

```
In [107... ##import necessary library
import pandas as pd
```

```
In [107... data = [
['A BHARANI DHARAN', 'ADHIPARASAKTHI ENGINEERING COLLEGE', 'Man', 'Engineering', 'BE(ECE)', '2018', 'Kanchipuram', 'T
['Aarthi J', 'Anjalai Ammal Mahalingam Engineering College', 'Woman', 'Engineering', 'Compute Science and Engineer
['Abhishek R', 'Sri Lakshmi college of management and science', 'Man', 'Others', 'BCA', '2022', 'Bengaluru', 'Karnat
['Adarsh B', 'East West College of Management', 'Man', 'Others', 'MCA', '2023', 'Banglore', 'Karnataka', 'Frontend Deve
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['bijesh', 'Nehru college of management', 'Man', 'Arts & Secience', 'Mca', '2021', 'palakkad', 'kerala', 'Frontend Deve
['Hareesh M', 'Sv university', 'Man', 'Arts & Secience', 'Bsc(Cs)', '2020', 'Tirupati', 'Andhra Pradesh', 'Software Tes
['Harisankaran', 'Manakula Vinayagar Institute of Technology', 'Man', 'Engineering', 'B.Tech', '2023', 'Puducherry', '
['Jusaila P', 'Mes College of engineering kuttippuram', 'Woman', 'Engineering', 'MCA', '2023', 'Malappuram', 'Kerala
['Jyothi', 'CIT gubbi', 'Woman', 'Engineering', 'BE', '2020', 'Tumkur', 'Karnataka', 'Software Testing'],
['K Dilli Babu', 'PVKN GOVERNMENT DEGREE COLLEGE', 'Man', 'Others', 'Bsc statistics', '2018', 'Chittoor', 'Andhraprad
['K.R.Jayasree', 'Saradha Gangadharan College', 'Woman', 'Arts & Secience', 'B.COM', '2021', 'Pondicherry', 'Puducherr
['Karthik Adithya P', 'Bangalore University', 'Man', 'Others', 'MCA', '2023', 'Bangalore', 'Karnataka', 'UI/UX Design']
['Pallar Velchelvi', 'SIWS College', 'Woman', 'Others', 'BSc IT', '2022', 'Mumbai', 'Maharashtra', 'ckend Development']
['Bhuvaneshwari C', 'Government Arts college coimbatore', 'Woman', 'Arts & Secience', 'Msc. Statistics', '2023', 'The
['BOTHY RAJA M', 'SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTANKULATHUR', 'Man', 'Arts & Secience', 'MSC. Informa
['Manoj Kumar', 'Dwaraka Doss Goverdhan Doss Vaishnav College', 'Man', 'Arts & Secience', 'Msc.Computer Science',
['yokesh ashwin v', 'Hindustan college of arts and science', 'Man', 'Arts & Secience', 'Msc.computer science', '2023
['BOTHY RAJA M', 'SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTANKULATHUR', 'Man', 'Arts & Secience', 'MSC. Informa
['Manoj Kumar', 'Dwaraka Doss Goverdhan Doss Vaishnav College', 'Man', 'Arts & Secience', 'Msc.Computer Science',
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['Ramila S', 'G.T.N. Arts College', 'Woman', 'Arts & Secience', 'B.Sc Computer Science', '2023', 'Dindigul', 'Tamilna
['Ramkumar N', 'A.V.C College of Engineering', 'Man', 'Engineering', 'Bachelor of Engineering', '2022', 'Mayiladuthu
['Sivanantham', 'Psv college of engg and technology', 'Man', 'Engineering', 'BE', '2020', 'Krishnagiri', 'Tamilnadu'
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['Tamizhselvan G', 'Annamalai University', 'Man', 'Engineering', 'B.E. Mechanical engineering', '2023', 'Chidambaram'
['Sakthimohan R', '##$2#%', 'Man', 'Arts & Secience', 'B.Sc (Computer Science)', '2017', 'Ramanathapuram', 'Tamilnadu'
['Sakthivel.S', 'University college of engineering, Ariyalur', 'Man', 'Engineering', 'BE(ECE)', '2021', 'Ariyalur', 'Ta
['Samyuktha GS', 'Rajalakshmi Engineering College', 'Woman', 'Engineering', 'Information technology', '2023', 'Chen
['Sangeetha', 'Sri Shakthi Institute of Engineering and Technology', 'Woman', 'Engineering', 'B.E - ECE', '2020', 'C
['SIVA KUMAR M', 'Theni college of arts and science', 'Man', 'Arts & Secience', 'Computer science', '2022', 'Theni'
['Siva Yarramneedi', 'Pragati Engineering College', 'Man', 'Engineering', 'B.Tech', '2023', 'Kakinada', 'Andhrapradesh
['SIVADHARSHINI S K', 'University College of Engineering Nagercoil', 'Woman', 'Engineering', 'B. Tech', '2023', 'Nag
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data
```

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             'ADHIPARASAKTHI ENGINEERING COLLEGE',
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             'Tamilnadu',
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 'Kumbakonam',
 'Tamilnadu',
 'Backend Development'],
['Abhishek R',
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 'Man',
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 'BCA',
 '2022',
 'Bengaluru',
 'Karnataka',
 'HR/Admin'],
['Adarsh B',
 'East West College of Management',
 'Man',
 'Others',
 'MCA',
 '2023',
 'Banglore',
 'Karnataka',
 'Frontend Development'],
['AHEESHA B P',
 'SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE',
 'Man',
 'Others',
 'BCA',
 '2023',
 'BANGALORE',
 'KARNATAKA',
 'Frontend Development'],
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 'Nehru college of management',
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 'Mca',
 '2021',
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 'kerala',
 'Frontend Development'],
['Hareesh M',
 'Sv university',
 'Man',
 'Arts & Secience',
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 '2020',
 'Tirupati',
 'Andhra Pradesh',
 'Software Testing'],
['Harisankaran',
 'Manakula Vinayagar Institute of Technology',
 'Man',
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 'B.Tech',
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 'CIT gubbi',
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 'Tumkur',
 'Karnataka',
 'Software Testing'],
['K Dilli Babu',
 'PVKN GOVERNMENT DEGREE COLLEGE',
 'Man',
 'Others',
 'Bsc statistics',
 '2018',
 'Chittoor',
 'Andhrapradesh',
 'Data Analytics'],
['K.R.Jayasree',
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 'Woman',
 'Arts & Secience',
 'B.COM',
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['Karthik Adithya P',
 'Bangalore University',
 'Man',
 'Others',
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 '2023',
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 'SIWS College',
 'Woman',
 'Others',
 'BSc IT',
 '2022',
 'Mumbai',
 'Maharashtra',
 'ckend Development'],
['Bhuvaneshwari C',
 'Government Arts college coimbatore',
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 'Arts & Secience',
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 '2023',
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 'Tamilnadu',

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'Data Analytics'],
['BOTHY RAJA M',
'SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTANKULATHUR',
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'2023',
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'Graphics Design'],
['Sivanantham',
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'Man',
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'2020',
'Krishnagiri',
'Tamilnadu',
'Frontend Development'],
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'Arts & Secience',
'MCA',
'2023',
'Kumbakonam',

