

Case_study_notebook

March 3, 2022

1 Libraries

```
[24]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

import warnings
warnings.filterwarnings("ignore")
```

2 Dataset

```
[26]: gdp_current_price = pd.read_csv("Gross Domestic Product (GDP) at Current Price.
→csv")
```

```
[28]: gdp_current_price
```

```
[28]:
```

	Items Description	Duration	Andhra Pradesh	\
0	(% Growth over previous year)	2013-14	12.85	
1	(% Growth over previous year)	2014-15	13.40	
2	(% Growth over previous year)	2015-16	15.85	
3	(% Growth over previous year)	2016-17	14.65	
4	GSDP - CURRENT PRICES (` in Crore)	2011-12	379402.00	
5	GSDP - CURRENT PRICES (` in Crore)	2012-13	411404.00	
6	GSDP - CURRENT PRICES (` in Crore)	2013-14	464272.00	
7	GSDP - CURRENT PRICES (` in Crore)	2014-15	526468.00	
8	GSDP - CURRENT PRICES (` in Crore)	2015-16	609934.00	
9	GSDP - CURRENT PRICES (` in Crore)	2016-17	699307.00	

	Arunachal Pradesh	Assam	Bihar	Chhattisgarh	Goa	Gujarat	\
0	16.38	13.31	12.30	16.44	-5.77	11.47	
1	14.79	11.45	17.92	13.69	13.12	10.82	
2	12.07	13.19	10.59	10.98	10.75	11.09	
3	NaN	NaN	NaN	11.26	NaN	NaN	
4	11063.00	143175.00	247144.00	158074.00	42367.00	615606.00	
5	12547.00	156864.00	282368.00	177511.00	38120.00	724495.00	
6	14602.00	177745.00	317101.00	206690.00	35921.00	807623.00	
7	16761.00	198098.00	373920.00	234982.00	40633.00	895027.00	

8	18784.00	224234.00	413503.00	260776.00	45002.00	994316.00
9	NaN	NaN	NaN	290140.00	NaN	NaN

	Haryana	...	Telangana	Tripura	Uttar Pradesh	Uttarakhand	\
0	15.45	...	12.63	18.14	14.73	13.64	
1	9.18	...	13.05	15.92	10.51	8.12	
2	10.91	...	12.61	NaN	10.58	13.65	
3	12.82	...	13.67	NaN	NaN	NaN	
4	297539.00	...	359433.00	19208.00	724049.00	115523.00	
5	347032.00	...	401493.00	21663.00	822903.00	131835.00	
6	400662.00	...	452186.00	25593.00	944146.00	149817.00	
7	437462.00	...	511178.00	29667.00	1043371.00	161985.00	
8	485184.00	...	575631.00	NaN	1153795.00	184091.00	
9	547396.00	...	654294.00	NaN	NaN	NaN	

	West Bengal	1	Andaman & Nicobar Islands	Chandigarh	Delhi	Puducherry	\
0	NaN		16.68	14.71	13.43	15.87	
1	NaN		10.89	12.33	10.96	10.14	
2	NaN		NaN	8.84	12.09	10.15	
3	NaN		NaN	NaN	12.76	11.40	
4	NaN		3979.00	18768.00	343767.00	16818.00	
5	NaN		4421.00	21609.00	391238.00	18875.00	
6	NaN		5159.00	24787.00	443783.00	21870.00	
7	NaN		5721.00	27844.00	492424.00	24089.00	
8	NaN		NaN	30304.00	551963.00	26533.00	
9	NaN		NaN	NaN	622385.00	29557.00	

	All_India GDP
0	12.97
1	10.65
2	9.99
3	11.52
4	8736039.00
5	9946636.00
6	11236635.00
7	12433749.00
8	13675331.00
9	15251028.00

[10 rows x 36 columns]

```
[30]: pd.pivot_table(gdp_current_price, index=['Items Description', 'Duration'])
```

```
[30]:
```

	All_India GDP	\
Items Description	Duration	
(% Growth over previous year)	2013-14	12.97
	2014-15	10.65

	2015-16	9.99
	2016-17	11.52
GSDP - CURRENT PRICES (` in Crore)	2011-12	8736039.00
	2012-13	9946636.00
	2013-14	11236635.00
	2014-15	12433749.00
	2015-16	13675331.00
	2016-17	15251028.00

Andaman & Nicobar Islands \

Items Description	Duration	
(% Growth over previous year)	2013-14	16.68
	2014-15	10.89
	2015-16	NaN
	2016-17	NaN
GSDP - CURRENT PRICES (` in Crore)	2011-12	3979.00
	2012-13	4421.00
	2013-14	5159.00
	2014-15	5721.00
	2015-16	NaN
	2016-17	NaN

Andhra Pradesh \

Items Description	Duration	
(% Growth over previous year)	2013-14	12.85
	2014-15	13.40
	2015-16	15.85
	2016-17	14.65
GSDP - CURRENT PRICES (` in Crore)	2011-12	379402.00
	2012-13	411404.00
	2013-14	464272.00
	2014-15	526468.00
	2015-16	609934.00
	2016-17	699307.00

Arunachal Pradesh Assam \

Items Description	Duration		
(% Growth over previous year)	2013-14	16.38	13.31
	2014-15	14.79	11.45
	2015-16	12.07	13.19
	2016-17	NaN	NaN
GSDP - CURRENT PRICES (` in Crore)	2011-12	11063.00	143175.00
	2012-13	12547.00	156864.00
	2013-14	14602.00	177745.00
	2014-15	16761.00	198098.00
	2015-16	18784.00	224234.00
	2016-17	NaN	NaN

Items Description	Duration	Bihar	Chandigarh \
(% Growth over previous year)	2013-14	12.30	14.71
	2014-15	17.92	12.33
	2015-16	10.59	8.84
	2016-17	NaN	NaN
GSDP - CURRENT PRICES (` in Crore)	2011-12	247144.00	18768.00
	2012-13	282368.00	21609.00
	2013-14	317101.00	24787.00
	2014-15	373920.00	27844.00
	2015-16	413503.00	30304.00
	2016-17	NaN	NaN

Items Description	Duration	Chhattisgarh	Delhi \
(% Growth over previous year)	2013-14	16.44	13.43
	2014-15	13.69	10.96
	2015-16	10.98	12.09
	2016-17	11.26	12.76
GSDP - CURRENT PRICES (` in Crore)	2011-12	158074.00	343767.00
	2012-13	177511.00	391238.00
	2013-14	206690.00	443783.00
	2014-15	234982.00	492424.00
	2015-16	260776.00	551963.00
	2016-17	290140.00	622385.00

Items Description	Duration	Goa ...	Odisha \
(% Growth over previous year)	2013-14	-5.77 ...	12.95
	2014-15	13.12 ...	10.37
	2015-16	10.75 ...	6.19
	2016-17	NaN ...	10.85
GSDP - CURRENT PRICES (` in Crore)	2011-12	42367.00 ...	227872.00
	2012-13	38120.00 ...	258275.00
	2013-14	35921.00 ...	291709.00
	2014-15	40633.00 ...	321971.00
	2015-16	45002.00 ...	341887.00
	2016-17	NaN ...	378991.00

Items Description	Duration	Puducherry	Punjab	Rajasthan \
(% Growth over previous year)	2013-14	15.87	12.42	11.27
	2014-15	10.14	9.95	11.37
	2015-16	10.15	NaN	NaN
	2016-17	11.40	NaN	NaN
GSDP - CURRENT PRICES (` in Crore)	2011-12	16818.00	266628.00	436465.00

	2012-13	18875.00	297734.00	494004.00
	2013-14	21870.00	334714.00	549701.00
	2014-15	24089.00	368011.00	612194.00
	2015-16	26533.00	NaN	NaN
	2016-17	29557.00	NaN	NaN
		Sikkim	Tamil Nadu	Telangana \
Items Description	Duration			
(% Growth over previous year)	2013-14	12.35	13.51	12.63
	2014-15	9.72	12.51	13.05
	2015-16	9.39	10.99	12.61
	2016-17	NaN	10.40	13.67
GSDP - CURRENT PRICES (` in Crore)	2011-12	11165.00	751485.00	359433.00
	2012-13	12338.00	855481.00	401493.00
	2013-14	13862.00	971090.00	452186.00
	2014-15	15209.00	1092564.00	511178.00
	2015-16	16637.00	1212668.00	575631.00
	2016-17	NaN	1338766.00	654294.00
		Tripura	Uttar Pradesh	\
Items Description	Duration			
(% Growth over previous year)	2013-14	18.14	14.73	
	2014-15	15.92	10.51	
	2015-16	NaN	10.58	
	2016-17	NaN	NaN	
GSDP - CURRENT PRICES (` in Crore)	2011-12	19208.00	724049.00	
	2012-13	21663.00	822903.00	
	2013-14	25593.00	944146.00	
	2014-15	29667.00	1043371.00	
	2015-16	NaN	1153795.00	
	2016-17	NaN	NaN	
		Uttarakhand		
Items Description	Duration			
(% Growth over previous year)	2013-14	13.64		
	2014-15	8.12		
	2015-16	13.65		
	2016-17	NaN		
GSDP - CURRENT PRICES (` in Crore)	2011-12	115523.00		
	2012-13	131835.00		
	2013-14	149817.00		
	2014-15	161985.00		
	2015-16	184091.00		
	2016-17	NaN		

[10 rows x 33 columns]

```
[32]: gdp_current_price=gdp_current_price.drop(gdp_current_price.index[[3,9]])
      gdp_current_price
```

```
[32]:
```

	Items Description	Duration	Andhra Pradesh	\
0	(% Growth over previous year)	2013-14	12.85	
1	(% Growth over previous year)	2014-15	13.40	
2	(% Growth over previous year)	2015-16	15.85	
4	GSDP - CURRENT PRICES (` in Crore)	2011-12	379402.00	
5	GSDP - CURRENT PRICES (` in Crore)	2012-13	411404.00	
6	GSDP - CURRENT PRICES (` in Crore)	2013-14	464272.00	
7	GSDP - CURRENT PRICES (` in Crore)	2014-15	526468.00	
8	GSDP - CURRENT PRICES (` in Crore)	2015-16	609934.00	

	Arunachal Pradesh	Assam	Bihar	Chhattisgarh	Goa	Gujarat	\
0	16.38	13.31	12.30	16.44	-5.77	11.47	
1	14.79	11.45	17.92	13.69	13.12	10.82	
2	12.07	13.19	10.59	10.98	10.75	11.09	
4	11063.00	143175.00	247144.00	158074.00	42367.00	615606.00	
5	12547.00	156864.00	282368.00	177511.00	38120.00	724495.00	
6	14602.00	177745.00	317101.00	206690.00	35921.00	807623.00	
7	16761.00	198098.00	373920.00	234982.00	40633.00	895027.00	
8	18784.00	224234.00	413503.00	260776.00	45002.00	994316.00	

	Haryana	...	Telangana	Tripura	Uttar Pradesh	Uttarakhand	\
0	15.45	...	12.63	18.14	14.73	13.64	
1	9.18	...	13.05	15.92	10.51	8.12	
2	10.91	...	12.61	NaN	10.58	13.65	
4	297539.00	...	359433.00	19208.00	724049.00	115523.00	
5	347032.00	...	401493.00	21663.00	822903.00	131835.00	
6	400662.00	...	452186.00	25593.00	944146.00	149817.00	
7	437462.00	...	511178.00	29667.00	1043371.00	161985.00	
8	485184.00	...	575631.00	NaN	1153795.00	184091.00	

