Obula Reddy	Undela GuruLakshmi	DS	9.20	20	Computer Science	2-2	693621780842
21	farukh.786syed@gmail.com	SYED.FARUKH	21KP1A44A7	SYED.BAJI	SYED.SARTHAJ BEGUM	DS	0.70	19	DS	2-2	764320730678
22	anushayalabolu12@gmail.com	Anusha yalabolu	21KP1A44C7	Chinna anjayya	Lakshmi narayanama	DS	75.00	19	CSD	2-2	830785066037
23	madhulathasure9@gmail.com	SURE.MADHULATHA	21KP1A44A4	SURE.VISWANADHAM	SURE.SAI LAKSHMI	DS	10.00	20	Data science	2-2	776486062608
50	arundathi0508@gmail.com	PANDA UMA ARUNDATHI	21KP1A4474	PANDA NARAYANA RAO	PANDA PRASANNA LAKSHMI	DS	87.00	19	CSD	2-2	652650486629
51	chinnivignesh144@gmail.com	chinni vignesh teja yadav	21KP1A44C6	Chinni Pratap Kumar	Chinni Bhargavi	DS	80.00	19	Data Science	4th semester	639534870436

***Grouping and sorting the course Values ***

```
df.groupby('COURSE').get_group('DS').sort_values('COURSE')

y=df.groupby('COURSE')

y.first()
```

OUTPUT :

COURSE	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	CGPA	AGE	BRANCH	SEMISTER	UIDAI NO
CSE	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi	83.0	19	CSE-DS	II-II	602515258256
DS	vennachandana1@gmail.com	Venna Chandana	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi	8.0	19	Data science	2-2	636336922883
ECE	abdulkhadar6842@gmail.com	Shaik.Abdul Khadar	21KP1A4493	Shaik.Kareem	Shaik.Farjana	8.0	20	20	2-2	334708289154
MECH	sravankumar7156@gmail.com	Sravan Kumar	21KP1A4488	Rama Chandra Rao	Venkateswaramma	7.0	20	mech	4	930319053088

****Replacing the specific value****

```
df.replace(['18h'],18,inplace=True)

print(df)
```

OUTPUT :

```
                Gmail              STUDENT NAME  \
0        vennachandana1@gmail.com        Venna Chandana
1         adilakshmi4765@gmail.com         N.Venkatesh
2        sravankumar7156@gmail.com        Sravan Kumar
3       sandeepyeruva1124@gmail.com     Yeruva sandeep reddy
4          sivajibejjanki@gmail.com         B.sivaji
5        ramyayalabolu123r@gmail.com         Y.Ramya
6        charithareddy3914@gmail.com      P.charitha reddy
7       gayathripolepalli70@gmail.com    POLEPALLI. GAYATHRI
8          syedtasleem07@gmail.com       Syed Tasleem Afroze
9         sowjanyathota11@gmail.com         T.SOWJANYA
10         tammasahithi1@gmail.com        Tamma Sahithi
11         podilisarayu6@gmail.com     PODILI LAKSHMISARAYU
12        shaikkarishma811@gmail.com       shaik karishma
13        kumarvalaparla890@gmail.com   Venkata Aravind Kumar.V
14         patchachinnu3@gmail.com        Patcha Jaswanth
15          manu952041@gmail.com        Pachipulusu Manohar
16        vanukuri.raghava@gmail.com         Raghava
17         shaiksakina05@gmail.com         Shaik sameer
18           us465249@gmail.com           S sk usman
19     vallu.srinu756939@gmail.com  Vallu Srinu Siva Subrahmanyam
20  undelachandraobulareddy@gmail.com    Undela Chandra Obula Reddy
21         farukh.786syed@gmail.com        SYED.FARUKH
22        anushayalabolu12@gmail.com       Anusha yalabolu
23        madhulathasure9@gmail.com       SURE. MADHULATHA
24   thammisettysrikanthraj9@gmail.com       T.Srikanth
25         shiakmobin2002@gmail.com        Shaikmobin
26         abdulkhadar6842@gmail.com      Shaik.Abdul Khadar
27          ravuakshaya@gmail.com         Ravu.akshaya


    ROLL NUMBER         FATHER NAME          MOTHER NAME  \
0   21KP1A44C5      Venna Ramanareddy        Venna Lakshmidevi
1   21KP1A4468         N.Manikya Rao          N.Sri Lakshmi
2   21KP1A4488         Rama Chandra Rao       Venkateswaramma
3   21KP1A44D1     Yeruva Ajay Kumar reddy     Yeruva Anjali Devi
4   22kp5a4402          B.lakshmaiah           B.veramma
5   21KP1A44C8            Y.Anjaiah        Y Lakshmi Rajyam
6   21KP1A4475         P.Madhava Reddy           P.Kavitha
7   21KP1A4481  POLEPALLI. GURUBRAHMA CHARI       POLEPALLI.SRIDEVI
```

```
8    21KP1A44A9         Syed Rahiman          Syed Naseema
9    21KP1A44B6        T.SAMBA SIVA RAO        T.ARUNA KUMARI
10   21KP1A44B0       Tamma krishna reddy      Tamma Padmavathi
11   21KP1A4480        PODILI RAMESH         PODILI ADILAKSHMI
12   21KP1A4496        SHAIK BAJI         SHAIK  KHADRUN
13   21KP1A44C0        Veeraswamy.v           Lakshmi.v
14   21KP1A4477        Patcha apparao        Patcha sukanya
15   21KP1A4472       Pachipulusu Prasad      Pachipulusu Bhavani
16   21KP1A44C3       Srinivasa reddy            Jyothi
17   21KP1A44A3       Shaik Rahim babu         Shaik Raziya
18   21KP1A4492       S sk mastan vali          Mahabobba
19   21KP1A44C1      Vallu Srinivasa Rao      Vallu Surya kumari
20   21KP1A44B9    Undela Chinna Obula Reddy     Undela GuruLakshmi
21   21KP1A44A7         SYED.BAJI       SYED.SARTHAJ BEGUM
22   21KP1A44C7       Chinna anjayya     Lakshmi narayanama
23   21KP1A44A4       SURE.VISWANADHAM        SURE.SAI LAKSHMI
24   21KP1A44B5          T.vasu            T.jaya
25   21KP1A4497       shaik karimullah        Shaik rihana
26   21KP1A4493        Shaik.Kareem          Shaik.Farjana
27   21KP1A4485       Ravu.srinivasrao       Ravu.aruna kumari

    COURSE  CGPA  AGE                    BRANCH  \
0    DS   8.00  19              Data science
1    CSE  83.00  19                CSE-DS
2    MECH  7.00  20                  mech
3    CSE  9.50  20                  CSE
4    DS   0.72  23           Computer science
5    DS  80.00  19                  CSD
6    DS  70.00  19                  CSD
7    DS  10.00  19              Data Science
8    MECH  8.00  19                  DS
9    DS   8.00  19              DATA SCIENCE
10   DS   7.70  19           CSE (Data science)
11   DS   7.50  19              DATA SCIENCE
12   DS   9.00  19                  ds
13   DS   0.98  20              Data Science
14   CSE  0.99  20              Data science
15   MECH  8.50  19                  19
16   DS   7.00  19              Data science
17   DS  80.00  20                  DS
18   DS  50.00  19                  DS
19   DS  73.00  20  Computer Science Engineering& Data Science
20   DS   9.20  20              Computer Science
```

```
21   DS  0.70  19                    DS
22   DS 75.00  19                   CSD
23   DS 10.00  20            Data science
24   DS  0.75  19            Data Science
50   DS 87.00  19                   CSD
51   DS 80.00  19            Data Science
 SEMISTER      UIDAI NO
0       2-2   636336922883
1      II-II   602515258256
2        4   930319053088
3       2-3   576154990146
4       2-2   895444662410
5       2-2   724574588425
6       2.2   810177524502
7       2-2   721819168061
8       2-2   617020354793
9       2-2   338666948901
10      2-2   685349832128
11      2-2   458689741091
12      2-2   663048521599
13      2-2   510305345824
14      2-2   744020413963
15      2-2   559366114423
16      2-2   424973081348
17      2-2   529261464345
18      2-2   568753875709
19       4   ************
20      2-2   693621780842
21      2-2   764320730678
22      2-2   830785066037
23      2-2   776486062608
24      2-2   673112205183
25      2.2   904355656468
```