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'Tamil nadu',
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'Tamil nadu',
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['Sangeetha',
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'Woman',
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'B.E - ECE',
'2020',
'Coimbatore',
'Tamilnadu',
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'Theni college of arts and science ',
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'Computer science ',
'2022',
'Theni',
'Tamilnadu ',
'Backend Development'],
['Siva Yarramneedi',
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'Man',
'Engineering',
'B.Tech',
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'Kakinada',
'Andhrapradesh',
'Backend Development'],
['SIVADHARSHINI S K',
'University College of Engineering Nagercoil',
'Woman',
'Engineering',
'B. Tech',
'2023',
'Nagercoil',
'Tamil Nadu',
'Data Analytics']]

```

```

In [107]: df = pd.DataFrame(data, columns = ['Name', 'College Name', 'Gender', 'Qualification', 'Degree', 'Pass-out Year', 'City', 'State', 'Domain'])
df

```

Out[107]:

Name	College Name	Gender	Qualification	Degree	Pass-out	City	State	Domain
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Year									
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Banglore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	bijesh	Nehru college of management	Man	Arts & Scieince	Mca	2021	palakkad	kerala	Frontend Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Scieince	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	ckend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Scieince	Msc. Statistics	2023	Theni	Tamilnadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Scieince	B.Sc Computer Science	2023	Dindigul	Tamilnadu	Frontend Development
22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022	Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020	Krishnagiri	Tamilnadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Scieince	MCA	2023	Kumbakonam	Tamilnadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019	Salem	Tamilnadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023	Chidambaram	Tamilnadu	Data Analytics
27	Sakthimohan R	##\$%2#%	Man	Arts & Scieince	B.Sc (Computer Science)	2017	Ramanathapuram	Tamilnadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021	Ariyalur	Tamil nadu	Backend Development

29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023	Chennai	Tamil nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Sciecnce	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics

```
In [108]: print(df.columns)
```

```
Index(['Name', 'College Name', 'Gender', 'Qualification', 'Degree',
      'Pass-out Year', 'City', 'State', 'Domain'],
      dtype='object')
```

```
In [108]: df.shape
```

```
Out[1081]: (34, 9)
```

```
In [108]: df.size
```

```
Out[1082]: 306
```

```
In [108]: df.ndim
```

```
Out[1083]: 2
```

```
In [108]: df['College Name'] = df['College Name'].replace(r'#\%2#%', np.nan, regex=True)
```

```
print(df)
```

	Name	College Name	\
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	
2	Abhishek R	Sri Lakshmi college of management and science	
3	Adarsh B	East West College of Management	
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	
5	bijesh	Nehru college of management	
6	Hareesh M	Sv university	
7	Harisankaran	Manakula Vinayagar Institute of Technology	
8	Jusaila P	Mes College of engineering kuttippuram	
9	Jyothi	CIT gubbi	
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	
11	K.R.Jayasree	Saradha Gangadharan College	
12	Karthik Adithya P	Bangalore University	
13	Pallar Velchelvi	SIWS College	
14	Bhuvaneshwari C	Government Arts college coimbatore	
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	
17	yokesh ashwin v	Hindustan college of arts and science	
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	
20	yokesh ashwin v	Hindustan college of arts and science	
21	Ramila S	G.T.N. Arts College	
22	Ramkumar N	A.V.C College of Engineering	
23	Sivanantham	Psv college of engg and technology	
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	
25	Tamizharuvi	Muthayamal engineering college	
26	Tamizhselvan G	Annamalai University	
27	Sakthimohan R	NaN	
28	Sakthivel.S	University college of engineering,Ariyalur	
29	Samyuktha GS	Rajalakshmi Engineering College	
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	
31	SIVA KUMAR M	Theni college of arts and science	
32	Siva Yarramneedi	Pragati Engineering College	
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	

	Gender	Qualification	Degree	Pass-out Year	\
0	Man	Engineering	BE(ECE)	2018	
1	Woman	Engineering	Compute Science and Engineering	2018	
2	Man	Others	BCA	2022	
3	Man	Others	MCA	2023	
4	Man	Others	BCA	2023	
5	Man	Arts & Sciecnce	Mca	2021	
6	Man	Arts & Sciecnce	Bsc(Cs)	2020	
7	Man	Engineering	B.Tech	2023	
8	Woman	Engineering	MCA	2023	
9	Woman	Engineering	BE	2020	
10	Man	Others	Bsc statistics	2018	
11	Woman	Arts & Sciecnce	B.COM	2021	
12	Man	Others	MCA	2023	

13	Woman	Others	BSc IT	2022
14	Woman	Arts & Scieince	Msc. Statistics	2023
15	Man	Arts & Scieince	MSC. Information Technology	2023
16	Man	Arts & Scieince	Msc.Computer Science	2022
17	Man	Arts & Scieince	Msc.computer science	2023
18	Man	Arts & Scieince	MSC. Information Technology	2023
19	Man	Arts & Scieince	Msc.Computer Science	2022
20	Man	Arts & Scieince	Msc.computer science	2023
21	Woman	Arts & Scieince	B.Sc Computer Science	2023
22	Man	Engineering	Bachelor of Engineering	2022
23	Man	Engineering	BE	2020
24	Man	Arts & Scieince	MCA	2023
25	Man	Engineering	MCA	2019
26	Man	Engineering	B.E. Mechanical engineering	2023
27	Man	Arts & Scieince	B.Sc (Computer Science)	2017
28	Man	Engineering	BE(ECE)	2021
29	Woman	Engineering	Information technology	2023
30	Woman	Engineering	B.E - ECE	2020
31	Man	Arts & Scieince	Computer science	2022
32	Man	Engineering	B.Tech	2023
33	Woman	Engineering	B. Tech	2023

	City	State	Domain
0	Kanchipuram	Tamilnadu	Data Analytics
1	Kumbakonam	Tamilnadu	Backend Development
2	Bengaluru	Karnataka	HR/Admin
3	Banglore	Karnataka	Frontend Development
4	BANGALORE	KARNATAKA	Frontend Development
5	palakkad	kerala	Frontend Development
6	Tirupati	Andhra Pradesh	Software Testing
7	Puducherry	Puducherry	Data Analytics
8	Malappuram	Kerala	Data Analytics
9	Tumkur	Karnataka	Software Testing
10	Chittoor	Andhrapradesh	Data Analytics
11	Pondicherry	Puducherry	Backend Development
12	Bangalore	Karnataka	UI/UX Design
13	Mumbai	Maharashtra	ckend Development
14	Theni	Tamilnadu	Data Analytics
15	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Chennai	Tamilnadu	Frontend Development
17	chengelpattu	tamil nadu	Backend Development
18	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Chennai	Tamilnadu	Frontend Development
20	chengelpattu	tamil nadu	Backend Development
21	Dindigul	Tamilnadu	Frontend Development
22	Mayiladuthurai	TAMILNADU	Graphics Design
23	Krishnagiri	Tamilnadu	Frontend Development
24	Kumbakonam	Tamilnadu	Data Analytics
25	Salem	Tamilnadu	Frontend Development
26	Chidambaram	Tamilnadu	Data Analytics
27	Ramanathapuram	Tamilnadu	Data Analytics
28	Ariyalur	Tamil nadu	Backend Development
29	Chennai	Tamil nadu	Data Analytics
30	Coimbatore	Tamilnadu	Devops(Cloud)
31	Theni	Tamilnadu	Backend Development
32	Kakinada	Andhrapradesh	Backend Development
33	Nagercoil	Tamil Nadu	Data Analytics