	West Bengal	Andaman & Nicobar Islands	Chandigarh	Delhi	Puducherry	\
0	NaN		16.68	14.71	13.43	15.87
1	NaN		10.89	12.33	10.96	10.14
2	NaN		NaN	8.84	12.09	10.15
4	NaN		3979.00	18768.00	343767.00	16818.00
5	NaN		4421.00	21609.00	391238.00	18875.00
6	NaN		5159.00	24787.00	443783.00	21870.00
7	NaN		5721.00	27844.00	492424.00	24089.00
8	NaN		NaN	30304.00	551963.00	26533.00

	All_India GDP
0	12.97
1	10.65
2	9.99

```

4      8736039.00
5      9946636.00
6      11236635.00
7      12433749.00
8      13675331.00

```

[8 rows x 36 columns]

```
[34]: gdp_current_price.info()
```

```
<class 'pandas.core.frame.DataFrame'>
```

```
Int64Index: 8 entries, 0 to 8
```

```
Data columns (total 36 columns):
```

#	Column	Non-Null Count	Dtype
0	Items Description	8 non-null	object
1	Duration	8 non-null	object
2	Andhra Pradesh	8 non-null	float64
3	Arunachal Pradesh	8 non-null	float64
4	Assam	8 non-null	float64
5	Bihar	8 non-null	float64
6	Chhattisgarh	8 non-null	float64
7	Goa	8 non-null	float64
8	Gujarat	8 non-null	float64
9	Haryana	8 non-null	float64
10	Himachal Pradesh	6 non-null	float64
11	Jammu & Kashmir	8 non-null	float64
12	Jharkhand	8 non-null	float64
13	Karnataka	8 non-null	float64
14	Kerala	8 non-null	float64
15	Madhya Pradesh	8 non-null	float64
16	Maharashtra	6 non-null	float64
17	Manipur	6 non-null	float64
18	Meghalaya	8 non-null	float64
19	Mizoram	6 non-null	float64
20	Nagaland	6 non-null	float64
21	Odisha	8 non-null	float64
22	Punjab	6 non-null	float64
23	Rajasthan	6 non-null	float64
24	Sikkim	8 non-null	float64
25	Tamil Nadu	8 non-null	float64
26	Telangana	8 non-null	float64
27	Tripura	6 non-null	float64
28	Uttar Pradesh	8 non-null	float64
29	Uttarakhand	8 non-null	float64
30	West Bengal	0 non-null	float64
31	Andaman & Nicobar Islands	6 non-null	float64
32	Chandigarh	8 non-null	float64

```

33 Delhi                        8 non-null    float64
34 Puducherry                  8 non-null    float64
35 All_India GDP                8 non-null    float64
dtypes: float64(34), object(2)
memory usage: 2.3+ KB

```

```

[36]: #index_to_drop=gdp_current_price.index[((gdp_current_price["Items_
      ↳Description"]=='(% Growth over previous year)')
      #                & (gdp_current_price["Duration"]=="2016-17"))]

```

```

[38]: #gdp_current_price.drop(index_to_drop)

```

```

[40]: gdp_current_price

```

```

[40]:
      Items Description Duration  Andhra Pradesh \
0      (% Growth over previous year) 2013-14      12.85
1      (% Growth over previous year) 2014-15      13.40
2      (% Growth over previous year) 2015-16      15.85
4  GSDP - CURRENT PRICES (` in Crore) 2011-12    379402.00
5  GSDP - CURRENT PRICES (` in Crore) 2012-13    411404.00
6  GSDP - CURRENT PRICES (` in Crore) 2013-14    464272.00
7  GSDP - CURRENT PRICES (` in Crore) 2014-15    526468.00
8  GSDP - CURRENT PRICES (` in Crore) 2015-16    609934.00

      Arunachal Pradesh      Assam      Bihar  Chhattisgarh      Goa      Gujarat \
0      16.38      13.31      12.30      16.44      -5.77      11.47
1      14.79      11.45      17.92      13.69      13.12      10.82
2      12.07      13.19      10.59      10.98      10.75      11.09
4    11063.00  143175.00  247144.00    158074.00  42367.00  615606.00
5    12547.00  156864.00  282368.00    177511.00  38120.00  724495.00
6    14602.00  177745.00  317101.00    206690.00  35921.00  807623.00
7    16761.00  198098.00  373920.00    234982.00  40633.00  895027.00
8    18784.00  224234.00  413503.00    260776.00  45002.00  994316.00

      Haryana ...      Telangana      Tripura  Uttar Pradesh  Uttarakhand \
0      15.45 ...      12.63      18.14      14.73      13.64
1       9.18 ...      13.05      15.92      10.51       8.12
2     10.91 ...      12.61       NaN      10.58      13.65
4  297539.00 ...  359433.00  19208.00    724049.00  115523.00
5  347032.00 ...  401493.00  21663.00    822903.00  131835.00
6  400662.00 ...  452186.00  25593.00    944146.00  149817.00
7  437462.00 ...  511178.00  29667.00   1043371.00  161985.00
8  485184.00 ...  575631.00       NaN   1153795.00  184091.00

      West Bengal1  Andaman & Nicobar Islands  Chandigarh      Delhi  Puducherry \
0           NaN           16.68           14.71      13.43      15.87
1           NaN           10.89           12.33      10.96      10.14

```


2	NaN	NaN	8.84	12.09	10.15
4	NaN	3979.00	18768.00	343767.00	16818.00
5	NaN	4421.00	21609.00	391238.00	18875.00
6	NaN	5159.00	24787.00	443783.00	21870.00
7	NaN	5721.00	27844.00	492424.00	24089.00
8	NaN	NaN	30304.00	551963.00	26533.00

```

All_India GDP
0      12.97
1      10.65
2       9.99
4    8736039.00
5    9946636.00
6   11236635.00
7   12433749.00
8   13675331.00

```

[8 rows x 36 columns]

```
[42]: column_attributes=list(gdp_current_price.columns)
      column_attributes
```

```
[42]: ['Items Description',
      'Duration',
      'Andhra Pradesh',
      'Arunachal Pradesh',
      'Assam',
      'Bihar',
      'Chhattisgarh',
      'Goa',
      'Gujarat',
      'Haryana',
      'Himachal Pradesh',
      'Jammu & Kashmir',
      'Jharkhand',
      'Karnataka',
      'Kerala',
      'Madhya Pradesh',
      'Maharashtra',
      'Manipur',
      'Meghalaya',
      'Mizoram',
      'Nagaland',
      'Odisha',
      'Punjab',
      'Rajasthan',
      'Sikkim',
```

```

'Tamil Nadu',
'Telangana',
'Tripura',
'Uttar Pradesh',
'Uttarakhand',
'West Bengal',
'Andaman & Nicobar Islands',
'Chandigarh',
'Delhi',
'Puducherry',
'All_India GDP']

```

```

[44]: del(column_attributes[0])
      # Items Description removed

```

```

[46]: del(column_attributes[0])
      # duration removed

```

```

[48]: states=column_attributes
      states

```

```

[48]: ['Andhra Pradesh',
      'Arunachal Pradesh',
      'Assam',
      'Bihar',
      'Chhattisgarh',
      'Goa',
      'Gujarat',
      'Haryana',
      'Himachal Pradesh',
      'Jammu & Kashmir',
      'Jharkhand',
      'Karnataka',
      'Kerala',
      'Madhya Pradesh',
      'Maharashtra',
      'Manipur',
      'Meghalaya',
      'Mizoram',
      'Nagaland',
      'Odisha',
      'Punjab',
      'Rajasthan',
      'Sikkim',
      'Tamil Nadu',
      'Telangana',
      'Tripura',

```

```
'Uttar Pradesh',
'Uttarakhand',
'West Bengal',
'Andaman & Nicobar Islands',
'Chandigarh',
'Delhi',
'Puducherry',
'All_India GDP']
```

```
[50]: state_mean={}
for column in gdp_current_price:
    if column in states:
        mean=gdp_current_price[gdp_current_price["Items Description"]=="(%_
↳Growth over previous year)"][column].mean()
        state_mean[column]=mean
state_mean["Items Description"]="Average growth rate"
gdp_current_price=gdp_current_price.append(state_mean,ignore_index=True)
```

```
[52]: gdp_current_price
```

```
[52]:
```

	Items Description	Duration	Andhra Pradesh	\
0	(% Growth over previous year)	2013-14	12.850000	
1	(% Growth over previous year)	2014-15	13.400000	
2	(% Growth over previous year)	2015-16	15.850000	
3	GSDP - CURRENT PRICES (` in Crore)	2011-12	379402.000000	
4	GSDP - CURRENT PRICES (` in Crore)	2012-13	411404.000000	
5	GSDP - CURRENT PRICES (` in Crore)	2013-14	464272.000000	
6	GSDP - CURRENT PRICES (` in Crore)	2014-15	526468.000000	
7	GSDP - CURRENT PRICES (` in Crore)	2015-16	609934.000000	
8	Average growth rate	NaN	14.033333	

	Arunachal Pradesh	Assam	Bihar	Chhattisgarh	Goa	\
0	16.380000	13.31	12.300000	16.440000	-5.770000	
1	14.790000	11.45	17.920000	13.690000	13.120000	
2	12.070000	13.19	10.590000	10.980000	10.750000	
3	11063.000000	143175.00	247144.000000	158074.000000	42367.000000	
4	12547.000000	156864.00	282368.000000	177511.000000	38120.000000	
5	14602.000000	177745.00	317101.000000	206690.000000	35921.000000	
6	16761.000000	198098.00	373920.000000	234982.000000	40633.000000	
7	18784.000000	224234.00	413503.000000	260776.000000	45002.000000	
8	14.413333	12.65	13.603333	13.703333	6.033333	

	Gujarat	Haryana	...	Telangana	Tripura	Uttar Pradesh	\
0	11.470000	15.450000	...	12.630000	18.14	14.73	
1	10.820000	9.180000	...	13.050000	15.92	10.51	
2	11.090000	10.910000	...	12.610000	NaN	10.58	
3	615606.000000	297539.000000	...	359433.000000	19208.00	724049.00	

4	724495.000000	347032.000000	...	401493.000000	21663.00	822903.00
5	807623.000000	400662.000000	...	452186.000000	25593.00	944146.00
6	895027.000000	437462.000000	...	511178.000000	29667.00	1043371.00
7	994316.000000	485184.000000	...	575631.000000	NaN	1153795.00
8	11.126667	11.846667	...	12.763333	17.03	11.94

	Uttarakhand	West Bengal	Andaman & Nicobar Islands	Chandigarh	\
0	13.640000	NaN	16.680	14.71	
1	8.120000	NaN	10.890	12.33	
2	13.650000	NaN	NaN	8.84	
3	115523.000000	NaN	3979.000	18768.00	
4	131835.000000	NaN	4421.000	21609.00	
5	149817.000000	NaN	5159.000	24787.00	
6	161985.000000	NaN	5721.000	27844.00	
7	184091.000000	NaN	NaN	30304.00	
8	11.803333	NaN	13.785	11.96	

	Delhi	Puducherry	All_India GDP
0	13.43	15.870000	1.297000e+01
1	10.96	10.140000	1.065000e+01
2	12.09	10.150000	9.990000e+00
3	343767.00	16818.000000	8.736039e+06
4	391238.00	18875.000000	9.946636e+06
5	443783.00	21870.000000	1.123664e+07
6	492424.00	24089.000000	1.243375e+07
7	551963.00	26533.000000	1.367533e+07
8	12.16	12.053333	1.120333e+01

[9 rows x 36 columns]

```
[54]: gdp_current_price=gdp_current_price.iloc[[2,7,8],:]
      gdp_current_price
```

```
[54]:
```

	Items Description	Duration	Andhra Pradesh	\
2	(% Growth over previous year)	2015-16	15.850000	
7	GSDP - CURRENT PRICES (` in Crore)	2015-16	609934.000000	
8	Average growth rate	NaN	14.033333	