Grouping the CSE values based on Course column

```
df2=df.groupby('COURSE').get_group('CSE').sort_values('COURSE',ascending
=True)
df2
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
1	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi	CSE	83.00	19	CSE-DS	II-II	602515258256
3	sandeepyeruva1124@gmail.com	Yeruva sandeep reddy	21KP1A44D1	Yeruva Ajay Kumar reddy	Yeruva Anjali Devi	CSE	9.50	20	CSE	2-3	576154990146
14	patchachinnu3@gmail.com	Patcha Jaswanth	21KP1A4477	Patcha apparao	Patcha sukanya	CSE	0.99	20	Data science	2-2	744020413963
28	hemasanjushasanikommu828@gmail.com	hema sanjusha	21KP1A4491	musalareddy	sivaparvathi	CSE	73.00	18	cse	2-2	422314863763
34	sudhamshavejendla@gmail.com	Vejendla Devi Sri Sudhamsha	21KP1A44C4	Vejendla Srinivass Rao	Vejendla Laxmi Prasanna	CSE	70.00	19	Cse- Data Science	2_2	587480445790
37	indhupotla123@gmail.com	indhu priya	21KP1A4483	Lakshmanarayana	Sujatha	CSE	72.00	19	cse	2-2	524345891620
39	jaffershaik718@gmail.com	Jaffer shaik	21KP1A4495	shaik.LaiLaha	shaik.Ramjan bee	CSE	70.00	19	cse	2nd	912229276699
47	saisairam068@gmail.com	Sairam	21kp1a44b4	Venkata subbiah	Ravanamma	CSE	10.00	19	Da	2-2	746109575146

Grouping the ECE values based on Course column

```
df3=df.groupby('COURSE').get_group('ECE').sort_values('COURSE',ascending=True)
df3
```

OUTPUT :

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
26	abdulkhadar6842@gmail.com	Shaik.Abdul Khadar	21KP1A4493	Shaik.Kareem	Shaik.Farjana	ECE	8.0	20	20	2-2	334708289154

Grouping the MECH values based on Course column

```
df4=df.groupby('COURSE').get_group('MECH').sort_values('COURSE',ascending=True)
df4
```

OUTPUT :

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
2	sravankumar7156@gmail.com	Sravan Kumar	21KP1A4488	Rama Chandra Rao	Venkateswaramma	MECH	7.0	20	mech	4	930319053088
8	syedtasleem07@gmail.com	Syed Tasleem Afroze	21KP1A44A9	Syed Rahiman	Syed Naseema	MECH	8.0	19	DS	2-2	617020354793
15	manu952041@gmail.com	Pachipulusu Manohar	21KP1A4472	Pachipulusu Prasad	Pachipulusu Bhavani	MECH	8.5	19	19	2-2	559366114423

astype( ): It comes into use when we want to case a particular column data type to another data type

```
df.AGE=df.AGE.astype(int)
```

Grouping the age 18 values based on AGE column

```
df5=df.groupby('AGE').get_group(18)
df5
```

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
28	hemasanjushasanikommu828@gmail.com	hema sanjusha	21KP1A4491	musalareddy	sivaparvathi	CSE	73.00	18	cse	2-2	422314863763
30	rahamtunnisashaik09@gmail.com	Shaik Rahamtunnisa	21KP1A44A0	Shaik.mahaboobjani	Shaik.munni	DS	8.00	18	Data science	2-2	406976169351
32	indupriya72216@gmail.com	Indu Priya Patcha	21KP1A4476	Appa rao Patcha	Renuka Patcha	DS	0.75	18	Data Science	2-2	573041880949

Grouping the age 19 values based on AGE column