```
In [108]: df = df.applymap(lambda x: np.nan if str(x).strip().lower() == 'none' else x)
```

```
df
```

```
Out[1085]:
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	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Banglore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	bijesh	Nehru college of management	Man	Arts & Scieince	Mca	2021	palakkad	kerala	Frontend Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics

8	Jusaila P	Mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Scieence	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	Backend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Scieence	Msc. Statistics	2023	Theni	Tamilnadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieence	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieence	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieence	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieence	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieence	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieence	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Scieence	B.Sc Computer Science	2023	Dindigul	Tamilnadu	Frontend Development
22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022	Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020	Krishnagiri	Tamilnadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Scieence	MCA	2023	Kumbakonam	Tamilnadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019	Salem	Tamilnadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023	Chidambaram	Tamilnadu	Data Analytics
27	Sakthimohan R	NaN	Man	Arts & Scieence	B.Sc (Computer Science)	2017	Ramanathapuram	Tamilnadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021	Ariyalur	Tamil nadu	Backend Development
29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023	Chennai	Tamil nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Scieence	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics

```
In [108]: df_append = [['Revathi','SIET','Woman','Arts & Scieence','BCA','Before 2016','Chennai','Tamilnadu','Wordpress D
```

```
In [108]: df = df.append(pd.DataFrame(df_append,columns = ['Name','College Name', 'Gender', 'Qualification','Degree', 'P
C:\Users\NANDHINI\AppData\Local\Temp\ipykernel_14344\1838071545.py:1: FutureWarning: The frame.append method is deprecated and will be removed from pandas in a future version. Use pandas.concat instead.
df = df.append(pd.DataFrame(df_append,columns = ['Name','College Name', 'Gender', 'Qualification','Degree', 'Pass-out Year','City','State','Domain']))
```

```
In [108]: df
```


	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Banglore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	bijesh	Nehru college of management	Man	Arts & Scieince	Mca	2021	palakkad	kerala	Frontend Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R..Jayasree	Saradha Gangadharan College	Woman	Arts & Scieince	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	ckend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Scieince	Msc. Statistics	2023	Theni	Tamilnadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Scieince	B.Sc Computer Science	2023	Dindigul	Tamilnadu	Frontend Development
22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022	Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020	Krishnagiri	Tamilnadu	Frontend Development

		and technology							Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Sciecnce	MCA	2023	Kumbakonam	Tamilnadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019	Salem	Tamilnadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023	Chidambaram	Tamilnadu	Data Analytics
27	Sakthimohan R	NaN	Man	Arts & Sciecnce	B.Sc (Computer Science)	2017	Ramanathapuram	Tamilnadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021	Ariyalur	Tamil nadu	Backend Development
29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023	Chennai	Tamil nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Sciecnce	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	SIET	Woman	Arts & Sciecnce	BCA	Before 2016	Chennai	Tamilnadu	Wordpress Development

```
In [108.. # Check for missing values in the entire dataframe
missing_values = df.isnull().sum()

# Print out the missing values count for each column
print(missing_values)

Name      0
College Name  1
Gender      0
Qualification  0
Degree      0
Pass-out Year  0
City        0
State       0
Domain     0
dtype: int64
```

```
In [109.. # Get the data types of each column
data_types = df.dtypes

# Print out the data types
print(data_types)

Name      object
College Name  object
Gender      object
Qualification  object
Degree      object
Pass-out Year  object
City        object
State       object
Domain     object
dtype: object
```

```
In [109.. df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 35 entries, 0 to 0
Data columns (total 9 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Name             35 non-null    object
1   College Name     34 non-null    object
2   Gender           35 non-null    object
3   Qualification     35 non-null    object
4   Degree           35 non-null    object
5   Pass-out Year    35 non-null    object
6   City             35 non-null    object
7   State            35 non-null    object
8   Domain           35 non-null    object
dtypes: object(9)
memory usage: 2.7+ KB
```

```
In [109... df.describe()
```

Out[1092]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
count	35		34	35	35	35	35	35	35
unique	32		31	2	3	23	8	28	14
top	Manoj Kumar	SRM INSITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Secience	MCA	2023	Chennai	Tamilnadu	Data Analytics
freq	2		2	24	15	5	16	4	13

```
In [109... Filter_dataframe = df[(df['Gender'] == "Female") & (df["City"] == 'Chennai')]
Filter_dataframe
```

Out[1093]:

Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
------	--------------	--------	---------------	--------	---------------	------	-------	--------

```
In [109... print(len(Filter_dataframe))
0
```

```
In [109... df['Pass-out Year'].unique()
```

```
Out[1095]: array(['2018', '2022', '2023', '2021', '2020', '2019', '2017',
      'Before 2016'], dtype=object)
```

```
In [109... col_index = 0
```

```
In [109... df['Pass-out Year'] = pd.to_numeric(df['Pass-out Year'], errors = 'coerce').fillna(0,downcast = 'infer')
df['Pass-out Year'].dtypes
```

```
Out[1097]: dtype('int64')
```

```
In [109... df.dtypes
```

```
Out[1098]: Name             object
College Name      object
Gender            object
Qualification      object
Degree            object
Pass-out Year      int64
City              object
State             object
Domain            object
dtype: object
```

```
In [109... df
```

Out[1099]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Banglore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	hitesh	Nehru college of	Man	Arts &	Mca	2021	palakkad	kerala	Frontend

5	Jyothi	management	Woman	Science	MCA	2021	Palakkad	Kerala	Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R..Jayasree	Saradha Gangadharan College	Woman	Arts & Scieince	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	Backend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Scieince	Msc. Statistics	2023	Theni	Tamilnadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Scieince	B.Sc Computer Science	2023	Dindigul	Tamilnadu	Frontend Development
22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022	Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020	Krishnagiri	Tamilnadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Scieince	MCA	2023	Kumbakonam	Tamilnadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019	Salem	Tamilnadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023	Chidambaram	Tamilnadu	Data Analytics
27	Sakthimohan R	NaN	Man	Arts & Scieince	B.Sc (Computer Science)	2017	Ramanathapuram	Tamilnadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021	Ariyalur	Tamil nadu	Backend Development
29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023	Chennai	Tamil nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Scieince	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	SIET	Woman	Arts & Scieince	BCA	0	Chennai	Tamilnadu	Wordpress Development

In [110]

df.head(5)

Out[1100]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Banglore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development

In [110...

```
df.tail(5)
```

Out[1101]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Scieince	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	SIET	Woman	Arts & Scieince	BCA	0	Chennai	Tamilnadu	Wordpress Development

In [110...

```
Value_0 = df[df['Pass-out Year'] == 0]
print(Value_0)
```

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	\
0	Revathi	SIET	Woman	Arts & Scieince	BCA	0	
	City	State					Domain
0	Chennai	Tamilnadu					Wordpress Development

In [110...

```
city = df.City
city
```

Out[1103]:

0	Kanchipuram
1	Kumbakonam
2	Bengaluru
3	Banglore
4	BANGALORE
5	palakkad
6	Tirupati
7	Puducherry
8	Malappuram
9	Tumkur
10	Chittoor
11	Pondicherry
12	Bangalore
13	Mumbai
14	Theni
15	Chengalpattu
16	Chennai
17	chengelpattu
18	Chengalpattu
19	Chennai
20	chengelpattu
21	Dindigul
22	Mayiladuthurai
23	Krishnagiri
24	Kumbakonam
25	Salem
26	Chidambaram
27	Ramanathapuram
28	Ariyalur
29	Chennai
30	Coimbatore
31	Theni
32	Kakinada
33	Nagercoil
0	Chennai

Name: City, dtype: object

In [110...

```
filter_city =df[df['City'].str.startswith('B')]
filter_city
```

Out[1104]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Banglore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design

```
In [110]: if filter_city.iloc[3]["City"] == 'Bangalore':
filter_city.loc[3,'City'] = 'Bengaluru'
```

```
In [110]: df
```

Out[1106]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Banglore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	bijesh	Nehru college of management	Man	Arts & Scieince	Mca	2021	palakkad	kerala	Frontend Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Scieince	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	ckend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Scieince	Msc. Statistics	2023	Theni	Tamilnadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Scieince	B.Sc Computer Science	2023	Dindigul	Tamilnadu	Frontend Development

22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022	Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020	Krishnagiri	Tamilnadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Scieince	MCA	2023	Kumbakonam	Tamilnadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019	Salem	Tamilnadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023	Chidambaram	Tamilnadu	Data Analytics
27	Sakthimohan R	NaN	Man	Arts & Scieince	B.Sc (Computer Science)	2017	Ramanathapuram	Tamilnadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021	Ariyalur	Tamil nadu	Backend Development
29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023	Chennai	Tamil nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Scieince	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	SIET	Woman	Arts & Scieince	BCA	0	Chennai	Tamilnadu	Wordpress Development

In [110]:

df['City'] = df['City'].str.replace(r'^Banglor[eo]\$', 'Bangalore', regex=True)

df

Out[110]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Bangalore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	bijesh	Nehru college of management	Man	Arts & Scieince	Mca	2021	palakkad	kerala	Frontend Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Scieince	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	ckend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Scieince	Msc. Statistics	2023	Theni	Tamilnadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTAK	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)

		KATTA...							
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	chengelpattu	tamil nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Scieince	B.Sc Computer Science	2023	Dindigul	Tamilnadu	Frontend Development
22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022	Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020	Krishnagiri	Tamilnadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Scieince	MCA	2023	Kumbakonam	Tamilnadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019	Salem	Tamilnadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023	Chidambaram	Tamilnadu	Data Analytics
27	Sakthimohan R	NaN	Man	Arts & Scieince	B.Sc (Computer Science)	2017	Ramanathapuram	Tamilnadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021	Ariyalur	Tamil nadu	Backend Development
29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023	Chennai	Tamil nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Scieince	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	SIET	Woman	Arts & Scieince	BCA	0	Chennai	Tamilnadu	Wordpress Development

```
In [110]: df['City'] = df['City'].str.replace('chengelpattu', 'Changalpattu')
df
```

Out[110]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamilnadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamilnadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Bangalore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	bijesh	Nehru college of management	Man	Arts & Scieince	Mca	2021	palakkad	kerala	Frontend Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics

8	Jusaila P	mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Secience	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	ckend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Secience	Msc. Statistics	2023	Theni	Tamilnadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Secience	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Secience	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Secience	Msc.computer science	2023	Changalpattu	tamil nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Secience	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Secience	Msc.Computer Science	2022	Chennai	Tamilnadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Secience	Msc.computer science	2023	Changalpattu	tamil nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Secience	B.Sc Computer Science	2023	Dindigul	Tamilnadu	Frontend Development
22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022	Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020	Krishnagiri	Tamilnadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Secience	MCA	2023	Kumbakonam	Tamilnadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019	Salem	Tamilnadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023	Chidambaram	Tamilnadu	Data Analytics
27	Sakthimohan R	NaN	Man	Arts & Secience	B.Sc (Computer Science)	2017	Ramanathapuram	Tamilnadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021	Ariyalur	Tamil nadu	Backend Development
29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023	Chennai	Tamil nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020	Coimbatore	Tamilnadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Secience	Computer science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	SIET	Woman	Arts & Secience	BCA	0	Chennai	Tamilnadu	Wordpress Development

```
In [110]: chennai_details = df[df['City'] == 'Chennai']
print(chennai_details)
```

	Name	College Name	Gender
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man
29	Samyuktha GS	Rajalakshmi Engineering College	Woman
0	Revathi	SIET	Woman

	Qualification	Degree	Pass-out Year	City
16	Arts & Scieince	Msc.Computer Science	2022	Chennai
19	Arts & Scieince	Msc.Computer Science	2022	Chennai
29	Engineering	Information technology	2023	Chennai
0	Arts & Scieince	BCA	0	Chennai

	State	Domain
16	Tamilnadu	Frontend Development
19	Tamilnadu	Frontend Development
29	Tamil nadu	Data Analytics
0	Tamilnadu	Wordpress Development

```
In [111]: df['State'] = df['State'].str.replace(r'^Tamilnadu$', 'Tamil Nadu', regex=True)
df['State'] = df['State'].str.replace(r'^tamilnadu$', 'Tamil Nadu', regex=True)
df['State'] = df['State'].str.replace(r'^Tamil nadu$', 'Tamil Nadu', regex=True)
df['State'] = df['State'].str.replace(r'^tamil nadu$', 'Tamil Nadu', regex=True)
df
```

Out[110]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A BHARANI DHARAN	ADHIPARASAKTHI ENGINEERING COLLEGE	Man	Engineering	BE(ECE)	2018	Kanchipuram	Tamil Nadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science and Engineering	2018	Kumbakonam	Tamil Nadu	Backend Development
2	Abhishek R	Sri Lakshmi college of management and science	Man	Others	BCA	2022	Bengaluru	Karnataka	HR/Admin
3	Adarsh B	East West College of Management	Man	Others	MCA	2023	Bangalore	Karnataka	Frontend Development
4	AHEESHA B P	SRI LAKSHMI COLLEGE OF MANAGEMENT AND SCIENCE	Man	Others	BCA	2023	BANGALORE	KARNATAKA	Frontend Development
5	bijesh	Nehru college of management	Man	Arts & Scieince	Mca	2021	palakkad	kerala	Frontend Development
6	Hareesh M	Sv university	Man	Arts & Scieince	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College of engineering kuttippuram	Woman	Engineering	MCA	2023	Malappuram	Kerala	Data Analytics
9	Jyothi	CIT gubbi	Woman	Engineering	BE	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	PVKN GOVERNMENT DEGREE COLLEGE	Man	Others	Bsc statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Scieince	B.COM	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	MCA	2023	Bangalore	Karnataka	UI/UX Design
13	Pallar Velchelvi	SIWS College	Woman	Others	BSc IT	2022	Mumbai	Maharashtra	ckend Development
14	Bhuvaneshwari C	Government Arts college coimbatore	Woman	Arts & Scieince	Msc. Statistics	2023	Theni	Tamil Nadu	Data Analytics
15	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamil Nadu	Frontend Development
17	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	Changalpattu	Tamil Nadu	Backend Development
18	BOTHY RAJA M	SRM INSITITUTE OF SCIENCE AND TECHNOLOGY KATTA...	Man	Arts & Scieince	MSC. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Scieince	Msc.Computer Science	2022	Chennai	Tamil Nadu	Frontend Development
20	yokesh ashwin v	Hindustan college of arts and science	Man	Arts & Scieince	Msc.computer science	2023	Changalpattu	Tamil Nadu	Backend Development