	Arunachal Pradesh	Assam	Bihar	Chhattisgarh	Goa	\
2	12.070000	13.19	10.590000	10.980000	10.750000	
7	18784.000000	224234.00	413503.000000	260776.000000	45002.000000	
8	14.413333	12.65	13.603333	13.703333	6.033333	

	Gujarat	Haryana	...	Telangana	Tripura	Uttar Pradesh	\
2	11.090000	10.910000	...	12.610000	NaN	10.58	
7	994316.000000	485184.000000	...	575631.000000	NaN	1153795.00	
8	11.126667	11.846667	...	12.763333	17.03	11.94	

	Uttarakhand	West Bengal	All India	Andaman & Nicobar Islands	Chandigarh	\
2	13.650000		NaN	NaN	8.84	
7	184091.000000		NaN	NaN	30304.00	
8	11.803333		NaN	13.785	11.96	

	Delhi	Puducherry	All_India GDP
2	12.09	10.150000	9.990000e+00
7	551963.00	26533.000000	1.367533e+07
8	12.16	12.053333	1.120333e+01

[3 rows x 36 columns]

[56]: gdp=gdp_current_price.T

[58]: gdp

[58]:

Items Description	(% Growth over previous year)
Duration	2015-16
Andhra Pradesh	15.85
Arunachal Pradesh	12.07
Assam	13.19
Bihar	10.59
Chhattisgarh	10.98
Goa	10.75
Gujarat	11.09
Haryana	10.91
Himachal Pradesh	NaN
Jammu & Kashmir	17.91
Jharkhand	11.44
Karnataka	11.42
Kerala	11.85
Madhya Pradesh	12.86
Maharashtra	NaN
Manipur	NaN
Meghalaya	9.58
Mizoram	NaN
Nagaland	NaN
Odisha	6.19
Punjab	NaN
Rajasthan	NaN
Sikkim	9.39
Tamil Nadu	10.99
Telangana	12.61
Tripura	NaN
Uttar Pradesh	10.58

Uttarakhand	13.65
West Bengal1	NaN
Andaman & Nicobar Islands	NaN
Chandigarh	8.84
Delhi	12.09
Puducherry	10.15
All_India GDP	9.99

	7 \
Items Description	GSDP - CURRENT PRICES (` in Crore)
Duration	2015-16
Andhra Pradesh	609934.0
Arunachal Pradesh	18784.0
Assam	224234.0
Bihar	413503.0
Chhattisgarh	260776.0
Goa	45002.0
Gujarat	994316.0
Haryana	485184.0
Himachal Pradesh	NaN
Jammu & Kashmir	118387.0
Jharkhand	241955.0
Karnataka	1027068.0
Kerala	588337.0
Madhya Pradesh	543975.0
Maharashtra	NaN
Manipur	NaN
Meghalaya	26745.0
Mizoram	NaN
Nagaland	NaN
Odisha	341887.0
Punjab	NaN
Rajasthan	NaN
Sikkim	16637.0
Tamil Nadu	1212668.0
Telangana	575631.0
Tripura	NaN
Uttar Pradesh	1153795.0
Uttarakhand	184091.0
West Bengal1	NaN
Andaman & Nicobar Islands	NaN
Chandigarh	30304.0
Delhi	551963.0
Puducherry	26533.0
All_India GDP	13675331.0

Items Description	Average growth rate
Duration	NaN
Andhra Pradesh	14.033333
Arunachal Pradesh	14.413333
Assam	12.65
Bihar	13.603333
Chhattisgarh	13.703333
Goa	6.033333
Gujarat	11.126667
Haryana	11.846667
Himachal Pradesh	12.28
Jammu & Kashmir	10.9
Jharkhand	11.5
Karnataka	14.12
Kerala	12.583333
Madhya Pradesh	12.626667
Maharashtra	11.26
Manipur	14.61
Meghalaya	6.953333
Mizoram	17.7
Nagaland	16.415
Odisha	9.836667
Punjab	11.185
Rajasthan	11.32
Sikkim	10.486667
Tamil Nadu	12.336667
Telangana	12.763333
Tripura	17.03
Uttar Pradesh	11.94
Uttarakhand	11.803333
West Bengal1	NaN
Andaman & Nicobar Islands	13.785
Chandigarh	11.96
Delhi	12.16
Puducherry	12.053333
All_India GDP	11.203333

```
[60]: gdp.columns=gdp.iloc[0]
```

```
[62]: gdp=gdp[1:]
```

```
[64]: gdp=gdp[1:]
```

```
[66]: gdp
```

```
[66]: Items Description      (% Growth over previous year) \
      Andhra Pradesh              15.85
```

Arunachal Pradesh	12.07
Assam	13.19
Bihar	10.59
Chhattisgarh	10.98
Goa	10.75
Gujarat	11.09
Haryana	10.91
Himachal Pradesh	NaN
Jammu & Kashmir	17.91
Jharkhand	11.44
Karnataka	11.42
Kerala	11.85
Madhya Pradesh	12.86
Maharashtra	NaN
Manipur	NaN
Meghalaya	9.58
Mizoram	NaN
Nagaland	NaN
Odisha	6.19
Punjab	NaN
Rajasthan	NaN
Sikkim	9.39
Tamil Nadu	10.99
Telangana	12.61
Tripura	NaN
Uttar Pradesh	10.58
Uttarakhand	13.65
West Bengal	NaN
Andaman & Nicobar Islands	NaN
Chandigarh	8.84
Delhi	12.09
Puducherry	10.15
All_India GDP	9.99

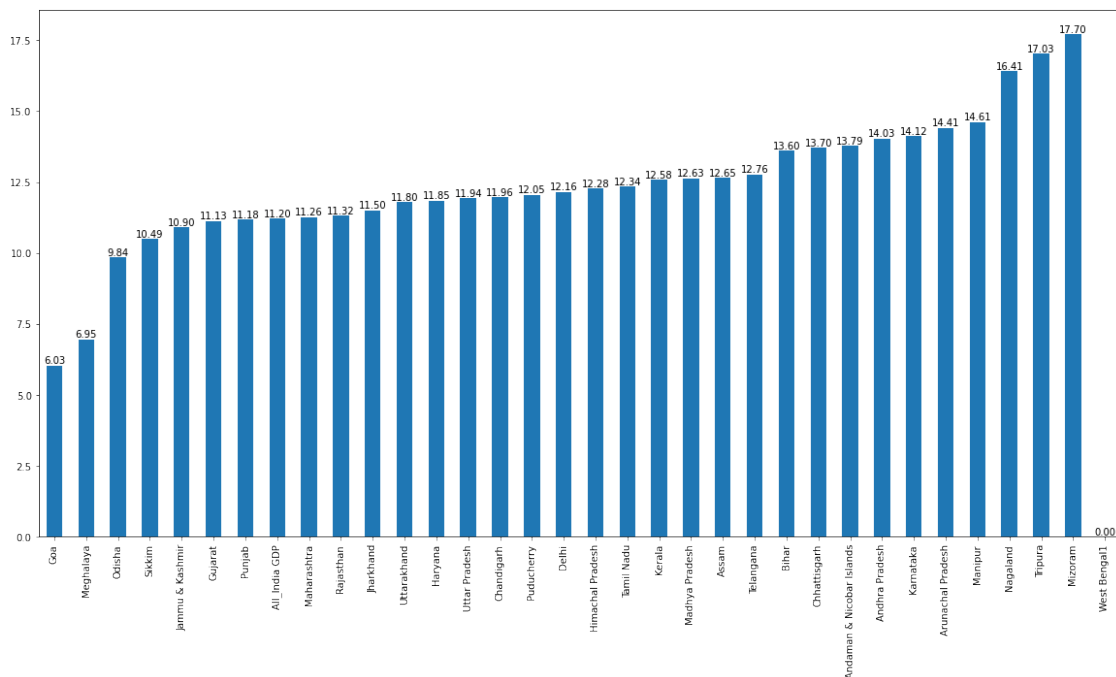
Items Description	GSDP - CURRENT PRICES (` in Crore) \
Andhra Pradesh	609934.0
Arunachal Pradesh	18784.0
Assam	224234.0
Bihar	413503.0
Chhattisgarh	260776.0
Goa	45002.0
Gujarat	994316.0
Haryana	485184.0
Himachal Pradesh	NaN
Jammu & Kashmir	118387.0
Jharkhand	241955.0
Karnataka	1027068.0

Kerala	588337.0
Madhya Pradesh	543975.0
Maharashtra	NaN
Manipur	NaN
Meghalaya	26745.0
Mizoram	NaN
Nagaland	NaN
Odisha	341887.0
Punjab	NaN
Rajasthan	NaN
Sikkim	16637.0
Tamil Nadu	1212668.0
Telangana	575631.0
Tripura	NaN
Uttar Pradesh	1153795.0
Uttarakhand	184091.0
West Bengal1	NaN
Andaman & Nicobar Islands	NaN
Chandigarh	30304.0
Delhi	551963.0
Puducherry	26533.0
All_India GDP	13675331.0

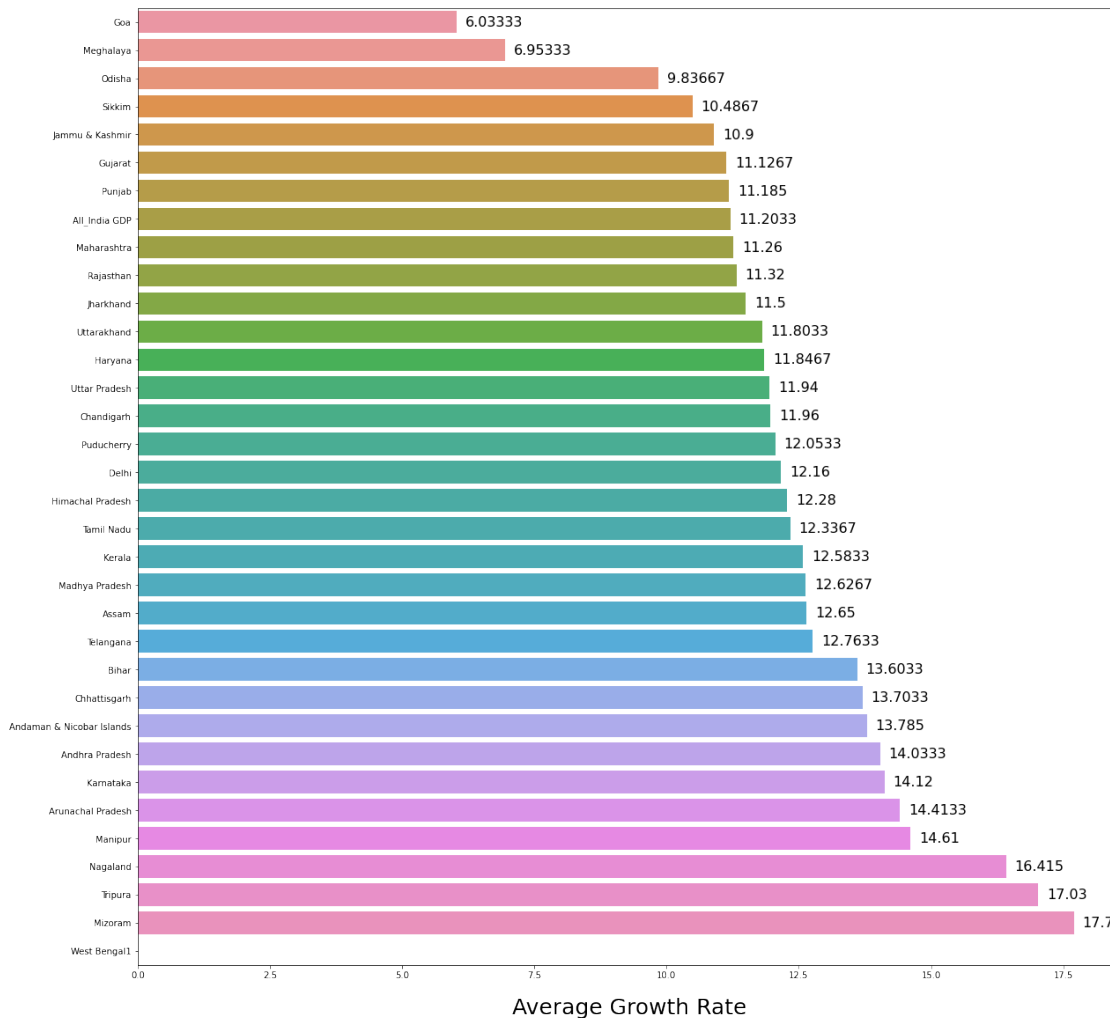
Items Description	Average growth rate
Andhra Pradesh	14.033333
Arunachal Pradesh	14.413333
Assam	12.65
Bihar	13.603333
Chhattisgarh	13.703333
Goa	6.033333
Gujarat	11.126667
Haryana	11.846667
Himachal Pradesh	12.28
Jammu & Kashmir	10.9
Jharkhand	11.5
Karnataka	14.12
Kerala	12.583333
Madhya Pradesh	12.626667
Maharashtra	11.26
Manipur	14.61
Meghalaya	6.953333
Mizoram	17.7
Nagaland	16.415
Odisha	9.836667
Punjab	11.185
Rajasthan	11.32
Sikkim	10.486667