```
d6=df.groupby('AGE').get_group(19)
 d6
```
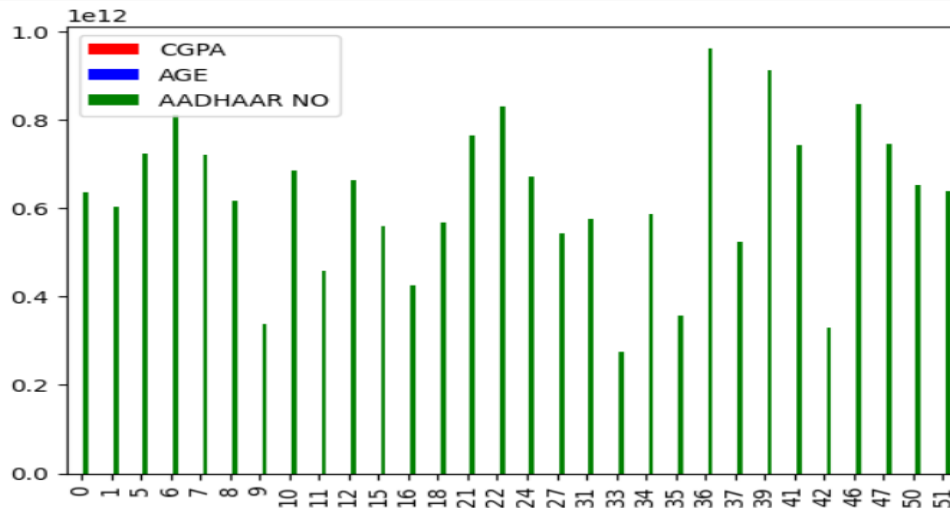
OUTPUT :

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH
0	vennachandana1@gmail.com	Venna Chandana	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi	DS	8.00	19	Data science
1	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi	CSE	83.00	19	CSE-DS
5	ramyayalabolu123r@gmail.com	Y.Ramya	21KP1A44C8	Y.Anjaiah	Y Lakshmi Rajyam	DS	80.00	19	CSD
6	charithareddy3914@gmail.com	P.charitha reddy	21KP1A4475	P.Madhava Reddy	P.Kavitha	DS	70.00	19	CSD
7	gayathripolepalli70@gmail.com	POLEPALLI. GAYATHRI	21KP1A4481	POLEPALLI. GURUBRAHMA CHARI	POLEPALLI.SRIDEVI	DS	10.00	19	Data Science
8	syedtasleem07@gmail.com	Syed Tasleem Afroze	21KP1A44A9	Syed Rahiman	Syed Naseema	MECH	8.00	19	DS
9	sowjanyathota11@gmail.com	T.SOWJANYA	21KP1A44B6	T.SAMBA SIVA RAO	T.ARUNA KUMARI	DS	8.00	19	DATA SCIENCE
10	tammasahithi1@gmail.com	Tamma Sahithi	21KP1A44B0	Tamma krishna reddy	Tamma Padmavathi	DS	7.70	19	CSE (Data science)
11	podilisarayu6@gmail.com	PODILI LAKSHMISARAYU	21KP1A4480	PODILI RAMESH	PODILI ADILAKSHMI	DS	7.50	19	DATA SCIENCE
12	shaikkarishma811@gmail.com	shaik karishma	21KP1A4496	SHAIK BAJI	SHAIK KHADRUN	DS	9.00	19	ds
15	manu952041@gmail.com	Pachipulusu Manohar	21KP1A4472	Pachipulusu Prasad	Pachipulusu Bhavani	MECH	8.50	19	19
16	vanukuri.raghava@gmail.com	Raghava	21KP1A44C3	Srinivasa reddy	Jyothi	DS	7.00	19	Data science
18	us465249@gmail.com	S sk usman	21KP1A4492	S sk mastan vali	Mahabobba	DS	50.00	19	DS
21	farukh.786syed@gmail.com	SYED.FARUKH	21KP1A44A7	SYED.BAJI	SYED.SARTHAJ BEGUM	DS	0.70	19	DS
22	anushayalabolu12@gmail.com	Anusha yalabolu	21KP1A44C7	Chinna anjayya	Lakshmi narayanama	DS	75.00	19	CSD

Grouping the age 20 values based on AGE column

```
d7=df.groupby('AGE').get_group(20)
d7
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
25	shiakmobin2002@gmail.com	Shaikmobin	21KP1A4497	shaik karimullah	Shaik rihana	DS	8.8	21	Ds	2.2	904355656468
40	rabbanishaik7356@gmail.com	SHAIK RABBANI	21KP1A4499	SHAIK MOHAMMAD HANIF	SHAIK MALIN	DS	9.5	21	CSD	2-2	205933956204
48	sriharshanallabothu@gmail.com	Nallabothu. Sri Harsha	21KP1A4469	Nallabothu. Anjaneyulu	Nallabothu. Anitha	DS	90.0	21	CSD	2-2	208611060176
49	bhuvanstarpuli@gmail.com	Puli bhuvaneswar	21KP1A4484	Puli mallikarjuna	Puli ramadevi	DS	8.3	21	Data science	2.2	950519207474

Grouping the age 21 values based on AGE column

```
d8=df.groupby('AGE').get_group(21)
d8
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
25	shiakmobin2002@gmail.com	Shaikmobin	21KP1A4497	shaik karimullah	Shaik rihana	DS	8.8	21	Ds	2.2	904355656468
40	rabbanishaik7356@gmail.com	SHAIK RABBANI	21KP1A4499	SHAIK MOHAMMAD HANIF	SHAIK MALIN	DS	9.5	21	CSD	2-2	205933956204
48	sriharshanallabothu@gmail.com	Nallabothu. Sri Harsha	21KP1A4469	Nallabothu. Anjaneyulu	Nallabothu. Anitha	DS	90.0	21	CSD	2-2	208611060176
49	bhuvanstarpuli@gmail.com	Puli bhuvaneswar	21KP1A4484	Puli mallikarjuna	Puli ramadevi	DS	8.3	21	Data science	2.2	950519207474

Grouping the age 23 values based on AGE column

```
d9=df.groupby('AGE').get_group(23)
d9
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
4	sivajibejjanki@gmail.com	B.sivaji	22kp5a4402	B.lakshmaiah	B.veramma	DS	0.72	23	Computer science	2-2	895444662410

Plot: To get the scatterplot of a dataframe all we have to do is to just **call the plot() method by specifying some parameters**

```
df5.plot.bar(color=['red','blue','purple'])
df5
```

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
28	hemasanjushasanikommu828@gmail.com	hema sanjusha	21KP1A4491	musalareddy	sivaparvathi	CSE	73.00	18	cse	2-2	422314863763
30	rahamtunnisashaik09@gmail.com	Shaik Rahamtunnisa	21KP1A44A0	Shaik.mahaboobjani	Shaik.munni	DS	8.00	18	Data science	2-2	406976169351
32	indupriya72216@gmail.com	Indu Priya Patcha	21KP1A4476	Appa rao Patcha	Renuka Patcha	DS	0.75	18	Data Science	2-2	573041880949

***The bar( ) method draws a vertical bar chart and the bar() method draws a horizontal bar chart of DataFrame d6 . ***

```
d6.plot.bar(color=['red','blue','green'])
d6
```

OUTPUT:

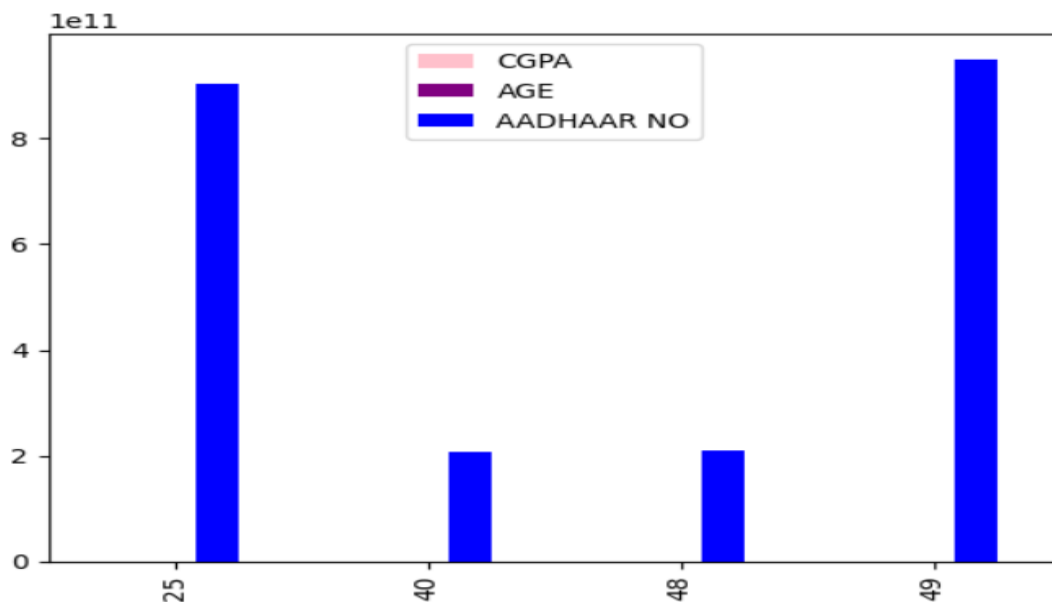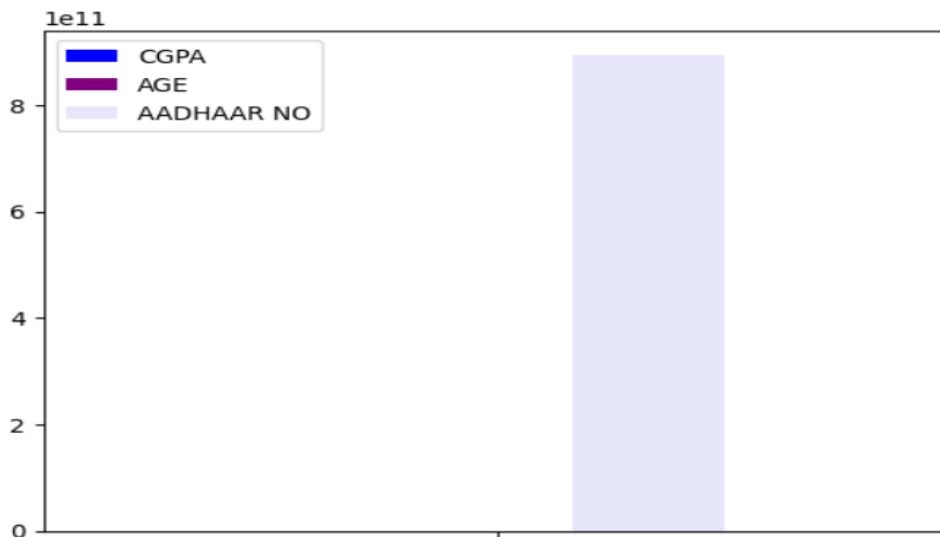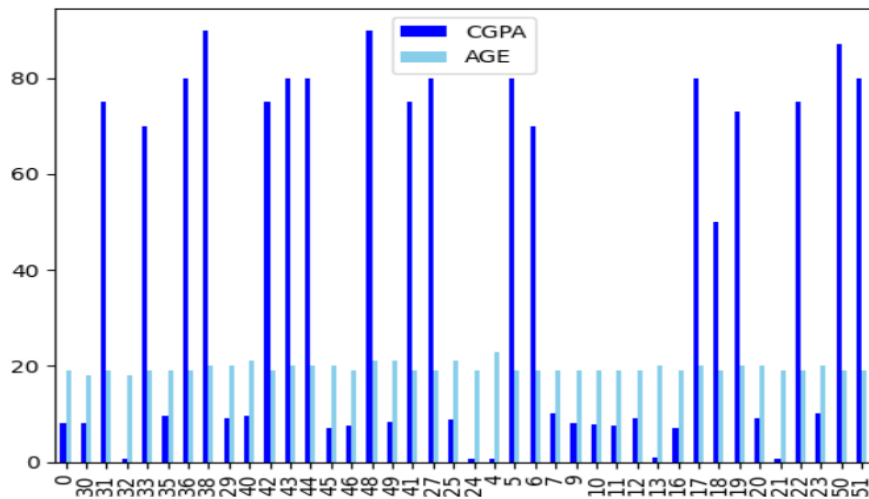|	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
0	vennachandana1@gmail.com	Venna Chandana	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi	DS	8.00	19	Data science	2-2	636336922883
1	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi	CSE	83.00	19	CSE-DS	II-II	602515258256
5	ramyayalabolu123r@gmail.com	Y.Ramya	21KP1A44C8	Y.Anjaiah	Y Lakshmi Rajyam	DS	80.00	19	CSD	2-2	724574588425
6	charithareddy3914@gmail.com	P.charitha reddy	21KP1A4475	P.Madhava Reddy	P.Kavitha	DS	70.00	19	CSD	2.2	810177524502
7	gayathripolepalli70@gmail.com	POLEPALLI. GAYATHRI	21KP1A4481	POLEPALLI. GURUBRAHMA CHARI	POLEPALLI.SRIDEVI	DS	10.00	19	Data Science	2-2	721819168061
8	syedtasleem07@gmail.com	Syed Tasleem Afroze	21KP1A44A9	Syed Rahiman	Syed Naseema	MECH	8.00	19	DS	2-2	617020354793
9	sowjanyathota11@gmail.com	T.SOWJANYA	21KP1A44B6	T.SAMBA SIVA RAO	T.ARUNA KUMARI	DS	8.00	19	DATA SCIENCE	2-2	338666948901
10	tammasahithi1@gmail.com	Tamma Sahithi	21KP1A44B0	Tamma krishna reddy	Tamma Padmavathi	DS	7.70	19	CSE (Data science)	2-2	685349832128
11	podilisarayu6@gmail.com	PODILI LAKSHMISARAYU	21KP1A4480	PODILI RAMESH	PODILI ADILAKSHMI	DS	7.50	19	DATA SCIENCE	2-2	458689741091
12	shaikkarishma811@gmail.com	shaik karishma	21KP1A4496	SHAIK BAJI	SHAIK KHADRUN	DS	9.00	19	ds	2-2	663048521599
15	manu952041@gmail.com	Pachipulusu Manohar	21KP1A4472	Pachipulusu Prasad	Pachipulusu Bhavani	MECH	8.50	19	19	2-2	559366114423
16	vanukuri.raghava@gmail.com	Raghava	21KP1A44C3	Srinivasa reddy	Jyothi	DS	7.00	19	Data science	2-2	424973081348
18	us465249@gmail.com	S sk usman	21KP1A4492	S sk mastan vali	Mahabobba	DS	50.00	19	DS	2-2	568753875709
21	farukh.786syed@gmail.com	SYED.FARUKH	21KP1A44A7	SYED.BAJI	SYED.SARTHAJ BEGUM	DS	0.70	19	DS	2-2	764320730678
22	anushayalabolu12@gmail.com	Anusha yalabolu	21KP1A44C7	Chinna anjayya	Lakshmi narayanama	DS	75.00	19	CSD	2-2	830785066037
24	thammisettysrikanthraj9@gmail.com	T.Srikanth	21KP1A44B5	T.vasu	T.jaya	DS	0.75	19	Data Science	2-2	673112205183