21	Ramila S	G.T.N. Arts College	Woman	Arts & Scieince	B.Sc Computer Science	2023		Dindigul	Tamil Nadu	Frontend Development
22	Ramkumar N	A.V.C College of Engineering	Man	Engineering	Bachelor of Engineering	2022		Mayiladuthurai	TAMILNADU	Graphics Design
23	Sivanantham	Psv college of engg and technology	Man	Engineering	BE	2020		Krishnagiri	Tamil Nadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss vaishnav college	Man	Arts & Scieince	MCA	2023		Kumbakonam	Tamil Nadu	Data Analytics
25	Tamizharuvi	Muthayamal engineering college	Man	Engineering	MCA	2019		Salem	Tamil Nadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical engineering	2023		Chidambaram	Tamil Nadu	Data Analytics
27	Sakthimohan R	NaN	Man	Arts & Scieince	B.Sc (Computer Science)	2017		Ramanathapuram	Tamil Nadu	Data Analytics
28	Sakthivel.S	University college of engineering,Ariyalur	Man	Engineering	BE(ECE)	2021		Ariyalur	Tamil Nadu	Backend Development
29	Samyuktha GS	Rajalakshmi Engineering College	Woman	Engineering	Information technology	2023		Chennai	Tamil Nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute of Engineering and Techn...	Woman	Engineering	B.E - ECE	2020		Coimbatore	Tamil Nadu	Devops(Cloud)
31	SIVA KUMAR M	Theni college of arts and science	Man	Arts & Scieince	Computer science	2022		Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023		Kakinada	Andhrapradesh	Backend Development
33	SIVADHARSHINI S K	University College of Engineering Nagercoil	Woman	Engineering	B. Tech	2023		Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	SIET	Woman	Arts & Scieince	BCA	0		Chennai	Tamil Nadu	Wordpress Development

```
In [111]: # Assuming df is your DataFrame
df = df.apply(lambda col: col.astype(str).str.title() if col.dtypes == 'object' else col)
df
```

Out[111]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year		City	State	Domain
0	A Bharani Dharan	Adhiparasakthi Engineering College	Man	Engineering	Be(Ece)	2018		Kanchipuram	Tamil Nadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science And Engineering	2018		Kumbakonam	Tamil Nadu	Backend Development
2	Abhishek R	Sri Lakshmi College Of Management And Science	Man	Others	Bca	2022		Bengaluru	Karnataka	Hr/Admin
3	Adarsh B	East West College Of Management	Man	Others	Mca	2023		Bangalore	Karnataka	Frontend Development
4	Aheesha B P	Sri Lakshmi College Of Management And Science	Man	Others	Bca	2023		Bangalore	Karnataka	Frontend Development
5	Bijesh	Nehru College Of Management	Man	Arts & Scieince	Mca	2021		Palakkad	Kerala	Frontend Development
6	Hareesh M	Sv University	Man	Arts & Scieince	Bsc(Cs)	2020		Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute Of Technology	Man	Engineering	B.Tech	2023		Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College Of Engineering Kuttippuram	Woman	Engineering	Mca	2023		Malappuram	Kerala	Data Analytics
9	Jyothi	Cit Gubbi	Woman	Engineering	Be	2020		Tumkur	Karnataka	Software Testing
10	K Dilli Babu	Pvkn Government Degree College	Man	Others	Bsc Statistics	2018		Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Scieince	B.Com	2021		Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	Mca	2023		Bangalore	Karnataka	Ui/Ux Design
13	Pallar Velchelvi	Siws College	Woman	Others	Bsc It	2022		Mumbai	Maharashtra	Ckend Development
14	Bhuvaneshwari C	Government Arts College Coimbatore	Woman	Arts & Scieince	Msc. Statistics	2023		Theni	Tamil Nadu	Data Analytics

15	Bothy Raja M	Srm Institute Of Science And Technology Katta...	Man	Arts & Seience	Msc. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Seience	Msc.Computer Science	2022	Chennai	Tamil Nadu	Frontend Development
17	Yokesh Ashwin V	Hindustan College Of Arts And Science	Man	Arts & Seience	Msc.Computer Science	2023	Changalpattu	Tamil Nadu	Backend Development
18	Bothy Raja M	Srm Institute Of Science And Technology Katta...	Man	Arts & Seience	Msc. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Seience	Msc.Computer Science	2022	Chennai	Tamil Nadu	Frontend Development
20	Yokesh Ashwin V	Hindustan College Of Arts And Science	Man	Arts & Seience	Msc.Computer Science	2023	Changalpattu	Tamil Nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Seience	B.Sc Computer Science	2023	Dindigul	Tamil Nadu	Frontend Development
22	Ramkumar N	A.V.C College Of Engineering	Man	Engineering	Bachelor Of Engineering	2022	Mayiladuthurai	Tamilnadu	Graphics Design
23	Sivanantham	Psv College Of Engg And Technology	Man	Engineering	Be	2020	Krishnagiri	Tamil Nadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Seience	Mca	2023	Kumbakonam	Tamil Nadu	Data Analytics
25	Tamizharuvi	Muthayamal Engineering College	Man	Engineering	Mca	2019	Salem	Tamil Nadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical Engineering	2023	Chidambaram	Tamil Nadu	Data Analytics
27	Sakthimohan R	Nan	Man	Arts & Seience	B.Sc (Computer Science)	2017	Ramanathapuram	Tamil Nadu	Data Analytics
28	Sakthivel.S	University College Of Engineering,Ariyalur	Man	Engineering	Be(Ece)	2021	Ariyalur	Tamil Nadu	Backend Development
29	Samyuktha Gs	Rajalakshmi Engineering College	Woman	Engineering	Information Technology	2023	Chennai	Tamil Nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute Of Engineering And Techn...	Woman	Engineering	B.E - Ece	2020	Coimbatore	Tamil Nadu	Devops(Cloud)
31	Siva Kumar M	Theni College Of Arts And Science	Man	Arts & Seience	Computer Science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	Sivadharshini S K	University College Of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics
0	Revathi	Siet	Woman	Arts & Seience	Bca	0	Chennai	Tamil Nadu	Wordpress Development

In [111]:

```
df_cleaned = df[df['Pass-out Year']!=0]
df_cleaned
```

Out[1112]:

	Name	College Name	Gender	Qualification	Degree	Pass-out Year	City	State	Domain
0	A Bharani Dharan	Adhiparasakthi Engineering College	Man	Engineering	Be(Ece)	2018	Kanchipuram	Tamil Nadu	Data Analytics
1	Aarthi J	Anjalai Ammal Mahalingam Engineering College	Woman	Engineering	Compute Science And Engineering	2018	Kumbakonam	Tamil Nadu	Backend Development
2	Abhishek R	Sri Lakshmi College Of Management And Science	Man	Others	Bca	2022	Bengaluru	Karnataka	Hr/Admin
3	Adarsh B	East West College Of Management	Man	Others	Mca	2023	Bangalore	Karnataka	Frontend Development
4	Aheesha B P	Sri Lakshmi College Of Management And Science	Man	Others	Bca	2023	Bangalore	Karnataka	Frontend Development
5	Bijesh	Nehru College Of Management	Man	Arts & Seience	Mca	2021	Palakkad	Kerala	Frontend Development
6	Hareesh M	Sv University	Man	Arts & Seience	Bsc(Cs)	2020	Tirupati	Andhra Pradesh	Software Testing
7	Harisankaran	Manakula Vinayagar Institute Of Technology	Man	Engineering	B.Tech	2023	Puducherry	Puducherry	Data Analytics
8	Jusaila P	Mes College Of Engineering Kuttippuram	Woman	Engineering	Mca	2023	Malappuram	Kerala	Data Analytics