Tamil Nadu	12.336667
Telangana	12.763333
Tripura	17.03
Uttar Pradesh	11.94
Uttarakhand	11.803333
West Bengal	NaN
Andaman & Nicobar Islands	13.785
Chandigarh	11.96
Delhi	12.16
Puducherry	12.053333
All_India GDP	11.203333

```
[68]: plt.figure(figsize = (20, 10))
gdp["Average growth rate"].sort_values().plot.bar()
ax = plt.gca()
for i in ax.patches:
    ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%.2f' %float(i.
    ↪get_height()), fontsize=10, ha='center', va='bottom')
```

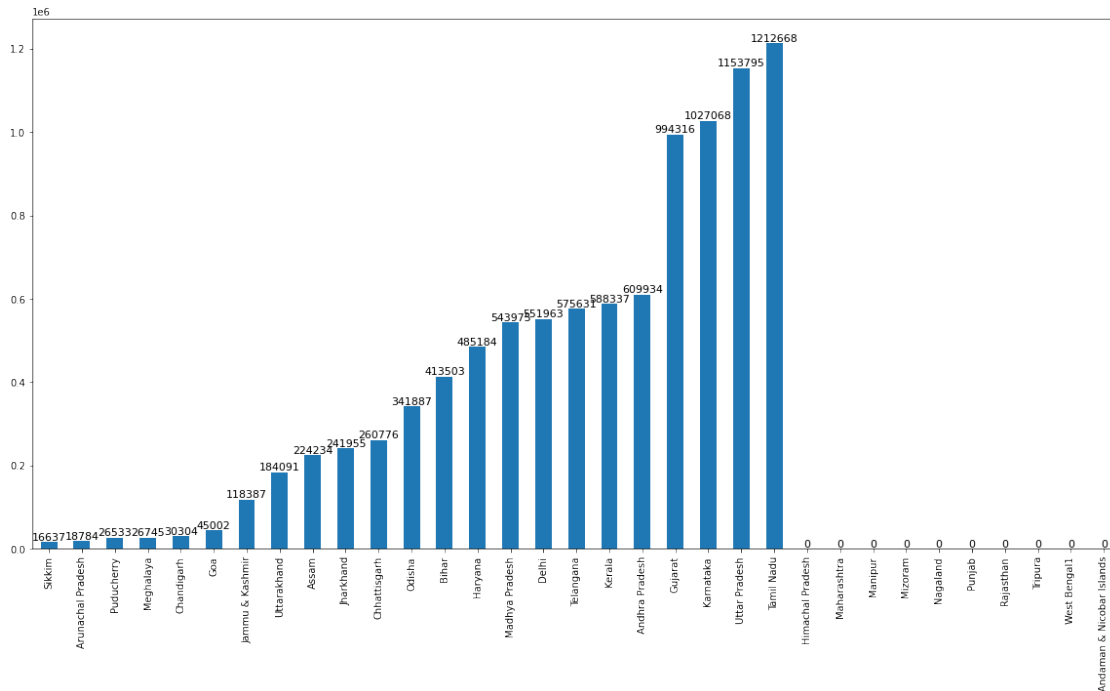


```
[70]: plt.figure(figsize = (20, 20))
ax = sns.barplot(gdp["Average growth rate"].sort_values(), gdp["Average growth_
    ↪rate"].sort_values().index)
ax.bar_label(ax.containers[0], fontsize=16, padding=10)
plt.xlabel('Average Growth Rate', fontsize=25, labelpad=20)
plt.show()
```



1. Rate of GDP Growth in North East States like mizoram, Tripura and Nagaland is high.
2. States like goa, Meghalaya, Odisha, sikkim and J&K is struggling with GDP growth
3. All India GDP is not so relatively low
4. GDP growth of bihar, chattisgarh, A&N, Andhra Pradesh, Karnataka and Arunachal Pradesh are relatively high
5. For all other states, GDP growth is medium

```
[72]: plt.figure(figsize = (20, 10))
gdp["GSDP - CURRENT PRICES (` in Crore)"].drop("All_India GDP",axis=0).
    ↳sort_values().plot.bar()
ax = plt.gca()
for i in ax.patches:
    ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%d' %int(i.
    ↳get_height()), fontsize=11, ha='center', va='bottom')
```



[74]: states

```
[74]: ['Andhra Pradesh',
      'Arunachal Pradesh',
      'Assam',
      'Bihar',
      'Chhattisgarh',
      'Goa',
      'Gujarat',
      'Haryana',
      'Himachal Pradesh',
      'Jammu & Kashmir',
      'Jharkhand',
      'Karnataka',
      'Kerala',
      'Madhya Pradesh',
      'Maharashtra',
      'Manipur',
      'Meghalaya',
      'Mizoram',
      'Nagaland',
      'Odisha',
      'Punjab',
      'Rajasthan',
      'Sikkim',
```

```
'Tamil Nadu',  
'Telangana',  
'Tripura',  
'Uttar Pradesh',  
'Uttarakhand',  
'West Bengal',  
'Andaman & Nicobar Islands',  
'Chandigarh',  
'Delhi',  
'Puducherry',  
'All_India GDP']
```

3 Part 1-B

```
[76]: states=['Andhra_Pradesh',  
            'Arunachal_Pradesh',  
            'Assam',  
            'Bihar',  
            'Chhattisgarh',  
            'Goa',  
            'Gujarat',  
            'Haryana',  
            'Himachal_Pradesh',  
            'Jammu & Kashmir',  
            'Jharkhand',  
            'Karnataka',  
            'Kerala',  
            'Madhya_Pradesh',  
            'Maharashtra',  
            'Manipur',  
            'Meghalaya',  
            'Mizoram',  
            'Nagaland',  
            'Odisha',  
            'Punjab',  
            'Rajasthan',  
            'Sikkim',  
            'Tamil Nadu',  
            'Telangana',  
            'Tripura',  
            'Uttar_Pradesh',  
            'Uttarakhand',  
            'West Bengal']
```

```
[78]: import os
```

```
[80]: gsva=pd.DataFrame()
```

```
[82]: path=("C:\\Users\\jagar\\Python Practise\\Case 3\\GSVA\\")
```

```
[83]: listOfFiles=os.listdir(path)
listOfFiles
```

```
[83]: ['NAD-Andhra_Pradesh-GSVA_cur_2016-17.csv',
      'NAD-Arunachal_Pradesh-GSVA_cur_2015-16.csv',
      'NAD-Assam-GSVA_cur_2015-16.csv',
      'NAD-Bihar-GSVA_cur_2015-16.csv',
      'NAD-Chandigarh-GSVA_cur_2015-16.csv',
      'NAD-Chhattisgarh-GSVA_cur_2016-17.csv',
      'NAD-Delhi-GSVA_cur_2016-17.csv',
      'NAD-Goa-GSVA_cur_2015-16.csv',
      'NAD-Gujarat-GSVA_cur_2015-16.csv',
      'NAD-Haryana-GSVA_cur_2016-17.csv',
      'NAD-Jammu_Kashmir-GSVA_cur_2015-16.csv',
      'NAD-Jharkhand-GSVA_cur_2015-16.csv',
      'NAD-Karnataka-GSVA_cur_2015-16.csv',
      'NAD-Kerala-GSVA_cur_2015-16.csv',
      'NAD-Madhya_Pradesh-GSVA_cur_2016-17.csv',
      'NAD-Maharashtra-GSVA_cur_2014-15.csv',
      'NAD-Manipur-GSVA_cur_2014-15.csv',
      'NAD-Meghalaya-GSVA_cur_2016-17.csv',
      'NAD-Nagaland-GSVA_cur_2014-15.csv',
      'NAD-Odisha-GSVA_cur_2016-17.csv',
      'NAD-Puducherry-GSVA_cur_2016-17.csv',
      'NAD-Punjab-GSVA_cur_2014-15.csv',
      'NAD-Rajasthan-GSVA_cur_2014-15.csv',
      'NAD-Sikkim-GSVA_cur_2015-16.csv',
      'NAD-Tamil_Nadu-GSVA_cur_2016-17.csv',
      'NAD-Telangana-GSVA_cur_2016-17.csv',
      'NAD-Tripura-GSVA_cur_2014-15.csv',
      'NAD-Uttarakhand-GSVA_cur_2015-16.csv',
      'NAD-Uttar_Pradesh-GSVA_cur_2015-16.csv']
```

```
[84]: len(listOfFiles)
```

```
[84]: 29
```

```
[85]: len(states)
```

```
[85]: 29
```

```
[86]: for filename in listOfFiles:
      for statename in states:
          if statename in filename:
```

```

filepath=path+filename
data=pd.read_csv(filepath,encoding="ISO-8859-1")
data=data[['Item','2014-15']]
data=data.T
data.columns=data.iloc[0]
data=data[1:]
data["state"]=statename
gsva=pd.concat([data,gsva])

```

[87]: gsva

```

[87]: Item      Agriculture, forestry and fishing      Crops      Livestock  \
2014-15      25097754      16215212      7096876
2014-15      1601423.0      866146.0      391188.0
2014-15      799825.0      397591.0      88176.0
2014-15      7591501      4162493      2951299
2014-15      137447      114976      17338
2014-15      15044394      7673441      5356257
2014-15      9285716      5690972      2638842
2014-15      6422978      4382636      788243
2014-15      607897      375825      123800
2014-15      366521.0      223330.0      72442.0
2014-15      383140.0      226583.0      75483.0
2014-15      16475655      10435121      3972829
2014-15      16235647      13216013      1932769
2014-15      5930617      3070386      1656104
2014-15      11219422      8157179      1868771
2014-15      3211065      2094466      562503
2014-15      8015238.0      4636731.0      2916173.0
2014-15      13769969.0      9671086.0      2698910.0
2014-15      308507      140421      30141
2014-15      3948847      2613371      352208
2014-15      7951890      4688237      2060296
2014-15      3855548      2890544      173478
2014-15      686117      415520      38387
2014-15      14819416      7893514      4309078

Item      Forestry and logging      Fishing and aquaculture      Mining and quarrying  \
2014-15      1404936      380730      901501
2014-15      339293.0      4796.0      244549.0
2014-15      145096.0      168961.0      142391.0
2014-15      210741      266968      1541853
2014-15      4529      604      1329
2014-15      1956660      58036      4069385
2014-15      848245      107657      10354
2014-15      791463      460636      2586328
2014-15      99802      8470      8280