The bar() method draws a vertical bar chart and the barh() method draws a horizontal bar chart of DataFrame d7.

```
d7.plot.bar(color=['pink','purple','blue'])
d7
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
2	sravankumar7156@gmail.com	Sravan Kumar	21KP1A4488	Rama Chandra Rao	Venkateswaramma	MECH	7.00	20	mech	4	930319053088
3	sandeepyeruva1124@gmail.com	Yeruva sandeep reddy	21KP1A44D1	Yeruva Ajay Kumar reddy	Yeruva Anjali Devi	CSE	9.50	20	CSE	2-3	576154990146
13	kumarvalaparla890@gmail.com	Venkata Aravind Kumar.V	21KP1A44C0	Veeraswamy.v	Lakshmi.v	DS	0.98	20	Data Science	2-2	510305345824
14	patchachinnu3@gmail.com	Patcha Jaswanth	21KP1A4477	Patcha apparao	Patcha sukanya	CSE	0.99	20	Data science	2-2	744020413963
17	shaiksakina05@gmail.com	Shaik sameer	21KP1A44A3	Shaik Rahim babu	Shaik Raziya	DS	80.00	20	DS	2-2	529261464345
19	vallu.srinu756939@gmail.com	Vallu Srinu Siva Subrahmanyam	21KP1A44C1	Vallu Srinivasa Rao	Vallu Surya kumari	DS	73.00	20	Computer Science Engineering& Data Science	4	************
20	undelachandraobulareddy@gmail.com	Undela Chandra Obula Reddy	21KP1A44B9	Undela Chinna Obula Reddy	Undela GuruLakshmi	DS	9.20	20	Computer Science	2-2	693621780842
23	madhulathasure9@gmail.com	SURE. MADHULATHA	21KP1A44A4	SURE.VISWANADHAM	SURE.SAI LAKSHMI	DS	10.00	20	Data science	2-2	776486062608
26	abdulkhadar6842@gmail.com	Shaik.Abdul Khadar	21KP1A4493	Shaik.Kareem	Shaik.Farjana	ECE	8.00	20	20	2-2	334708289154
29	ynagasasikumar@gmail.com	Y Naga Sasi Kumar	21KP1A44D0	Y Rama mohanarao	Y Lalitha	DS	9.20	20	20	2-2	448172496292
38	abdulabdul22070@gmail.com	Syed.Abdul Rehaman	21KP1A44A6	Syed.Meera Sharif	Bandi.Krishna veni	DS	90.00	20	DS	2-2	347853509974
43	paladugudurga1@gmail.com	P. Durga Sri	21KP1A4473	P. Amareswara rao	P. Seshu Kumari	DS	80.00	20	CSD(Data Science)	2-2	692162661608
44	saidashaik371@gmail.com	SHAIK SAIDA ANWAR BASHA	21KP1A44A2	SHAIK KUDHAN VALI	SHAIK SAIDA HUSSANBI	DS	80.00	20	DATASCIENCE	2-2	466722650274
45	mvkbn1312@gmail.com	R.M.V.K.Brahma Naidu	21KP1A4489	Yedukondalu	Nirmala	DS	7.00	20	Data science	2-2	2387 7088 8494

The bar() method draws a vertical bar chart and the barh() method draws a horizontal bar chart of DataFrame d8.

```
d8.plot.bar(color=['pink','purple','blue'])
d8
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
25	shiakmobin2002@gmail.com	Shaikmobin	21KP1A4497	shaik karimullah	Shaik rihana	DS	8.8	21	Ds	2.2	904355656468
40	rabbanishaik7356@gmail.com	SHAIK RABBANI	21KP1A4499	SHAIK MOHAMMAD HANIF	SHAIK MALIN	DS	9.5	21	CSD	2-2	205933956204
48	sriharshanallabothu@gmail.com	Nallabothu. Sri Harsha	21KP1A4469	Nallabothu. Anjaneyulu	Nallabothu. Anitha	DS	90.0	21	CSD	2-2	208611060176
49	bhuvanstarpuli@gmail.com	Puli bhuvaneswar	21KP1A4484	Puli mallikarjuna	Puli ramadevi	DS	8.3	21	Data science	2.2	950519207474

The bar() method draws a vertical bar chart and the barh() method draws a horizontal bar chart of DataFrame d9.

```
d9.plot.bar(color=['blue','purple','lavender'])
d9
```

OUTPUT:

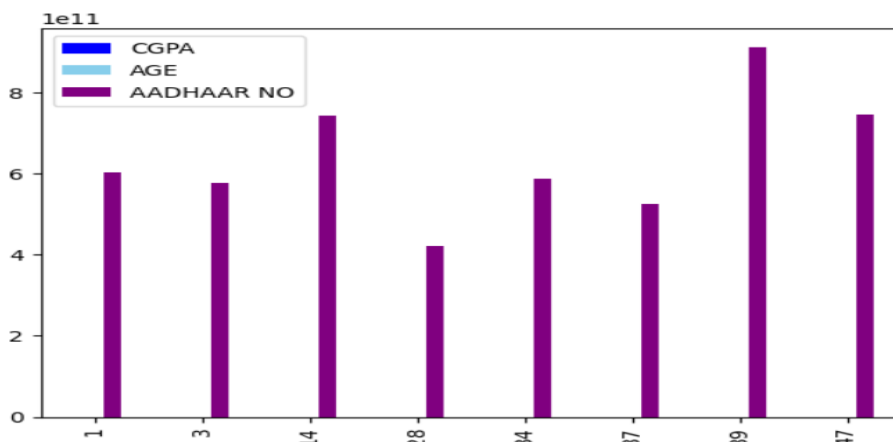|	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
4	sivajibejjanki@gmail.com	B.sivaji	22kp5a4402	B.lakshmaiah	B.veramma	DS	0.72	23	Computer science	2-2	895444662410

25

The bar() method draws a vertical bar chart and the barh() method draws a horizontal bar chart of DataFrame d1.

```
df1.plot.bar(color=['blue','skyblue','pink'])
df1
```

OUTPUT:

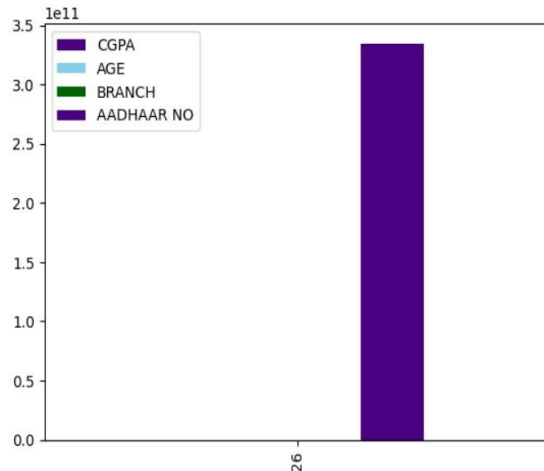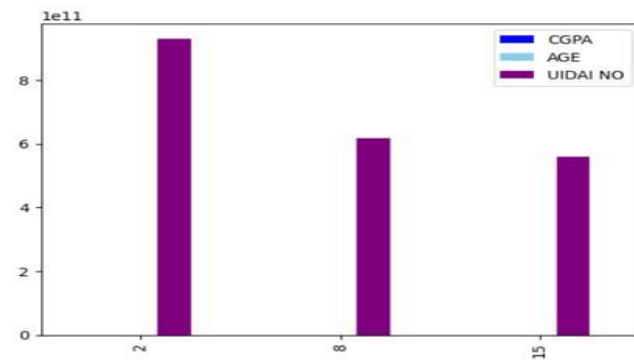|	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
0	vennachandana1@gmail.com	Venna Chandana	21KP1A44C5	Venna Ramanareddy	Venna Lakshmidevi	DS	8.00	19	Data science	2-2	636336922883
30	rahamtunnisashaik09@gmail.com	Shaik Rahamtunnisa	21KP1A44A0	Shaik.mahaboobjani	Shaik.munni	DS	8.00	18	Data science	2-2	406976169351
31	harikabangaram313@gmail.com	Harika	22KP5A4401	A.Subramanyam	A.Dhana Bhagyam	DS	75.00	19	Data science	2-2	574930568520
32	indupriya72216@gmail.com	Indu Priya Patcha	21KP1A44476	Appa rao Patcha	Renuka Patcha	DS	0.75	18	Data Science	2-2	573041880949
33	bhavyasrisajja2003@gmail.com	Bhavya sri	21KP1A4490	Mohan krishna	Usha rani	DS	70.00	19	Ds	2-2	274736890047
35	bhanuthanirru@gmail.com	Thanirru Bhanu venkata prasad	21KP1A44B2	T sathyanarayana	T rama devi	DS	9.60	19	19	2-2	357228202835
36	nikitharayapati9@gmail.com	Nikhitha Rayapati	21KP1A4487	Rayapati hanumathrao	Rayapati malleswari	DS	80.00	19	Ds	2-2	963360828294
38	abdulabdul22070@gmail.com	Syed.Abdul Rehaman	21KP1A44A6	Syed.Meera Sharif	Bandi.Krishna veni	DS	90.00	20	DS	2-2	347853509974
29	ynagasasikumar@gmail.com	Y Naga Sasi Kumar	21KP1A44D0	Y Rama mohanarao	Y Lalitha	DS	9.20	20	20	2-2	448172496292
40	rabbanishaik7356@gmail.com	SHAIK RABBANI	21KP1A4499	SHAIK MOHAMMAD HANIF	SHAIK MALIN	DS	9.50	21	CSD	2-2	205933956204
42	thiriveedhinagajyothi@gmail.com	T. Nagajyothi	21KP1A44B7	T. Venkayya	T. Ramanjamma	DS	75.00	19	DS	4	330477145525
43	paladugudurga1@gmail.com	P. Durga Sri	21KP1A4473	P. Amareswara rao	P. Seshu Kumari	DS	80.00	20	CSD(Data Science)	2-2	692162661608
44	saidashaik371@gmail.com	SHAIK SAIDA ANWAR BASHA	21KP1A44A2	SHAIK KUDHAN VALI	SHAIK SAIDA HUSSANBI	DS	80.00	20	DATASCIENCE	2-2	466722650274
45	mvkbn1312@gmail.com	R.M.V.K.Brahma Naidu	21KP1A4489	Yedukondalu	Nirmala	DS	7.00	20	Data science	2-2	2387 7088 9424
46	nrajasambasivarao@gmail.com	Narra Raja Samba Siva Rao	21KP1A4471	Narra SrinivasaRao	Narra Ramadevi	DS	7.50	19	CSD (Data science)	4	835457902826
48	sriharshanallabothu@gmail.com	Nallabothu. Sri	21KP1A4469	Nallabothu. Anjaneyulu	Nallabothu. Anitha	DS	90.00	21	CSD	2-2	208611060176

The bar() method draws a vertical bar chart and the barh() method draws a horizontal bar chart of DataFrame d2.

1

```
df2.plot.bar(color=['blue','skyblue','purple'])
df2
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
1	adilakshmi4765@gmail.com	N.Venkatesh	21KP1A4468	N.Manikya Rao	N.Sri Lakshmi	CSE	83.00	19	CSE-DS	II-II	602515258256
3	sandeepyeruva1124@gmail.com	Yeruva sandeep reddy	21KP1A44D1	Yeruva Ajay Kumar reddy	Yeruva Anjali Devi	CSE	9.50	20	CSE	2-3	576154990146
14	patchachinnu3@gmail.com	Patcha Jaswanth	21KP1A4477	Patcha apparao	Patcha sukanya	CSE	0.99	20	Data science	2-2	744020413963
28	hemasanjushasanikommu828@gmail.com	hema sanjusha	21KP1A4491	musalareddy	sivaparvathi	CSE	73.00	18	cse	2-2	422314863763
34	sudhamshavejendla@gmail.com	Vejendla Devi Sri Sudhamsha	21KP1A44C4	Vejendla Srinivass Rao	Vejendla Laxmi Prasanna	CSE	70.00	19	Cse- Data Science	2_2	587480445790
37	indhupotla123@gmail.com	indhu priya	21KP1A4483	Lakshmanarayana	Sujatha	CSE	72.00	19	cse	2-2	524345891620
39	jaffershaik718@gmail.com	Jaffer shaik	21KP1A4495	shaik.LaiLaha	shaik.Ramjan bee	CSE	70.00	19	cse	2nd	912229276699
47	saisairam068@gmail.com	Sairam	21kp1a44b4	Venkata subbiah	Ravanamma	CSE	10.00	19	Da	2-2	746109575146

The bar() method draws a vertical bar chart and the barh() method draws a horizontal bar chart of DataFrame df3.

```
df3.plot.bar(color=['indigo','skyblue','darkgreen'])
df3
```

OUTPUT :

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	AADHAAR NO
26	abdulkhadar6842@gmail.com	Shaik.Abdul Khadar	21KP1A4493	Shaik.Kareem	Shaik.Farjana	ECE	8.0	20	20	2-2	334708289154

The bar() method draws a vertical bar chart and the barh() method draws a horizontal bar chart of DataFrame d4.