9	Jyothi	Cit Gubbi	Woman	Engineering	Be	2020	Tumkur	Karnataka	Software Testing
10	K Dilli Babu	Pvkn Government Degree College	Man	Others	Bsc Statistics	2018	Chittoor	Andhrapradesh	Data Analytics
11	K.R.Jayasree	Saradha Gangadharan College	Woman	Arts & Secience	B.Com	2021	Pondicherry	Puducherry	Backend Development
12	Karthik Adithya P	Bangalore University	Man	Others	Mca	2023	Bangalore	Karnataka	Ui/Ux Design
13	Pallar Velchelvi	Siws College	Woman	Others	Bsc It	2022	Mumbai	Maharashtra	Ckend Development
14	Bhuvaneshwari C	Government Arts College Coimbatore	Woman	Arts & Secience	Msc. Statistics	2023	Theni	Tamil Nadu	Data Analytics
15	Bothy Raja M	Srm Insititute Of Science And Technology Katta...	Man	Arts & Secience	Msc. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
16	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Secience	Msc.Computer Science	2022	Chennai	Tamil Nadu	Frontend Development
17	Yokesh Ashwin V	Hindustan College Of Arts And Science	Man	Arts & Secience	Msc.Computer Science	2023	Changalpattu	Tamil Nadu	Backend Development
18	Bothy Raja M	Srm Insititute Of Science And Technology Katta...	Man	Arts & Secience	Msc. Information Technology	2023	Chengalpattu	Tamil Nadu	Devops(Cloud)
19	Manoj Kumar	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Secience	Msc.Computer Science	2022	Chennai	Tamil Nadu	Frontend Development
20	Yokesh Ashwin V	Hindustan College Of Arts And Science	Man	Arts & Secience	Msc.Computer Science	2023	Changalpattu	Tamil Nadu	Backend Development
21	Ramila S	G.T.N. Arts College	Woman	Arts & Secience	B.Sc Computer Science	2023	Dindigul	Tamil Nadu	Frontend Development
22	Ramkumar N	A.V.C College Of Engineering	Man	Engineering	Bachelor Of Engineering	2022	Mayiladuthurai	Tamilnadu	Graphics Design
23	Sivanantham	Psv College Of Engg And Technology	Man	Engineering	Be	2020	Krishnagiri	Tamil Nadu	Frontend Development
24	Sivasurya S	Dwaraka Doss Goverdhan Doss Vaishnav College	Man	Arts & Secience	Mca	2023	Kumbakonam	Tamil Nadu	Data Analytics
25	Tamizharuvi	Muthayamal Engineering College	Man	Engineering	Mca	2019	Salem	Tamil Nadu	Frontend Development
26	Tamizhselvan G	Annamalai University	Man	Engineering	B.E. Mechanical Engineering	2023	Chidambaram	Tamil Nadu	Data Analytics
27	Sakthimohan R	Nan	Man	Arts & Secience	B.Sc (Computer Science)	2017	Ramanathapuram	Tamil Nadu	Data Analytics
28	Sakthivel.S	University College Of Engineering,Ariyalur	Man	Engineering	Be(Ece)	2021	Ariyalur	Tamil Nadu	Backend Development
29	Samyuktha Gs	Rajalakshmi Engineering College	Woman	Engineering	Information Technology	2023	Chennai	Tamil Nadu	Data Analytics
30	Sangeetha	Sri Shakthi Institute Of Engineering And Techn...	Woman	Engineering	B.E - Ece	2020	Coimbatore	Tamil Nadu	Devops(Cloud)
31	Siva Kumar M	Theni College Of Arts And Science	Man	Arts & Secience	Computer Science	2022	Theni	Tamilnadu	Backend Development
32	Siva Yarramneedi	Pragati Engineering College	Man	Engineering	B.Tech	2023	Kakinada	Andhrapradesh	Backend Development
33	Sivadarshini S K	University College Of Engineering Nagercoil	Woman	Engineering	B. Tech	2023	Nagercoil	Tamil Nadu	Data Analytics

```
In [111]: total=len(df["Gender"])
total
```

```
Out[1113]: 35
```

```
In [111]: gender_Bool = df[df['Gender'] == 'Woman', 'Man'].groupby('Gender').size()
gender_bool
```

```
-----
TypeError                                Traceback (most recent call last)
File ~\anaconda3\Lib\site-packages\pandas\core\indexes\base.py:3802, in Index.get_loc(self, key, method, tolerance)
    3801 try:
-> 3802     return self._engine.get_loc(casted_key)
    3803 except KeyError as err:

File ~\anaconda3\Lib\site-packages\pandas\_libs\index.pyx:138, in pandas._libs.index.IndexEngine.get_loc()
```

File ~\anaconda3\Lib\site-packages\pandas_libs\index.pyx:144, in pandas._libs.index.IndexEngine.get_loc()

TypeError: '(0 False

```
1      True
2      False
3      False
4      False
5      False
6      False
7      False
8      True
9      True
10     False
11     True
12     False
13     True
14     True
15     False
16     False
17     False
18     False
19     False
20     False
21     True
22     False
23     False
24     False
25     False
26     False
27     False
28     False
29     True
30     True
31     False
32     False
33     True
0      True
```

Name: Gender, dtype: bool, 'Man')' is an invalid key

During handling of the above exception, another exception occurred:

InvalidIndexError Traceback (most recent call last)

Cell In[1114], line 1

```
----> 1 gender_Bool = df[df['Gender'] == 'Woman', 'Man'].groupby('Gender').size()
      2 gender_bool
```

File ~\anaconda3\Lib\site-packages\pandas\core\frame.py:3807, in DataFrame.__getitem__(self, key)

```
3805 if self.columns.nlevels > 1:
3806     return self._getitem_multilevel(key)
-> 3807 indexer = self.columns.get_loc(key)
3808 if is_integer(indexer):
3809     indexer = [indexer]
```

File ~\anaconda3\Lib\site-packages\pandas\core\indexes\base.py:3809, in Index.get_loc(self, key, method, tolerance)

```
3804         raise KeyError(key) from err
3805     except TypeError:
3806         # If we have a listlike key, _check_indexing_error will raise
3807         # InvalidIndexError. Otherwise we fall through and re-raise
3808         # the TypeError.
-> 3809     self._check_indexing_error(key)
3810     raise
3812 # GH#42269
```

File ~\anaconda3\Lib\site-packages\pandas\core\indexes\base.py:5925, in Index._check_indexing_error(self, key)

```
5921 def _check_indexing_error(self, key):
5922     if not is_scalar(key):
5923         # if key is not a scalar, directly raise an error (the code below
5924         # would convert to numpy arrays and raise later any way) - GH29926
-> 5925     raise InvalidIndexError(key)
```