```

2014-15	61166.0	9583.0	84529.0
2014-15	45831.0	35243.0	NaN
2014-15	1592564	475141	5282727
2014-15	965588	121277	1618373
2014-15	499808	704319	558824
2014-15	693082	500390	846882
2014-15	445149	108947	2037289
2014-15	352254.0	110080.0	25186.0
2014-15	761616.0	638357.0	2117218.0
2014-15	15744	122201	3622
2014-15	597785	385483	2451970
2014-15	550132	653224	68107
2014-15	261987	529539	1471149
2014-15	224017	8193	30842
2014-15	346160	2270664	1484300

Item	Primary	Manufacturing \
2014-15	25999255	12261649
2014-15	1845972.0	5866252.0
2014-15	942216.0	228625.0
2014-15	9133354	6353711
2014-15	138776	550697
2014-15	19113780	6552580
2014-15	9296070	4790341
2014-15	9009306	5754229
2014-15	616178	18346
2014-15	451050.0	433213.0
2014-15	383140.0	49501.0
2014-15	21758383	33660294
2014-15	17854020	4368833
2014-15	6489442	4273567
2014-15	12066304	12953843
2014-15	5248354	4114148
2014-15	8040424.0	7756921.0
2014-15	15887187.0	24087538.0
2014-15	312129	1177608
2014-15	6400817	4370593
2014-15	8019997	2189965
2014-15	5326697	2002936
2014-15	716959	26120
2014-15	16303716	4672266

Item	Electricity, gas, water supply & other utility services	Construction \
2014-15		2030625 11256450
2014-15		433880.0 1342733.0
2014-15		77870.0 177899.0
2014-15		716266 2854024

2014-15	212499	82058
2014-15	1122888	5353326
2014-15	911611	2202962
2014-15	833067	2402396
2014-15	37944	156072
2014-15	54473.0	150256.0
2014-15	27490.0	143182.0
2014-15	4334702	9450211
2014-15	1272905	4403151
2014-15	482470	7314003
2014-15	1425762	6104799
2014-15	337489	1789834
2014-15	1101919.0	3702571.0
2014-15	3409983.0	5526017.0
2014-15	204110	165819
2014-15	1198438	2669855
2014-15	345168	3449763
2014-15	296587	1733568
2014-15	113527	147842
2014-15	1151729	4664889

Item	... Taxes on Products	Subsidies on products \
2014-15 ...	10107396	3287219
2014-15 ...	1434856.0	313139.0
2014-15 ...	149345.0	94002.0
2014-15 ...	4425700	836700
2014-15 ...	72200	18400
2014-15 ...	5394503	2333442
2014-15 ...	3794100	911800
2014-15 ...	3151184	1209349
2014-15 ...	57674	37745
2014-15 ...	213272.0	62112.0
2014-15 ...	92766.0	69137.0
2014-15 ...	25394800	4017300
2014-15 ...	4284700	2102800
2014-15 ...	5189352	822381
2014-15 ...	11026674	1889206
2014-15 ...	2499171	411619
2014-15 ...	4985670.0	1067867.0
2014-15 ...	12353171.04	1981546.0
2014-15 ...	527279	61854
2014-15 ...	2601791	1332092
2014-15 ...	3213546	2006421
2014-15 ...	1725309	582406
2014-15 ...	70099	30272
2014-15 ...	5512100	1690800

Item	Gross State Domestic Product	Population ('00)	Per Capita GSDP (Rs.) \
2014-15	104337115	2109940	49450
2014-15	16198529.0	105820.0	153076.0
2014-15	2966662.0	38350.0	77358.0
2014-15	51117765	367660	139035
2014-15	1520933	6330	240274
2014-15	61219447	721610	84837
2014-15	36801089	290673	126606
2014-15	32197092	435220	73979
2014-15	1841424	20550	89607
2014-15	2440807.0	32020.0	76228.0
2014-15	1804276.0	30873.0	58442.0
2014-15	179212165	1172450	152853
2014-15	48198169	765180	62989
2014-15	52600230	339843	154778
2014-15	92178806	635100	145141
2014-15	21710718	349660	62091
2014-15	43746207.0	266620.0	164077.0
2014-15	89502727.0	633590.0	141263.0
2014-15	4063307	14950	271793
2014-15	23498180	270530	86860
2014-15	37391988	1101240	33954
2014-15	19809800	326780	60621
2014-15	1676119	14870	112718
2014-15	52646842	501510	104977

Item	state	Road transport*	Services incidental to transport* \
2014-15	Uttar_Pradesh	NaN	NaN
2014-15	Uttarakhand	307147.0	NaN
2014-15	Tripura	NaN	88721.0
2014-15	Telangana	NaN	NaN
2014-15	Sikkim	NaN	NaN
2014-15	Rajasthan	NaN	NaN
2014-15	Punjab	NaN	NaN
2014-15	Odisha	NaN	NaN
2014-15	Nagaland	NaN	NaN
2014-15	Meghalaya	NaN	NaN
2014-15	Manipur	NaN	NaN
2014-15	Maharashtra	NaN	NaN
2014-15	Madhya_Pradesh	NaN	NaN
2014-15	Kerala	NaN	NaN
2014-15	Karnataka	NaN	NaN
2014-15	Jharkhand	NaN	NaN
2014-15	Haryana	NaN	NaN
2014-15	Gujarat	NaN	2744163.0
2014-15	Goa	NaN	NaN
2014-15	Chhattisgarh	NaN	NaN

2014-15	Bihar	NaN	NaN
2014-15	Assam	NaN	NaN
2014-15	Arunachal_Pradesh	NaN	NaN
2014-15	Andhra_Pradesh	NaN	NaN

Item	Trade & repair services*	Road transport**
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	7763847	2761427
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN
2014-15	NaN	NaN

[24 rows x 38 columns]

```
[88]: # making state column as index
gsva.set_index("state", inplace=True)
```

```
[89]: gsva
```

```
[89]: Item      Agriculture, forestry and fishing      Crops  Livestock  \
state
Uttar_Pradesh      25097754      16215212      7096876
Uttarakhand      1601423.0      866146.0      391188.0
Tripura      799825.0      397591.0      88176.0
Telangana      7591501      4162493      2951299
Sikkim      137447      114976      17338
Rajasthan      15044394      7673441      5356257
Punjab      9285716      5690972      2638842
```

Odisha	6422978	4382636	788243
Nagaland	607897	375825	123800
Meghalaya	366521.0	223330.0	72442.0
Manipur	383140.0	226583.0	75483.0
Maharashtra	16475655	10435121	3972829
Madhya_Pradesh	16235647	13216013	1932769
Kerala	5930617	3070386	1656104
Karnataka	11219422	8157179	1868771
Jharkhand	3211065	2094466	562503
Haryana	8015238.0	4636731.0	2916173.0
Gujarat	13769969.0	9671086.0	2698910.0
Goa	308507	140421	30141
Chhattisgarh	3948847	2613371	352208
Bihar	7951890	4688237	2060296
Assam	3855548	2890544	173478
Arunachal_Pradesh	686117	415520	38387
Andhra_Pradesh	14819416	7893514	4309078

Item Forestry and logging Fishing and aquaculture \

state

Uttar_Pradesh	1404936	380730
Uttarakhand	339293.0	4796.0
Tripura	145096.0	168961.0
Telangana	210741	266968
Sikkim	4529	604
Rajasthan	1956660	58036
Punjab	848245	107657
Odisha	791463	460636
Nagaland	99802	8470
Meghalaya	61166.0	9583.0
Manipur	45831.0	35243.0
Maharashtra	1592564	475141
Madhya_Pradesh	965588	121277
Kerala	499808	704319
Karnataka	693082	500390
Jharkhand	445149	108947
Haryana	352254.0	110080.0
Gujarat	761616.0	638357.0
Goa	15744	122201
Chhattisgarh	597785	385483
Bihar	550132	653224
Assam	261987	529539
Arunachal_Pradesh	224017	8193
Andhra_Pradesh	346160	2270664

Item Mining and quarrying Primary Manufacturing \

state

Uttar_Pradesh	901501	25999255	12261649
Uttarakhand	244549.0	1845972.0	5866252.0
Tripura	142391.0	942216.0	228625.0
Telangana	1541853	9133354	6353711
Sikkim	1329	138776	550697
Rajasthan	4069385	19113780	6552580
Punjab	10354	9296070	4790341
Odisha	2586328	9009306	5754229
Nagaland	8280	616178	18346
Meghalaya	84529.0	451050.0	433213.0
Manipur	NaN	383140.0	49501.0
Maharashtra	5282727	21758383	33660294
Madhya_Pradesh	1618373	17854020	4368833
Kerala	558824	6489442	4273567
Karnataka	846882	12066304	12953843
Jharkhand	2037289	5248354	4114148
Haryana	25186.0	8040424.0	7756921.0
Gujarat	2117218.0	15887187.0	24087538.0
Goa	3622	312129	1177608
Chhattisgarh	2451970	6400817	4370593
Bihar	68107	8019997	2189965
Assam	1471149	5326697	2002936
Arunachal_Pradesh	30842	716959	26120
Andhra_Pradesh	1484300	16303716	4672266

Item	Electricity, gas, water supply & other utility services \		
state			
Uttar_Pradesh			2030625
Uttarakhand			433880.0
Tripura			77870.0
Telangana			716266
Sikkim			212499
Rajasthan			1122888
Punjab			911611
Odisha			833067
Nagaland			37944
Meghalaya			54473.0
Manipur			27490.0
Maharashtra			4334702
Madhya_Pradesh			1272905
Kerala			482470
Karnataka			1425762
Jharkhand			337489
Haryana			1101919.0
Gujarat			3409983.0
Goa			204110
Chhattisgarh			1198438

Bihar	345168
Assam	296587
Arunachal_Pradesh	113527
Andhra_Pradesh	1151729

Item	Construction	... TOTAL GSVA at basic prices \
state	...	
Uttar_Pradesh	11256450	97516938
Uttarakhand	1342733.0	15076812.0
Tripura	177899.0	2911319.0
Telangana	2854024	47528765
Sikkim	82058	1467133
Rajasthan	5353326	58158386
Punjab	2202962	33918789
Odisha	2402396	30255256
Nagaland	156072	1821495
Meghalaya	150256.0	2289647.0
Manipur	143182.0	1780647.0
Maharashtra	9450211	157834665
Madhya_Pradesh	4403151	46016269
Kerala	7314003	48233259
Karnataka	6104799	83041338
Jharkhand	1789834	19623166
Haryana	3702571.0	39828404.0
Gujarat	5526017.0	79131102.0
Goa	165819	3597882
Chhattisgarh	2669855	22228481
Bihar	3449763	36184863
Assam	1733568	18666897
Arunachal_Pradesh	147842	1636292
Andhra_Pradesh	4664889	48825542

Item	Taxes on Products	Subsidies on products \
state		
Uttar_Pradesh	10107396	3287219
Uttarakhand	1434856.0	313139.0
Tripura	149345.0	94002.0
Telangana	4425700	836700
Sikkim	72200	18400
Rajasthan	5394503	2333442
Punjab	3794100	911800
Odisha	3151184	1209349
Nagaland	57674	37745
Meghalaya	213272.0	62112.0
Manipur	92766.0	69137.0
Maharashtra	25394800	4017300
Madhya_Pradesh	4284700	2102800

Kerala	5189352	822381
Karnataka	11026674	1889206
Jharkhand	2499171	411619
Haryana	4985670.0	1067867.0
Gujarat	12353171.04	1981546.0
Goa	527279	61854
Chhattisgarh	2601791	1332092
Bihar	3213546	2006421
Assam	1725309	582406
Arunachal_Pradesh	70099	30272
Andhra_Pradesh	5512100	1690800