```
df4.plot.bar(color=['blue','skyblue','purple'])
df4
```

OUTPUT:

	Gmail	STUDENT NAME	ROLL NUMBER	FATHER NAME	MOTHER NAME	COURSE	CGPA	AGE	BRANCH	SEMISTER	UIDAI NO
2	sravankumar7156@gmail.com	Sravan Kumar	21KP1A4488	Rama Chandra Rao	Venkateswaramma	MECH	7.0	20	mech	4	930319053088
8	syedtasleem07@gmail.com	Syed Tasleem Afroze	21KP1A44A9	Syed Rahiman	Syed Naseema	MECH	8.0	19	DS	2-2	617020354793
15	manu952041@gmail.com	Pachipulusu Manohar	21KP1A4472	Pachipulusu Prasad	Pachipulusu Bhavani	MECH	8.5	19	19	2-2	559366114423

Value_counts :The value_counts() function returns an object containing counts of unique values.
Counting the unique values of CGPA of df2

```
x=df2.CGPA.value_counts()
x
```

`

OUTPUT:

```
70.00    2
83.00    1
9.50     1
0.99     1
73.00    1
72.00    1
10.00    1
Name: CGPA, dtype: int64
```

A pie plot is a proportional representation of the numerical data in a column. This function wraps matplotlib.

```
d12=pd.DataFrame({"Result":['pass','Fail'],"vals":[6,30]})
plt.pie(d12["vals"],labels=d12["Result"])
plt.show()
```

OUTPUT:
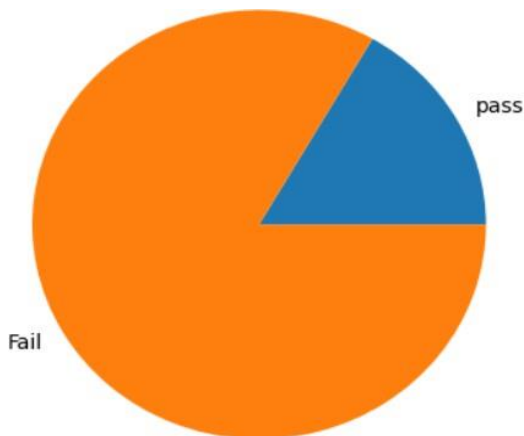

```
b=df1.CGPA.value_counts()
b
```

Counting the unique values of CGPA of df2

```
80.00    7
75.00    4
8.00     3
0.75     2
70.00    2
90.00    2
9.20     2
7.00     2
7.50     2
10.00    2
9.00     1
0.70     1
73.00    1
50.00    1
0.98     1
8.30     1
7.70     1
0.72     1
8.80     1
9.50     1
9.60     1
87.00    1
Name: CGPA, dtype: int64
```

```
d13=pd.DataFrame({"Result":['pass','Fail'],"vals":[1,40]})
plt.pie(d13["vals"],labels=d13["Result"])
plt.show()
```

***visualizing the results of a data frame d13 (pass and fail) by using a pieplot ***

OUTPUT:
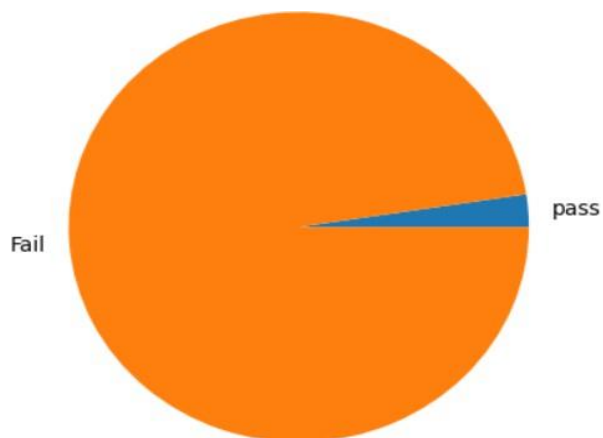

```
d=df4.CGPA.value_counts()
d
```

Counting the unique values of CGPA of df4

8.0 1
8.5 1

```
d22=df.BRANCH.value_counts().head()
d22
```

Counting the unique values of BRANCH of df22

DS   7
Data science   6
CSD   6
Ds   4
cse   3
Name: BRANCH, dtype: int64

