**A PROJECT**

**On**

**STUDENT DATA BASE 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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#### CERTIFICATE

This is to certify that dissertation entitled **“STUDENT DATA BASE ANALYSIS”** submitted by **THOTA SOWJANYA (21KP1A44B6)** in the **BACHELOR OF TECHNOLOGY** from **CS CODENZ** is a record of Bonafide work carried out 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 Assistant professor & HOD

Data science, NRIIT

#### DECLARATION

I **THOTA SOWJANYA (21KP1A44B6)** declared that the dissertation report entitled **“STUDENT DATA BASE ANALYSIS”** 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 , CS CODENZ** 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

The Primary objective of this “**STUDENTS DATABASE ANALYSIS**” is to collecting the student data from different branches and analyse the data and grouping them based on their marks, age, branch and ranking them based on marks and visualizing the data.

The project is mainly for understanding what is Data analysis and visualization. we perform various Data Visualization and Analysis tasks on the taken Student dataset.

### REQUIREMENTS

#### HARDWARE REQUIREMENTS

* Personal Computer / Laptop with minimum RAM (8 GB), ROM (128 GB)
* Processor(i5)
* Good latency internet access
* 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
* Database Access

**FUNCTIONAL** **REQUIREMENTS**

* Data Import and Ingestion
* Data Cleaning and Preprocessing
* Exploratory Data Analysis (EDA)
* Data Visualization
* Model Evaluation and Interpretation
* Feature Engineering

### DESCRIPTION

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.

**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 LIBRARIES AND DATASET-

|  |
| --- |
| 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) |

|  |
| --- |
| +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. 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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. 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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 7O 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 |

|  |
| --- |
| df.info() |

|  |
| --- |
| <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+ KB |

|  |
| --- |
| df.ffill(inplace=True,axis=1) |

**Output** :

|  |
| --- |
| df.isnull().sum() |

|  |
| --- |
| 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 |

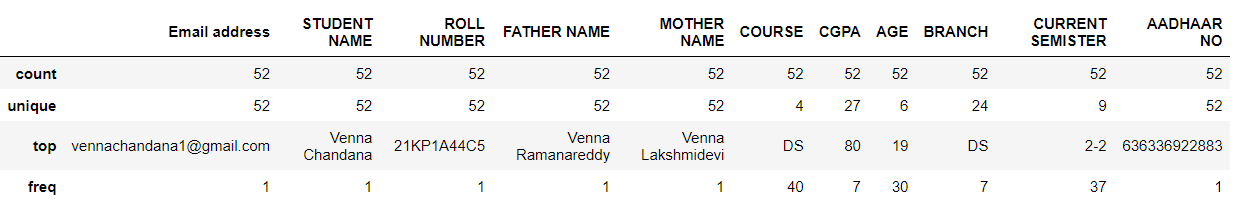
|  |
| --- |
| df.shape |

Output:

(52,11)

|  |
| --- |
| df.describe() |

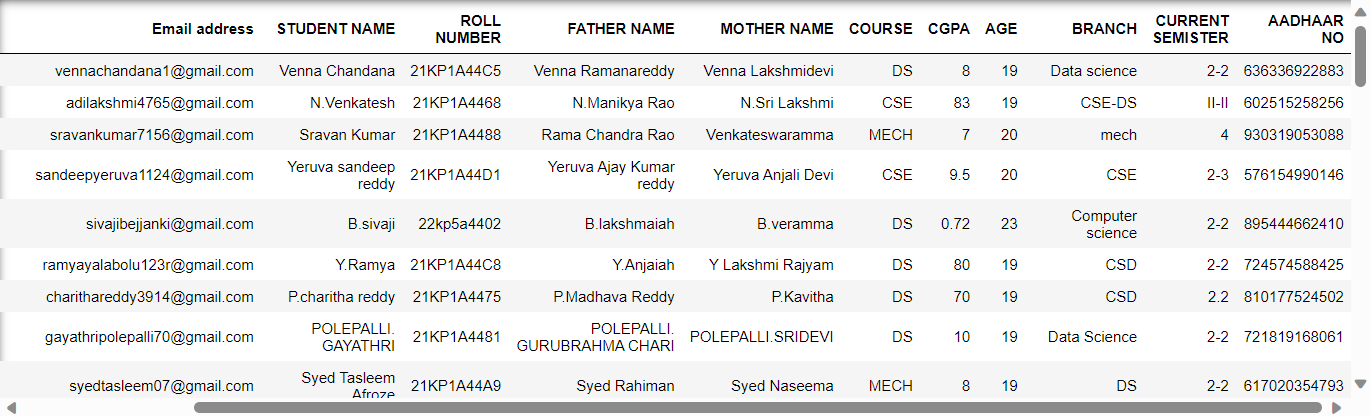
Output:



##### 

|  |
| --- |
| df.replace(['\*\*\*\*\*\*\*\*\*\*\*\*'],'223678754646') |

Output :



**Displaying the column names**-

|  |
| --- |
| df.columns |

**Output:**

Index (['Email address', 'STUDENT NAME', 'ROLL NUMBER', 'FATHER NAME',

'MOTHER NAME', 'COURSE', 'CGPA', 'AGE', 'BRANCH', 'CURRENT SEMISTER',

'AADHAAR NO'],dtype='object')

###### Renaming the columns name-

|  |
| --- |
| df.rename(columns={'Email address':'Gmail','CURRENT SEMISTER':'SEMISTER','AADHAARNO':'UIDAINO'},inplace=True)  print(df.columns) |

**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. 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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. 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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 8.00 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 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  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 |

|  |
| --- |
| 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 UIDAI NO 52 non-null object  dtypes: float64(1), object(10)  memory usage: 4.6+ KB |

|  |
| --- |
| df[(df['CGPA']>8.0)] |

Output:

|  |
| --- |
|  |

|  |
| --- |
| df.nlargest(10,["CGPA"]) |

Output:

|  |
| --- |
|  |

|  |
| --- |
| df.nsmallest(10,['CGPA']) |

Output:

|  |
| --- |
|  |

**Grouping the data based on specific attribute-**

|  |
| --- |
| df1=df.groupby('COURSE').get\_group('DS').sort\_values('COURSE',ascending=True)  df1 |

Output:

|  |
| --- |
|  |

|  |
| --- |
|  |

**Grouping the course attributes:**

|  |
| --- |
| df.groupby('COURSE').get\_group('DS').sort\_values('COURSE')  y=df.groupby('COURSE')  y.first() |

Output:

|  |
| --- |
|  |

**Replacing the values-**

|  |
| --- |
| df.replace(['18h'],18,inplace=True)  print(df) |

|  |
| --- |
| 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. 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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 8.00 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 18 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 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  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 |

|  |
| --- |
| df2=df.groupby('COURSE').get\_group('CSE').sort\_values('COURSE',ascending=True)  df2 |

|  |
| --- |
|  |

|  |
| --- |
| df3=df.groupby('COURSE').get\_group('ECE').sort\_values('COURSE',ascending=True)  df3 |

#### Output:

|  |
| --- |
|  |

|  |
| --- |
| df4=df.groupby('COURSE').get\_group('MECH').sort\_values('COURSE',ascending=True)df4 |

#### Output:

|  |
| --- |
|  |

|  |
| --- |
| df.AGE=df.AGE.astype(int) |

#### Grouping the students based on AGE-

|  |
| --- |
| df5=df.groupby('AGE').get\_group(18)  df5 |

Output:

|  |
| --- |
|  |

|  |
| --- |
| d6=df.groupby('AGE').get\_group(19)  d6 |

Output:

|  |
| --- |
|  |

|  |
| --- |
|  |

|  |
| --- |
| d7=df.groupby('AGE').get\_group(20)  d7 |

Output:

|  |
| --- |
|  |

|  |
| --- |
| d8=df.groupby('AGE').get\_group(21)  d8 |

Output:

|  |
| --- |
|  |

|  |
| --- |
| d9=df.groupby('AGE').get\_group(23)  d9 |

Output:

|  |
| --- |
|  |

**Visualizing the data:**

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

Output:

|  |
| --- |
|  |

**BAR plot**-

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

Output:

|  |
| --- |
|  |

|  |
| --- |
|  |

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

Output:

|  |
| --- |
|  |

|  |
| --- |
|  |

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

Output:

|  |
| --- |
|  |

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

Output:

|  |
| --- |
|  |

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

Output:

|  |
| --- |
|  |

|  |
| --- |
|  |

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

Output:

|  |
| --- |
|  |

|  |
| --- |
|  |

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

Output:

|  |
| --- |
|  |

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

#### Output:

|  |
| --- |
|  |

**Counting the values of CGPA**-

**\*\*\*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 |

**Using DataFrame function and visualizing the data in PIE chart-**

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

Output:

|  |
| --- |
|  |

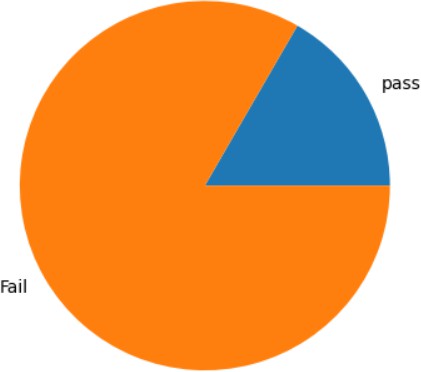
**\*\*\*Counting the unique values of CGPA of df2\*\*\***

|  |
| --- |
| b=df1.CGPA.value\_counts()b |

#### Output:

|  |
| --- |
| 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  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 \*\*\***

#### \*\*\*Counting the unique values of CGPA of df4\*\*\*

|  |
| --- |
| d=df4.CGPA.value\_counts()  d |

Output:

7.0 1

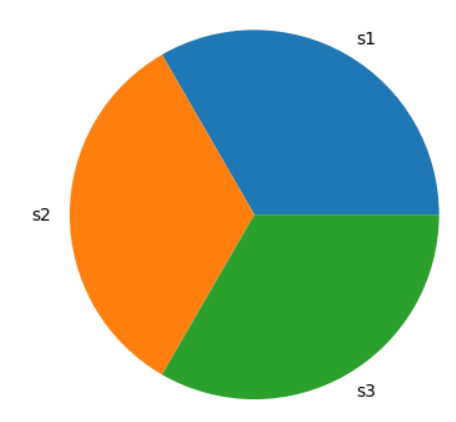
8.0 1

8.5 1

**\*\*\*assigning lables for the pie chart\*\*\***

|  |
| --- |
| e=plt.pie(d,labels=['s1','s2','s3'])  plt.show() |

Output:



**Counting the values based on BRANCH attribute-**

#### \*\*\*Counting the unique values of BRANCH of df22\*\*\*

|  |
| --- |
| d22=df.BRANCH.value\_counts().head()  d22 |

Output:

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 lables of dataframe d22 by using a pieplot \*\*\***

|  |
| --- |
|  |

**Dividing the PIE chart based on the Branch labels-**

|  |
| --- |
|  |

**Plotting the LINE chart according to the data**-

|  |
| --- |
|  |

**Plotting the scatter using scatter() function-**

|  |
| --- |
|  |

|  |
| --- |
|  |

**\*\*\*plotting the CGPA values which are in a data frame b\*\*\***

#### OUTPUT

STUDENT DATA IS ANALYSED USING DATA ANALYTICS USING PYTHON

Student database analysis using data analytics can yield various outputs depending on the objectives of the analysis and the insights derived from the data.

Analysing student data using data analytics can yield valuable insights into various aspects of academic performance, behaviour patterns, and resource allocation.

#### SUMMARY

In this project, we aimed to develop a STUDENT DATABASE ANALYSIS using data analytics, with a focus on time series analysis techniques implemented in Python.

STUDENT DATABASE ANALYSIS using data analytics is a significant issue for many educational landscapes, and analysis is essential to minimize student redundant data.

The student database analysis project leverages Python programming and data analytics techniques to extract valuable insights from a dataset containing student records. The project focuses on understanding factors influencing student performance and behavior, with the aim of informing educational strategies and interventions.