InvalidIndexError: (0 False

```
1      True
2      False
3      False
4      False
5      False
6      False
7      False
8      True
9      True
10     False
11     True
12     False
13     True
14     True
15     False
16     False
17     False
```

```

18     False
19     False
20     False
21     True
22     False
23     False
24     False
25     False
26     False
27     False
28     False
29     True
30     True
31     False
32     False
33     True
0     True
Name: Gender, dtype: bool, 'Man')

```

```

In [111]: gender_count = df[df['Gender']=='Woman'].groupby("Gender").size()
print(gender_count)

```

```

Gender
Woman    11
dtype: int64

```

```

In [111]: gender_count = df[df['Gender']=='Man'].groupby("Gender").size()
print(gender_count)

```

```

Gender
Man      24
dtype: int64

```

```

In [111]: print(df.City.unique())

```

```

['Kanchipuram' 'Kumbakonam' 'Bengaluru' 'Bangalore' 'Palakkad' 'Tirupati'
 'Puducherry' 'Malappuram' 'Tumkur' 'Chittoor' 'Pondicherry' 'Mumbai'
 'Theni' 'Chengalpattu' 'Chennai' 'Changalpattu' 'Dindigul'
 'Mayiladuthurai' 'Krishnagiri' 'Salem' 'Chidambaram' 'Ramanathapuram'
 'Ariyalur' 'Coimbatore' 'Kakinada' 'Nagercoil']

```

```

In [111]: unique_city = df['City'].value_counts()
unique_city

```

```

Out[1118]: Chennai      4
Bangalore      3
Chengalpattu    2
Changalpattu    2
Theni           2
Kumbakonam     2
Kakinada       1
Coimbatore     1
Ariyalur       1
Ramanathapuram 1
Chidambaram    1
Salem          1
Krishnagiri    1
Mayiladuthurai 1
Dindigul       1
Kanchipuram    1
Mumbai         1
Pondicherry    1
Chittoor       1
Tumkur         1
Malappuram     1
Puducherry     1
Tirupati       1
Palakkad       1
Bengaluru      1
Nagercoil      1
Name: City, dtype: int64

```

```

In [111]: total_counts = len(unique_city)
total_counts

```

```

Out[1119]: 26

```

```

In [112]: df['Pass-out Year'].value_counts()

```

```

Out[1120]: 2023      16
2022       6
2020       4
2018       3
2021       3
2019       1
2017       1
0          1
Name: Pass-out Year, dtype: int64

```

```

In [112]: print("Mode year : %.2f " %df['Pass-out Year'].mode())

```

```
Mode year : 2023.00
```

```
In [112...] df['Pass-out Year'].count()
```

```
Out[1122]: 35
```

```
In [112...] df['Pass-out Year'].median()
```

```
Out[1123]: 2022.0
```

```
In [112...] df['Pass-out Year'].min()
```

```
Out[1124]: 0
```

```
In [112...] df['Pass-out Year'].max()
```

```
Out[1125]: 2023
```

```
In [112...] df['Pass-out Year'].abs()
```

```
Out[1126]: 0      2018
1      2018
2      2022
3      2023
4      2023
5      2021
6      2020
7      2023
8      2023
9      2020
10     2018
11     2021
12     2023
13     2022
14     2023
15     2023
16     2022
17     2023
18     2023
19     2022
20     2023
21     2023
22     2022
23     2020
24     2023
25     2019
26     2023
27     2017
28     2021
29     2023
30     2020
31     2022
32     2023
33     2023
0      0
Name: Pass-out Year, dtype: int64
```

```
In [112...] df['Pass-out Year'].std()
```

```
Out[1127]: 341.71055863457445
```

```
In [112...] df['Pass-out Year'].var()
```

```
Out[1128]: 116766.10588235295
```

```
In [112...] df['Pass-out Year'].quantile()
```

```
Out[1129]: 2022.0
```

```
In [113...] a=[35,40,15,30]
np.cumsum(a)
```

```
Out[1130]: array([ 35,  75,  90, 120])
```

```
In [113...] quantiles = df['Pass-out Year'].quantile([0.25, 0.5, 0.75])
print(quantiles)
```

```
0.25    2020.0
0.50    2022.0
0.75    2023.0
Name: Pass-out Year, dtype: float64
```

```
In [113...] ##DATA WRANGLING ----> 1. Merging Data, 2. Concatenation
```



```
In [113]: # create dataframe using Dictionary
data_1 = {"Roll no":["110301","110302","110303","110304","110305"],
          "Name":["sam","lily","joe","ben","thomas"],
          "Marks":["38","33","41","29","35"]}
data_2 = {"Roll no":["110301","110302","110303","110304","18055"],
          "Course":["BCS","BCA","MCA","MBA","BTech"],
          "Fees":["28000","22000","16950","19250","200000"]}
DF = pd.DataFrame(data_1)
DF1 = pd.DataFrame(data_2)
print(DF1)
# use merge to add data
Data_Merge = pd.merge(DF,DF1, on="Roll no")
Data_Merge
```

	Roll no	Course	Fees
0	110301	BCS	28000
1	110302	BCA	22000
2	110303	MCA	16950
3	110304	MBA	19250
4	18055	BTech	200000

```
Out[113]:
```

	Roll no	Name	Marks	Course	Fees
0	110301	sam	38	BCS	28000
1	110302	lily	33	BCA	22000
2	110303	joe	41	MCA	16950
3	110304	ben	29	MBA	19250

```
In [113]: Data_Concatenate = pd.concat([DF,DF1],keys = ['ONE','Two'])
Data_Concatenate
```

```
Out[1134]:
```