```
t=plt.pie(d22,labels=['DS','Data science','CSD','Ds','cse'])
plt.show()
```

***visualizing the BRANCH labels of data frame d22 by using a pieplot ***
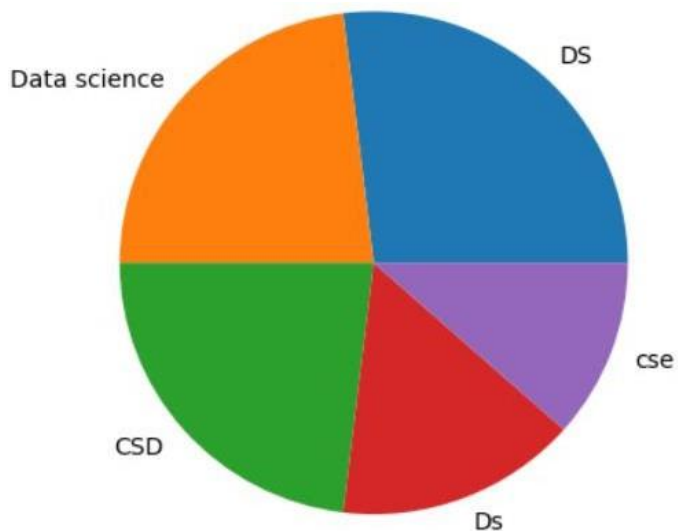
```
t=plt.pie(d22,labels=['DS','Data
science','CSD','Ds','cse'],explode=[0.1,0.1,0.1,0.1,0.1])
plt.show()
```
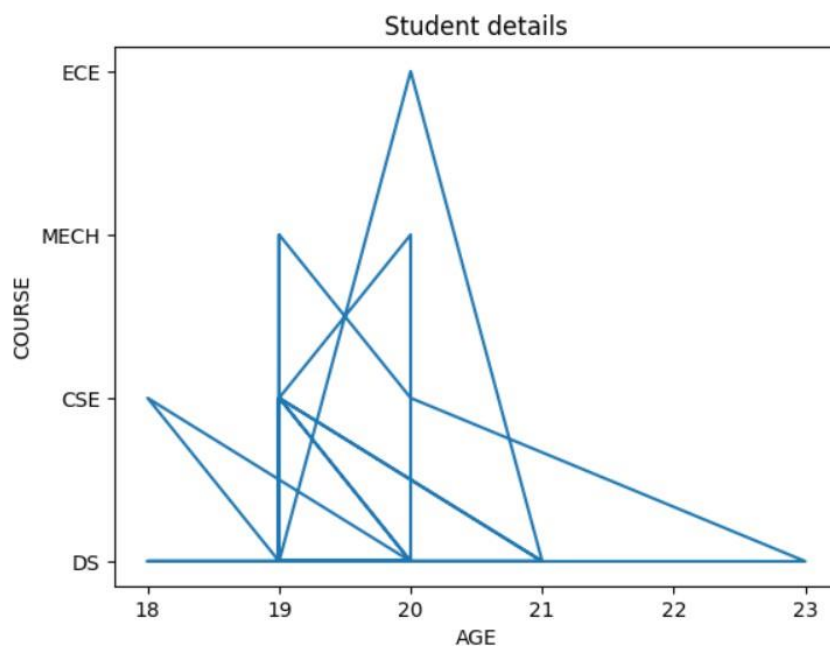
visualizing the BRANCH labels of data frame d22 by using a pieplot and explode (separate) the slices from a pie chart for emphasis
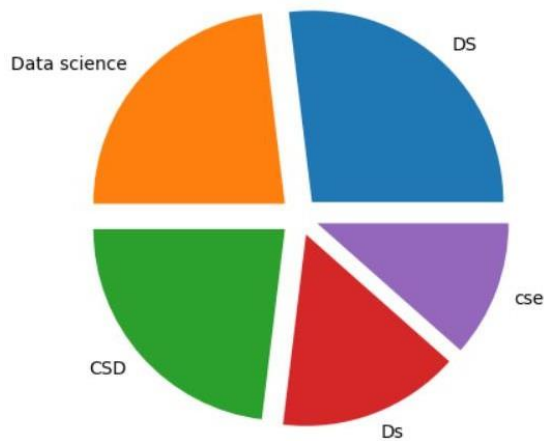
```
plt.plot(df['AGE'],df['COURSE'])
plt.xlabel('AGE')
plt.ylabel('COURSE')
plt.title('Student details')
plt.show()
```
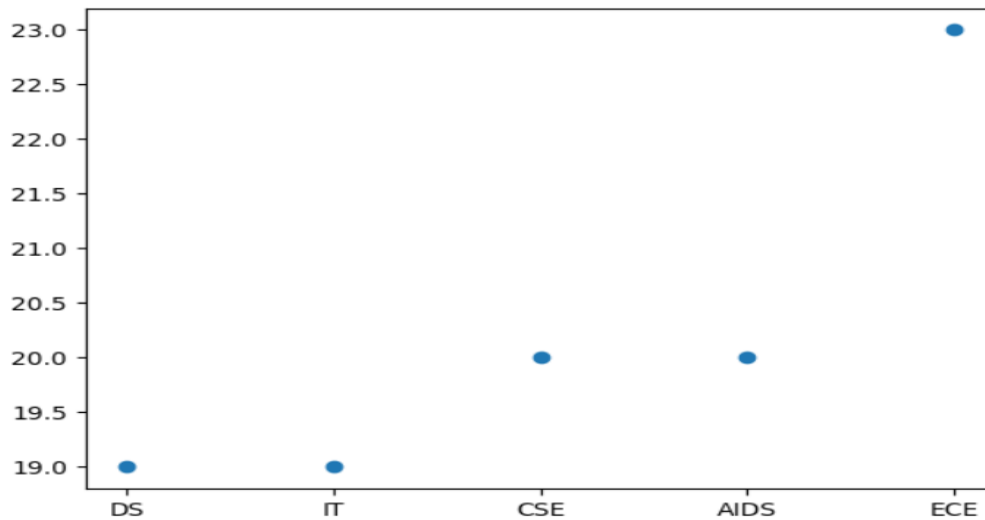
OUTPUT:


```
BRANCH=['DS','IT','CSE','AIDS','ECE']
S=df.AGE.head()
plt.scatter(BRANCH,S)
plt.show()
```

SCATTER PLOT: A scatter plot is a diagram where each value in the data set is represented by a dot.

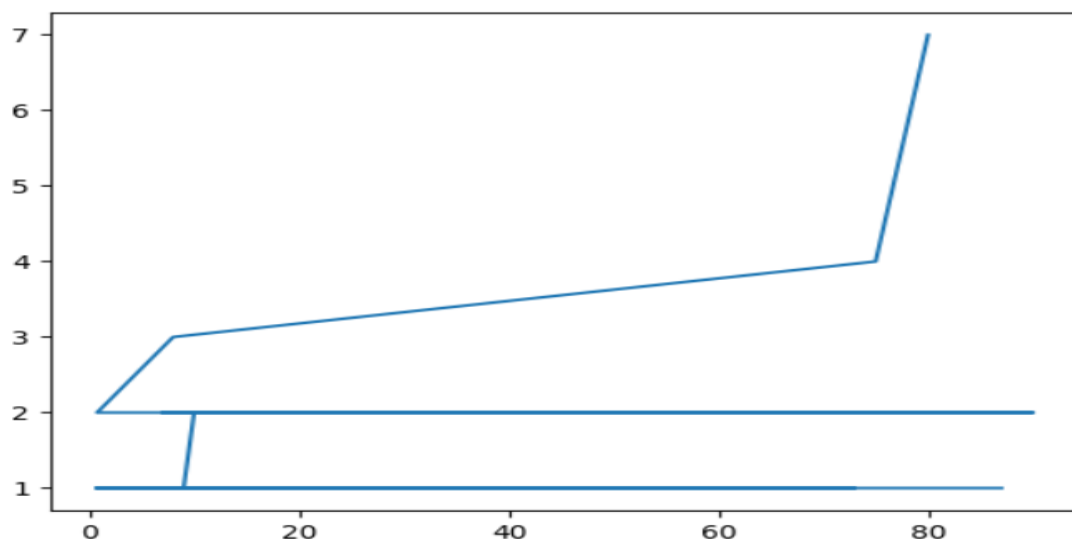*****By using scatterplot plotting the labels of branch*****

```
plt.plot(b)
plt.show()
```

plotting the CGPA values which are in a data frame b

<u>OUTPUT</u>

The output of a "**student database implemented using Python"** can be a comprehensive and organized representation of student information. Utilizing Python's powerful programming capabilities, the output can include details such as student names, IDs, grades, and other relevant data in a structured format. This output might be presented in various forms, such as a text-based report, a spreadsheet, or even a graphical user interface. Python's versatility allows for customization, enabling the display of specific information based on user preferences. Additionally, the output can be designed to facilitate easy analysis and decision-making by incorporating sorting, filtering, and visualization features.

<u>SUMMARY</u>

In conclusion, the implementation of a **"Student database using Python"**, enriched by the capabilities of data analytics, marks a significant stride in modern educational management. This not only ensures the organized storage of student information but also facilitates a nuanced understanding of academic trends through insightful data analysis.

Python's flexibility and efficiency empower educational institutions to tailor the database to their unique needs, while data analytics unveils patterns and correlations that can inform strategic decision-making.