Item	Gross State Domestic Product Population ('00) \	
state		
Uttar_Pradesh	104337115	2109940
Uttarakhand	16198529.0	105820.0
Tripura	2966662.0	38350.0
Telangana	51117765	367660
Sikkim	1520933	6330
Rajasthan	61219447	721610
Punjab	36801089	290673
Odisha	32197092	435220
Nagaland	1841424	20550
Meghalaya	2440807.0	32020.0
Manipur	1804276.0	30873.0
Maharashtra	179212165	1172450
Madhya_Pradesh	48198169	765180
Kerala	52600230	339843
Karnataka	92178806	635100
Jharkhand	21710718	349660
Haryana	43746207.0	266620.0
Gujarat	89502727.0	633590.0
Goa	4063307	14950
Chhattisgarh	23498180	270530
Bihar	37391988	1101240
Assam	19809800	326780
Arunachal_Pradesh	1676119	14870
Andhra_Pradesh	52646842	501510

Item	Per Capita GSDP (Rs.) Road transport* \	
state		
Uttar_Pradesh	49450	NaN
Uttarakhand	153076.0	307147.0
Tripura	77358.0	NaN
Telangana	139035	NaN
Sikkim	240274	NaN
Rajasthan	84837	NaN

Punjab	126606	NaN
Odisha	73979	NaN
Nagaland	89607	NaN
Meghalaya	76228.0	NaN
Manipur	58442.0	NaN
Maharashtra	152853	NaN
Madhya_Pradesh	62989	NaN
Kerala	154778	NaN
Karnataka	145141	NaN
Jharkhand	62091	NaN
Haryana	164077.0	NaN
Gujarat	141263.0	NaN
Goa	271793	NaN
Chhattisgarh	86860	NaN
Bihar	33954	NaN
Assam	60621	NaN
Arunachal_Pradesh	112718	NaN
Andhra_Pradesh	104977	NaN

Item	Services incidental to transport* Trade & repair services* \	
state		
Uttar_Pradesh	NaN	NaN
Uttarakhand	NaN	NaN
Tripura	88721.0	NaN
Telangana	NaN	NaN
Sikkim	NaN	NaN
Rajasthan	NaN	NaN
Punjab	NaN	NaN
Odisha	NaN	NaN
Nagaland	NaN	NaN
Meghalaya	NaN	NaN
Manipur	NaN	NaN
Maharashtra	NaN	NaN
Madhya_Pradesh	NaN	NaN
Kerala	NaN	7763847
Karnataka	NaN	NaN
Jharkhand	NaN	NaN
Haryana	NaN	NaN
Gujarat	2744163.0	NaN
Goa	NaN	NaN
Chhattisgarh	NaN	NaN
Bihar	NaN	NaN
Assam	NaN	NaN
Arunachal_Pradesh	NaN	NaN
Andhra_Pradesh	NaN	NaN

Item Road transport**

state	
Uttar_Pradesh	NaN
Uttarakhand	NaN
Tripura	NaN
Telangana	NaN
Sikkim	NaN
Rajasthan	NaN
Punjab	NaN
Odisha	NaN
Nagaland	NaN
Meghalaya	NaN
Manipur	NaN
Maharashtra	NaN
Madhya_Pradesh	NaN
Kerala	2761427
Karnataka	NaN
Jharkhand	NaN
Haryana	NaN
Gujarat	NaN
Goa	NaN
Chhattisgarh	NaN
Bihar	NaN
Assam	NaN
Arunachal_Pradesh	NaN
Andhra_Pradesh	NaN

[24 rows x 37 columns]

```
[90]: gsva.columns
```

```
[90]: Index(['Agriculture, forestry and fishing', 'Crops', 'Livestock',
        'Forestry and logging', 'Fishing and aquaculture',
        'Mining and quarrying', 'Primary', 'Manufacturing',
        'Electricity, gas, water supply & other utility services',
        'Construction', 'Secondary', 'Trade, repair, hotels and restaurants',
        'Trade & repair services', 'Hotels & restaurants',
        'Transport, storage, communication & services related to broadcasting',
        'Railways', 'Road transport', 'Water transport', 'Air transport',
        'Services incidental to transport', 'Storage',
        'Communication & services related to broadcasting',
        'Financial services',
        'Real estate, ownership of dwelling & professional services',
        'Public administration', 'Other services', 'Tertiary',
        'TOTAL GSVA at basic prices', 'Taxes on Products',
        'Subsidies on products', 'Gross State Domestic Product',
        'Population ('00)', 'Per Capita GSDP (Rs.)', 'Road transport*',
        'Services incidental to transport*', 'Trade & repair services*']
```

```

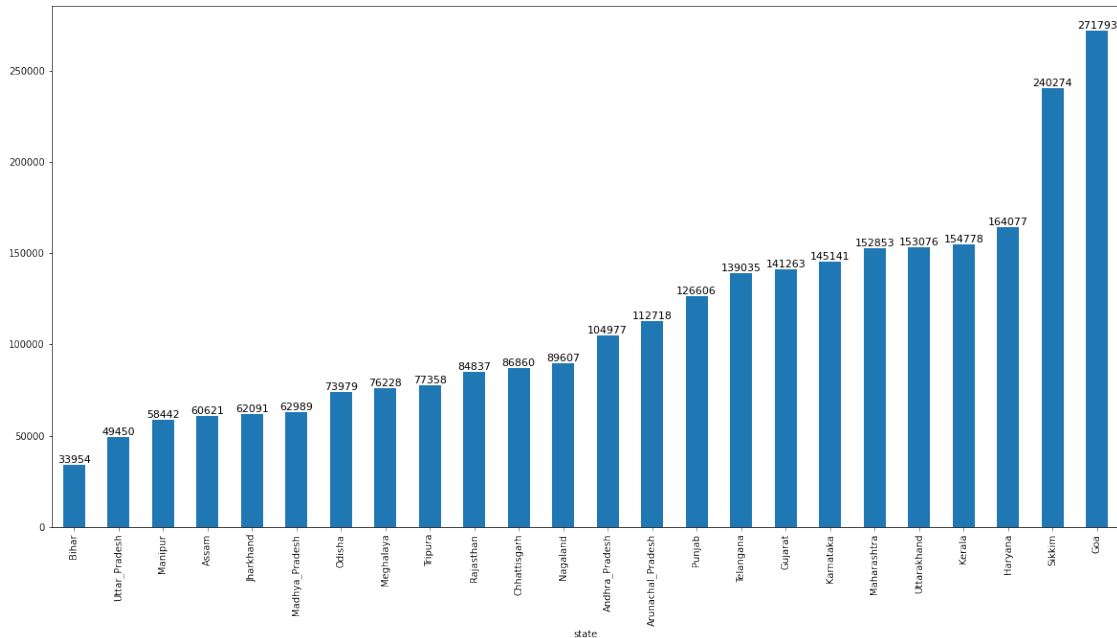
        'Road transport**'],
        dtype='object', name='Item')

```

```

[91]: plt.figure(figsize = (20, 10))
      gsva["Per Capita GSDP (Rs.)"].sort_values().plot.bar()
      ax = plt.gca()
      for i in ax.patches:
          ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%d' %int(i.
→get_height()), fontsize=11, ha='center', va='bottom')

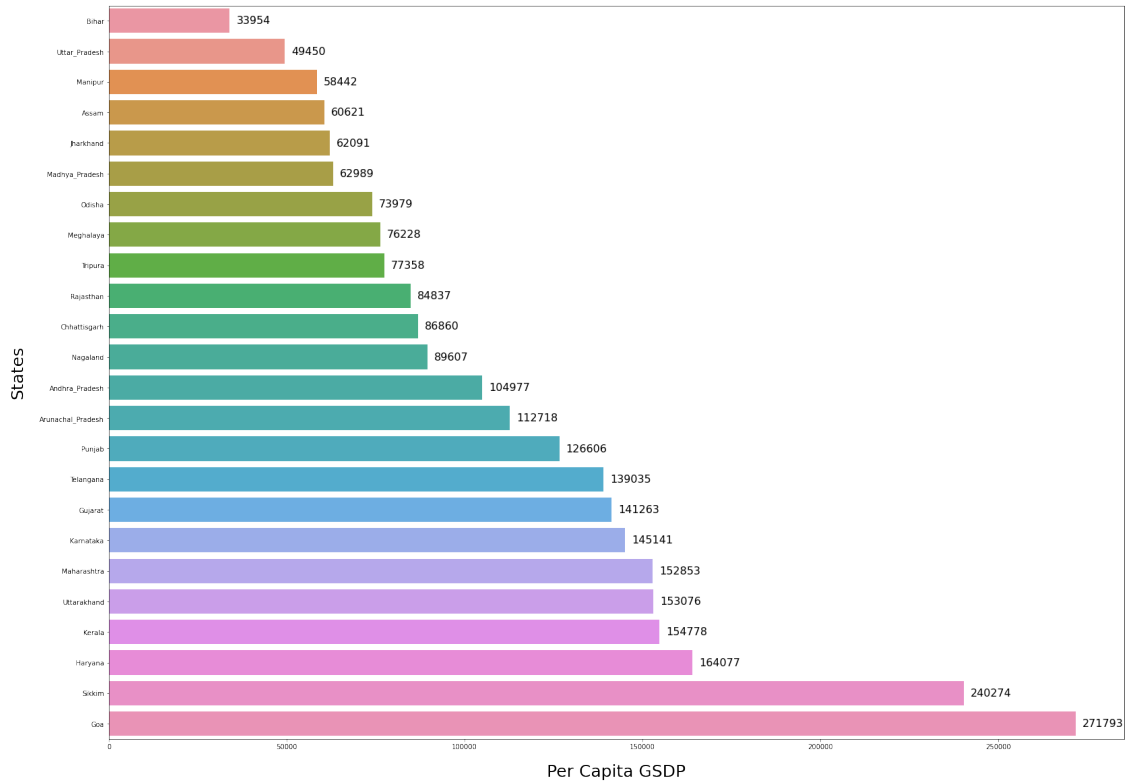
```



```

[92]: plt.figure(figsize = (27, 20))
      ax = sns.barplot(gsva["Per Capita GSDP (Rs.)"].sort_values(), gsva["Per Capita_
→GSDP (Rs.)"].sort_values().index)
      ax.bar_label(ax.containers[0], fontsize=16, padding=10)
      plt.xlabel('Per Capita GSDP', fontsize=25, labelpad=20)
      plt.ylabel('States', fontsize=25, labelpad=20)
      plt.show()

```



```
[93]: gsva["Per Capita GSDP (Rs.)"].sort_values()["Goa"]/gsva["Per Capita GSDP (Rs.
↪)"].sort_values()["Bihar"]
```

```
[93]: 8.004741709371503
```

```
[94]: gsva.columns
```

```
[94]: Index(['Agriculture, forestry and fishing', 'Crops', 'Livestock',
'Forestry and logging', 'Fishing and aquaculture',
'Mining and quarrying', 'Primary', 'Manufacturing',
'Electricity, gas, water supply & other utility services',
'Construction', 'Secondary', 'Trade, repair, hotels and restaurants',
'Trade & repair services', 'Hotels & restaurants',
'Transport, storage, communication & services related to broadcasting',
'Railways', 'Road transport', 'Water transport', 'Air transport',
'Services incidental to transport', 'Storage',
'Communication & services related to broadcasting',
'Financial services',
'Real estate, ownership of dwelling & professional services',
'Public administration', 'Other services', 'Tertiary',
'TOTAL GSVA at basic prices', 'Taxes on Products',
'Subsidies on products', 'Gross State Domestic Product',
```

```

'Population ('00)', 'Per Capita GSDP (Rs.)', 'Road transport*',
'Services incidental to transport*', 'Trade & repair services*',
'Road transport**'],
dtype='object', name='Item')