		Roll no	Name	Marks	Course	Fees
ONE	0	110301	sam	38	NaN	NaN
	1	110302	lily	33	NaN	NaN
	2	110303	joe	41	NaN	NaN
	3	110304	ben	29	NaN	NaN
	4	110305	thomas	35	NaN	NaN
Two	0	110301	NaN	NaN	BCS	28000
	1	110302	NaN	NaN	BCA	22000
	2	110303	NaN	NaN	MCA	16950
	3	110304	NaN	NaN	MBA	19250
	4	18055	NaN	NaN	BTech	200000

```
In [113]: #Time series
D = pd.to_datetime('2021-01-10 5:06 PM')
print(pd.to_datetime('2021-01-10 5:06 PM'))
print("DAY : ",D.day)
print("MONTH : ",D.month)
print("YEAR : ",D.year)
```

```
2021-01-10 17:06:00
DAY : 10
MONTH : 1
YEAR : 2021
```

```
In [113]: import math
def abs(x):
    if x>0:
        return x
    else:
        return(-x)

y = pd.Series(10*np.random.randn(5))
print("Original values:")
print(y)
D_F = pd.DataFrame(y)
D_F = D_F.applymap(abs)

print("CHanged Values: ")
print(D_F)
```

```
Original values:
0 -12.885648
1 -7.302042
2 -11.738987
3 0.417865
4 -0.843678
dtype: float64
CHanged Values:
0
0 12.885648
1 7.302042
2 11.738987
3 0.417865
4 0.843678
```

```
In [113...] import numpy as np
```

```
In [113...] a = np.array([1,3,5])
b = np.array([2,1,3])
c = np.array([6,2,1])
print(a)
print(b)
print(c)
```

```
[1 3 5]
[2 1 3]
[6 2 1]
```

```
In [113...] #numpy.arange([start][stop][step ]
import numpy as np
arange_np = np.arange(5,50,5)
print(arange_np)
```

```
[ 5 10 15 20 25 30 35 40 45]
```

```
In [114...] Two_arr = np.array([[1,2,3],[4,5,6],[7,8,9]])
print("Two array:", Two_arr)
One_arr = Two_arr.ravel()
One_arr
```

```
Two array: [[1 2 3]
[4 5 6]
[7 8 9]]
```

```
Out[1140]: array([1, 2, 3, 4, 5, 6, 7, 8, 9])
```

```
In [114...] index = np.where(One_arr==6)
print("index of 6: ",index)

index of 6: (array([5], dtype=int64),)
```

```
In [114...] print("Original array:", Two_arr)

# Resize the array to 4x4
arr_resize = np.resize(Two_arr, (4, 4))

print("Resized array:")
print(arr_resize)
```

```
Original array: [[1 2 3]
[4 5 6]
[7 8 9]]
Resized array:
[[1 2 3 4]
[5 6 7 8]
[9 1 2 3]
[4 5 6 7]]
```

```
In [114...] Ver_Stack = np.vstack([a,b])
print("Vertical Stack:\n",Ver_Stack)
Her_Stack = np.hstack([a,b])
print("Horizpntal Stack:\n", Her_Stack)
```

```
Vertical Stack:
[[1 3 5]
[2 1 3]]
Horizpntal Stack:
[1 3 5 2 1 3]
```

```
In [114...] arr = np.array([[1, 2, 3], [4, 5, 6], [7, 8, 9], [4,2,5], [6,2,8], [9,3,2]])
print("mean", np.mean(arr))
print("median",np.median(arr))
print("sum",np.sum(arr))
print("minimum",np.min(arr))
print("maximum",np.max(arr))
print("correlation coefficient",np.corrcoef(arr))
print("standard deviation",np.std(arr))
```

```

mean 4.777777777777778
median 4.5
sum 86
minimum 1
maximum 9
correlation coefficient [[ 1.          1.          1.          0.32732684  0.32732684 -0.92447345]
 [ 1.          1.          1.          0.32732684  0.32732684 -0.92447345]
 [ 1.          1.          1.          0.32732684  0.32732684 -0.92447345]
 [ 0.32732684  0.32732684  0.32732684  1.          1.          0.05763904]
 [ 0.32732684  0.32732684  0.32732684  1.          1.          0.05763904]
 [-0.92447345 -0.92447345 -0.92447345  0.05763904  0.05763904  1.          ]]
standard deviation 2.5507200629442215

```

```

In [114...] Two_Dim_arr = np.arange(1,10).reshape((3,3))
print("Two Dimensional Array is:\n",Two_Dim_arr)

```

```

Two Dimensional Array is:
[[1 2 3]
 [4 5 6]
 [7 8 9]]

```

```

In [114...] arange_np

```

```

Out[1146]: array([ 5, 10, 15, 20, 25, 30, 35, 40, 45])

```

```

In [114...] # print every second element from index
print(arange_np[1::2])
#reverse order
print(arange_np[::-1])
#print 4 index
print(arange_np[4:])

```

```

[10 15 20 25 30 35 40 45]
[45 40 35 30 25 20 15 10  5]
[25 30 35 40 45]

```

```

In [114...] matrix1 = np.matrix('3,4;5,6')
matrix2 = np.matrix('4,6;8,2')

# Use multiple operator to multiply two matrices
print(matrix1 * matrix2)
#same result(* equals to @)
print(matrix1 @ matrix2)

```

```

[[44 26]
 [68 42]]
[[44 26]
 [68 42]]

```

```

In [114...] ##Square the given value
def square( item_list ):
    squares = [ ]
    for l in item_list:
        squares.append( l**2 )
    return squares

# calling the function
my_list = [17, 52, 8];
my_result = square( my_list )
print( "Squares of the list are: ", my_result )

```

```

Squares of the list are:  [289, 2704, 64]

```

```

In [115...] ## difference of list array and python array
#@Need to have the same size of the array for nesting,@Can apply direct arithmetic operation, @Cannot contain e
import array
a = array.array('i', [1, 2, 3])
for i in a:
    print(i, end=' ')

```

```

1 2 3

```

```

In [115...] #Variable size nesting is possible, @contain elements of different types, @Variable size nesting is possible
import numpy as np
list_array = np.array([1, 2, 3, 'nan'])

```

```

In [115...] #Half pyrmid withnum.
for i in range(1,6):
    for j in range(1,i+1):
        print(j,end=' ')
    print()

```

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```

```

In [115...] #seq no.

```

```
for i in range(1,6):
    for j in range(i):
        print(i, end = ' ')
    print()
```

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

In [115... *#instaead of i we can use symbol to show*

```
for i in range(1,6):
    for j in range(i):
        print('*!*', end = ' ')
    print()
```

```
*!*
*!* *!*
*!* *!* *!*
*!* *!* *!* *!*
*!* *!* *!* *!* *!*
```

In [115... *#reverse*

```
for i in range(5,0,-1):
    for j in range(i):
        print(i, end = ' ')
    print()
```

```
5 5 5 5 5
4 4 4 4
3 3 3
2 2
1
```

In [115... *#reverse the sybol*

```
for i in range(5,0,-1):
    for j in range(i):
        print("@*", end = ' ')
    print()
```

```
@* @* @* @* @*
@* @* @* @*
@* @* @*
@* @*
@*
```

In [115... *#full pyramid*

```
for i in range(5):
    for s in range(-6,-i):
        print(' ',end=' ')
    for j in range(i+1):
        print("***", end = ' ')
    print()
```

```
***
*** ***
*** *** ***
*** *** *** ***
*** *** *** *** ***
```

In [115... *# Display the Fibonacci sequence up to n-th term ##A Fibonacci sequence is the integer sequence of 0, 1, 1, 2, .*

```
nterms = int(input("How many terms? "))

# first two terms
n1, n2 = 0, 1
count = 0

# check if the number of terms is valid
if nterms <= 0:
    print("Please enter a positive integer")
# if there is only one term, return n1
elif nterms == 1:
    print("Fibonacci sequence upto",nterms,":")
    print(n1)
# generate fibonacci sequence
else:
    print("Fibonacci sequence:")
    while count < nterms:
        print(n1)
        nth = n1 + n2
        # update values
        n1 = n2
        n2 = nth
        count += 1
```

How many terms? 11
Fibonacci sequence:
0
1
1
2
3
5
8
13
21
34
55

```
In [115.. #Printing odd number in tuple
tuple_ = (3, 4, 6, 21, 9, 2, 3, 8, 9, 7,11,25,34)

for value in tuple_:
    if value % 2 != 0:
        print(value)
else:
    print("These are the odd numbers present in the tuple")
```

3
21
9
3
9
7
11
25
These are the odd numbers present in the tuple

```
In [116.. # finding a factorial of a number #2*2*2*2*2*2*2
num = int(input("Enter a number: "))
factorial = 1
if num < 0:
    print("Sorry, factorial does not exist for negative numbers")
elif num == 0:
    print("The factorial of 0 is 1")
else:
    for i in range(1,num + 1):
        factorial = factorial*i
    print("The factorial of",num,"is",factorial)
# 5040
```

Enter a number: 8
The factorial of 8 is 40320