```

[95]: gsva

```

[95]: Item                Agriculture, forestry and fishing      Crops  Livestock  \
state
Uttar_Pradesh                25097754    16215212    7096876
Uttarakhand                  1601423.0    866146.0    391188.0
Tripura                      799825.0    397591.0    88176.0
Telangana                    7591501     4162493    2951299
Sikkim                       137447      114976     17338
Rajasthan                    15044394     7673441    5356257
Punjab                       9285716     5690972    2638842
Odisha                       6422978     4382636     788243
Nagaland                     607897      375825     123800
Meghalaya                    366521.0    223330.0     72442.0
Manipur                      383140.0    226583.0     75483.0
Maharashtra                  16475655    10435121    3972829
Madhya_Pradesh               16235647    13216013    1932769
Kerala                       5930617     3070386    1656104
Karnataka                    11219422     8157179    1868771
Jharkhand                    3211065     2094466     562503
Haryana                      8015238.0   4636731.0   2916173.0
Gujarat                      13769969.0   9671086.0   2698910.0
Goa                          308507      140421     30141
Chhattisgarh                 3948847     2613371     352208
Bihar                        7951890     4688237     2060296
Assam                        3855548     2890544     173478
Arunachal_Pradesh            686117      415520      38387
Andhra_Pradesh               14819416     7893514    4309078

```

```

Item                Forestry and logging  Fishing and aquaculture  \
state
Uttar_Pradesh                1404936                380730
Uttarakhand                  339293.0                4796.0
Tripura                      145096.0               168961.0
Telangana                    210741                266968
Sikkim                       4529                  604
Rajasthan                    1956660                58036
Punjab                       848245                107657
Odisha                       791463                460636
Nagaland                     99802                  8470
Meghalaya                    61166.0                9583.0
Manipur                      45831.0               35243.0

```

Maharashtra	1592564	475141
Madhya_Pradesh	965588	121277
Kerala	499808	704319
Karnataka	693082	500390
Jharkhand	445149	108947
Haryana	352254.0	110080.0
Gujarat	761616.0	638357.0
Goa	15744	122201
Chhattisgarh	597785	385483
Bihar	550132	653224
Assam	261987	529539
Arunachal_Pradesh	224017	8193
Andhra_Pradesh	346160	2270664

Item state	Mining and quarrying	Primary Manufacturing \	
Uttar_Pradesh	901501	25999255	12261649
Uttarakhand	244549.0	1845972.0	5866252.0
Tripura	142391.0	942216.0	228625.0
Telangana	1541853	9133354	6353711
Sikkim	1329	138776	550697
Rajasthan	4069385	19113780	6552580
Punjab	10354	9296070	4790341
Odisha	2586328	9009306	5754229
Nagaland	8280	616178	18346
Meghalaya	84529.0	451050.0	433213.0
Manipur	NaN	383140.0	49501.0
Maharashtra	5282727	21758383	33660294
Madhya_Pradesh	1618373	17854020	4368833
Kerala	558824	6489442	4273567
Karnataka	846882	12066304	12953843
Jharkhand	2037289	5248354	4114148
Haryana	25186.0	8040424.0	7756921.0
Gujarat	2117218.0	15887187.0	24087538.0
Goa	3622	312129	1177608
Chhattisgarh	2451970	6400817	4370593
Bihar	68107	8019997	2189965
Assam	1471149	5326697	2002936
Arunachal_Pradesh	30842	716959	26120
Andhra_Pradesh	1484300	16303716	4672266

Item state	Electricity, gas, water supply & other utility services \	
Uttar_Pradesh		2030625
Uttarakhand		433880.0
Tripura		77870.0
Telangana		716266

Sikkim	212499
Rajasthan	1122888
Punjab	911611
Odisha	833067
Nagaland	37944
Meghalaya	54473.0
Manipur	27490.0
Maharashtra	4334702
Madhya_Pradesh	1272905
Kerala	482470
Karnataka	1425762
Jharkhand	337489
Haryana	1101919.0
Gujarat	3409983.0
Goa	204110
Chhattisgarh	1198438
Bihar	345168
Assam	296587
Arunachal_Pradesh	113527
Andhra_Pradesh	1151729

Item	Construction	...	TOTAL GSVA at basic prices \
state		...	
Uttar_Pradesh	11256450	...	97516938
Uttarakhand	1342733.0	...	15076812.0
Tripura	177899.0	...	2911319.0
Telangana	2854024	...	47528765
Sikkim	82058	...	1467133
Rajasthan	5353326	...	58158386
Punjab	2202962	...	33918789
Odisha	2402396	...	30255256
Nagaland	156072	...	1821495
Meghalaya	150256.0	...	2289647.0
Manipur	143182.0	...	1780647.0
Maharashtra	9450211	...	157834665
Madhya_Pradesh	4403151	...	46016269
Kerala	7314003	...	48233259
Karnataka	6104799	...	83041338
Jharkhand	1789834	...	19623166
Haryana	3702571.0	...	39828404.0
Gujarat	5526017.0	...	79131102.0
Goa	165819	...	3597882
Chhattisgarh	2669855	...	22228481
Bihar	3449763	...	36184863
Assam	1733568	...	18666897
Arunachal_Pradesh	147842	...	1636292
Andhra_Pradesh	4664889	...	48825542

Item state	Taxes on Products	Subsidies on products \
Uttar_Pradesh	10107396	3287219
Uttarakhand	1434856.0	313139.0
Tripura	149345.0	94002.0
Telangana	4425700	836700
Sikkim	72200	18400
Rajasthan	5394503	2333442
Punjab	3794100	911800
Odisha	3151184	1209349
Nagaland	57674	37745
Meghalaya	213272.0	62112.0
Manipur	92766.0	69137.0
Maharashtra	25394800	4017300
Madhya_Pradesh	4284700	2102800
Kerala	5189352	822381
Karnataka	11026674	1889206
Jharkhand	2499171	411619
Haryana	4985670.0	1067867.0
Gujarat	12353171.04	1981546.0
Goa	527279	61854
Chhattisgarh	2601791	1332092
Bihar	3213546	2006421
Assam	1725309	582406
Arunachal_Pradesh	70099	30272
Andhra_Pradesh	5512100	1690800

Item state	Gross State Domestic Product	Population ('00) \
Uttar_Pradesh	104337115	2109940
Uttarakhand	16198529.0	105820.0
Tripura	2966662.0	38350.0
Telangana	51117765	367660
Sikkim	1520933	6330
Rajasthan	61219447	721610
Punjab	36801089	290673
Odisha	32197092	435220
Nagaland	1841424	20550
Meghalaya	2440807.0	32020.0
Manipur	1804276.0	30873.0
Maharashtra	179212165	1172450
Madhya_Pradesh	48198169	765180
Kerala	52600230	339843
Karnataka	92178806	635100
Jharkhand	21710718	349660
Haryana	43746207.0	266620.0

Gujarat	89502727.0	633590.0
Goa	4063307	14950
Chhattisgarh	23498180	270530
Bihar	37391988	1101240
Assam	19809800	326780
Arunachal_Pradesh	1676119	14870
Andhra_Pradesh	52646842	501510

Item	Per Capita GSDP (Rs.)	Road transport*	\
state			
Uttar_Pradesh	49450	NaN	
Uttarakhand	153076.0	307147.0	
Tripura	77358.0	NaN	
Telangana	139035	NaN	
Sikkim	240274	NaN	
Rajasthan	84837	NaN	
Punjab	126606	NaN	
Odisha	73979	NaN	
Nagaland	89607	NaN	
Meghalaya	76228.0	NaN	
Manipur	58442.0	NaN	
Maharashtra	152853	NaN	
Madhya_Pradesh	62989	NaN	
Kerala	154778	NaN	
Karnataka	145141	NaN	
Jharkhand	62091	NaN	
Haryana	164077.0	NaN	
Gujarat	141263.0	NaN	
Goa	271793	NaN	
Chhattisgarh	86860	NaN	
Bihar	33954	NaN	
Assam	60621	NaN	
Arunachal_Pradesh	112718	NaN	
Andhra_Pradesh	104977	NaN	

Item	Services incidental to transport*	Trade & repair services*	\
state			
Uttar_Pradesh	NaN	NaN	
Uttarakhand	NaN	NaN	
Tripura	88721.0	NaN	
Telangana	NaN	NaN	
Sikkim	NaN	NaN	
Rajasthan	NaN	NaN	
Punjab	NaN	NaN	
Odisha	NaN	NaN	
Nagaland	NaN	NaN	
Meghalaya	NaN	NaN	

Manipur	NaN	NaN
Maharashtra	NaN	NaN
Madhya_Pradesh	NaN	NaN
Kerala	NaN	7763847
Karnataka	NaN	NaN
Jharkhand	NaN	NaN
Haryana	NaN	NaN
Gujarat	2744163.0	NaN
Goa	NaN	NaN
Chhattisgarh	NaN	NaN
Bihar	NaN	NaN
Assam	NaN	NaN
Arunachal_Pradesh	NaN	NaN
Andhra_Pradesh	NaN	NaN

Item	Road transport**
state	
Uttar_Pradesh	NaN
Uttarakhand	NaN
Tripura	NaN
Telangana	NaN
Sikkim	NaN
Rajasthan	NaN
Punjab	NaN
Odisha	NaN
Nagaland	NaN
Meghalaya	NaN
Manipur	NaN
Maharashtra	NaN
Madhya_Pradesh	NaN
Kerala	2761427
Karnataka	NaN
Jharkhand	NaN
Haryana	NaN
Gujarat	NaN
Goa	NaN
Chhattisgarh	NaN
Bihar	NaN
Assam	NaN
Arunachal_Pradesh	NaN
Andhra_Pradesh	NaN

[24 rows x 37 columns]

```
[96]: gsva["primary_gdp_percent"]=0
      gsva["secondary_gdp_percent"]=0
      gsva["tertiary_gdp_percent"]=0
```

[97]: gsva

```
[97]: Item                Agriculture, forestry and fishing      Crops  Livestock  \
state
Uttar_Pradesh                25097754      16215212      7096876
Uttarakhand                  1601423.0      866146.0      391188.0
Tripura                      799825.0      397591.0      88176.0
Telangana                     7591501      4162493      2951299
Sikkim                       137447       114976       17338
Rajasthan                    15044394      7673441      5356257
Punjab                       9285716      5690972      2638842
Odisha                       6422978      4382636      788243
Nagaland                     607897       375825      123800
Meghalaya                    366521.0      223330.0      72442.0
Manipur                      383140.0      226583.0      75483.0
Maharashtra                  16475655      10435121      3972829
Madhya_Pradesh               16235647      13216013      1932769
Kerala                       5930617      3070386      1656104
Karnataka                    11219422      8157179      1868771
Jharkhand                     3211065      2094466      562503
Haryana                      8015238.0     4636731.0     2916173.0
Gujarat                     13769969.0     9671086.0     2698910.0
Goa                          308507       140421       30141
Chhattisgarh                 3948847      2613371      352208
Bihar                        7951890      4688237      2060296
Assam                        3855548      2890544      173478
Arunachal_Pradesh           686117       415520       38387
Andhra_Pradesh              14819416      7893514      4309078
```

```
Item                Forestry and logging Fishing and aquaculture  \
state
Uttar_Pradesh                1404936                380730
Uttarakhand                  339293.0                4796.0
Tripura                      145096.0               168961.0
Telangana                     210741                266968
Sikkim                        4529                  604
Rajasthan                    1956660                58036
Punjab                       848245                107657
Odisha                       791463                460636
Nagaland                     99802                 8470
Meghalaya                    61166.0                9583.0
Manipur                      45831.0               35243.0
Maharashtra                  1592564                475141
Madhya_Pradesh               965588                121277
Kerala                       499808                704319
Karnataka                    693082                500390
Jharkhand                     445149                108947
```

Haryana	352254.0	110080.0
Gujarat	761616.0	638357.0
Goa	15744	122201
Chhattisgarh	597785	385483
Bihar	550132	653224
Assam	261987	529539
Arunachal_Pradesh	224017	8193
Andhra_Pradesh	346160	2270664

Item state	Mining and quarrying	Primary Manufacturing \	
Uttar_Pradesh	901501	25999255	12261649
Uttarakhand	244549.0	1845972.0	5866252.0
Tripura	142391.0	942216.0	228625.0
Telangana	1541853	9133354	6353711
Sikkim	1329	138776	550697
Rajasthan	4069385	19113780	6552580
Punjab	10354	9296070	4790341
Odisha	2586328	9009306	5754229
Nagaland	8280	616178	18346
Meghalaya	84529.0	451050.0	433213.0
Manipur	NaN	383140.0	49501.0
Maharashtra	5282727	21758383	33660294
Madhya_Pradesh	1618373	17854020	4368833
Kerala	558824	6489442	4273567
Karnataka	846882	12066304	12953843
Jharkhand	2037289	5248354	4114148
Haryana	25186.0	8040424.0	7756921.0
Gujarat	2117218.0	15887187.0	24087538.0
Goa	3622	312129	1177608
Chhattisgarh	2451970	6400817	4370593
Bihar	68107	8019997	2189965
Assam	1471149	5326697	2002936
Arunachal_Pradesh	30842	716959	26120
Andhra_Pradesh	1484300	16303716	4672266

Item state	Electricity, gas, water supply & other utility services \	
Uttar_Pradesh		2030625
Uttarakhand		433880.0
Tripura		77870.0
Telangana		716266
Sikkim		212499
Rajasthan		1122888
Punjab		911611
Odisha		833067
Nagaland		37944

Meghalaya	54473.0
Manipur	27490.0
Maharashtra	4334702
Madhya_Pradesh	1272905
Kerala	482470
Karnataka	1425762
Jharkhand	337489
Haryana	1101919.0
Gujarat	3409983.0
Goa	204110
Chhattisgarh	1198438
Bihar	345168
Assam	296587
Arunachal_Pradesh	113527
Andhra_Pradesh	1151729

Item	Construction	...	Gross State Domestic Product	\
state		...		
Uttar_Pradesh	11256450	...	104337115	
Uttarakhand	1342733.0	...	16198529.0	
Tripura	177899.0	...	2966662.0	
Telangana	2854024	...	51117765	
Sikkim	82058	...	1520933	
Rajasthan	5353326	...	61219447	
Punjab	2202962	...	36801089	
Odisha	2402396	...	32197092	
Nagaland	156072	...	1841424	
Meghalaya	150256.0	...	2440807.0	
Manipur	143182.0	...	1804276.0	
Maharashtra	9450211	...	179212165	
Madhya_Pradesh	4403151	...	48198169	
Kerala	7314003	...	52600230	
Karnataka	6104799	...	92178806	
Jharkhand	1789834	...	21710718	
Haryana	3702571.0	...	43746207.0	
Gujarat	5526017.0	...	89502727.0	
Goa	165819	...	4063307	
Chhattisgarh	2669855	...	23498180	
Bihar	3449763	...	37391988	
Assam	1733568	...	19809800	
Arunachal_Pradesh	147842	...	1676119	
Andhra_Pradesh	4664889	...	52646842	

Item	Population ('00)	Per Capita GSDP (Rs.)	Road transport*	\
state				
Uttar_Pradesh	2109940	49450	NaN	
Uttarakhand	105820.0	153076.0	307147.0	

Tripura	38350.0	77358.0	NaN
Telangana	367660	139035	NaN
Sikkim	6330	240274	NaN
Rajasthan	721610	84837	NaN
Punjab	290673	126606	NaN
Odisha	435220	73979	NaN
Nagaland	20550	89607	NaN
Meghalaya	32020.0	76228.0	NaN
Manipur	30873.0	58442.0	NaN
Maharashtra	1172450	152853	NaN
Madhya_Pradesh	765180	62989	NaN
Kerala	339843	154778	NaN
Karnataka	635100	145141	NaN
Jharkhand	349660	62091	NaN
Haryana	266620.0	164077.0	NaN
Gujarat	633590.0	141263.0	NaN
Goa	14950	271793	NaN
Chhattisgarh	270530	86860	NaN
Bihar	1101240	33954	NaN
Assam	326780	60621	NaN
Arunachal_Pradesh	14870	112718	NaN
Andhra_Pradesh	501510	104977	NaN

Item	Services incidental to transport* Trade & repair services* \		
state			
Uttar_Pradesh	NaN	NaN	NaN
Uttarakhand	NaN	NaN	NaN
Tripura	88721.0	NaN	NaN
Telangana	NaN	NaN	NaN
Sikkim	NaN	NaN	NaN
Rajasthan	NaN	NaN	NaN
Punjab	NaN	NaN	NaN
Odisha	NaN	NaN	NaN
Nagaland	NaN	NaN	NaN
Meghalaya	NaN	NaN	NaN
Manipur	NaN	NaN	NaN
Maharashtra	NaN	NaN	NaN
Madhya_Pradesh	NaN	NaN	NaN
Kerala	NaN	7763847	NaN
Karnataka	NaN	NaN	NaN
Jharkhand	NaN	NaN	NaN
Haryana	NaN	NaN	NaN
Gujarat	2744163.0	NaN	NaN
Goa	NaN	NaN	NaN
Chhattisgarh	NaN	NaN	NaN
Bihar	NaN	NaN	NaN
Assam	NaN	NaN	NaN

Arunachal_Pradesh	NaN	NaN
Andhra_Pradesh	NaN	NaN

Item	Road transport**	primary_gdp_percent	secondary_gdp_percent	\
state				
Uttar_Pradesh	NaN	0	0	
Uttarakhand	NaN	0	0	
Tripura	NaN	0	0	
Telangana	NaN	0	0	
Sikkim	NaN	0	0	
Rajasthan	NaN	0	0	
Punjab	NaN	0	0	
Odisha	NaN	0	0	
Nagaland	NaN	0	0	
Meghalaya	NaN	0	0	
Manipur	NaN	0	0	
Maharashtra	NaN	0	0	
Madhya_Pradesh	NaN	0	0	
Kerala	2761427	0	0	
Karnataka	NaN	0	0	
Jharkhand	NaN	0	0	
Haryana	NaN	0	0	
Gujarat	NaN	0	0	
Goa	NaN	0	0	
Chhattisgarh	NaN	0	0	
Bihar	NaN	0	0	
Assam	NaN	0	0	
Arunachal_Pradesh	NaN	0	0	
Andhra_Pradesh	NaN	0	0	

Item	tertiary_gdp_percent
state	
Uttar_Pradesh	0
Uttarakhand	0
Tripura	0
Telangana	0
Sikkim	0
Rajasthan	0
Punjab	0
Odisha	0
Nagaland	0
Meghalaya	0
Manipur	0
Maharashtra	0
Madhya_Pradesh	0
Kerala	0
Karnataka	0

Jharkhand	0
Haryana	0
Gujarat	0
Goa	0
Chhattisgarh	0
Bihar	0
Assam	0
Arunachal_Pradesh	0
Andhra_Pradesh	0

[24 rows x 40 columns]

```
[98]: print(list(gsva.columns).index("Primary"))
      print(list(gsva.columns).index("Secondary"))
      print(list(gsva.columns).index("Tertiary"))
      print(list(gsva.columns).index("Gross State Domestic Product"))
```

6
10
26
30

```
[99]: print(list(gsva.columns).index('primary_gdp_percent'))
      print(list(gsva.columns).index('secondary_gdp_percent'))
      print(list(gsva.columns).index('tertiary_gdp_percent'))
```

37
38
39

```
[100]: for i in range(len(gsva)):
        gsva.iloc[i,37]=gsva.iloc[i,6]/gsva.iloc[i,30]
        gsva.iloc[i,38]=gsva.iloc[i,10]/gsva.iloc[i,30]
        gsva.iloc[i,39]=gsva.iloc[i,26]/gsva.iloc[i,30]
```

```
[101]: gsva
```

```
[101]: Item      Agriculture, forestry and fishing      Crops  Livestock  \
state
Uttar_Pradesh      25097754      16215212      7096876
Uttarakhand      1601423.0      866146.0      391188.0
Tripura      799825.0      397591.0      88176.0
Telangana      7591501      4162493      2951299
Sikkim      137447      114976      17338
Rajasthan      15044394      7673441      5356257
Punjab      9285716      5690972      2638842
Odisha      6422978      4382636      788243
Nagaland      607897      375825      123800
```

Meghalaya	366521.0	223330.0	72442.0
Manipur	383140.0	226583.0	75483.0
Maharashtra	16475655	10435121	3972829
Madhya_Pradesh	16235647	13216013	1932769
Kerala	5930617	3070386	1656104
Karnataka	11219422	8157179	1868771
Jharkhand	3211065	2094466	562503
Haryana	8015238.0	4636731.0	2916173.0
Gujarat	13769969.0	9671086.0	2698910.0
Goa	308507	140421	30141
Chhattisgarh	3948847	2613371	352208
Bihar	7951890	4688237	2060296
Assam	3855548	2890544	173478
Arunachal_Pradesh	686117	415520	38387
Andhra_Pradesh	14819416	7893514	4309078

Item	Forestry and logging	Fishing and aquaculture	\
state			
Uttar_Pradesh	1404936	380730	
Uttarakhand	339293.0	4796.0	
Tripura	145096.0	168961.0	
Telangana	210741	266968	
Sikkim	4529	604	
Rajasthan	1956660	58036	
Punjab	848245	107657	
Odisha	791463	460636	
Nagaland	99802	8470	
Meghalaya	61166.0	9583.0	
Manipur	45831.0	35243.0	
Maharashtra	1592564	475141	
Madhya_Pradesh	965588	121277	
Kerala	499808	704319	
Karnataka	693082	500390	
Jharkhand	445149	108947	
Haryana	352254.0	110080.0	
Gujarat	761616.0	638357.0	
Goa	15744	122201	
Chhattisgarh	597785	385483	
Bihar	550132	653224	
Assam	261987	529539	
Arunachal_Pradesh	224017	8193	
Andhra_Pradesh	346160	2270664	

Item	Mining and quarrying	Primary Manufacturing	\
state			
Uttar_Pradesh	901501	25999255	12261649
Uttarakhand	244549.0	1845972.0	5866252.0

Tripura	142391.0	942216.0	228625.0
Telangana	1541853	9133354	6353711
Sikkim	1329	138776	550697
Rajasthan	4069385	19113780	6552580
Punjab	10354	9296070	4790341
Odisha	2586328	9009306	5754229
Nagaland	8280	616178	18346
Meghalaya	84529.0	451050.0	433213.0
Manipur	NaN	383140.0	49501.0
Maharashtra	5282727	21758383	33660294
Madhya_Pradesh	1618373	17854020	4368833
Kerala	558824	6489442	4273567
Karnataka	846882	12066304	12953843
Jharkhand	2037289	5248354	4114148
Haryana	25186.0	8040424.0	7756921.0
Gujarat	2117218.0	15887187.0	24087538.0
Goa	3622	312129	1177608
Chhattisgarh	2451970	6400817	4370593
Bihar	68107	8019997	2189965
Assam	1471149	5326697	2002936
Arunachal_Pradesh	30842	716959	26120
Andhra_Pradesh	1484300	16303716	4672266

Item	Electricity, gas, water supply & other utility services \
state	
Uttar_Pradesh	2030625
Uttarakhand	433880.0
Tripura	77870.0
Telangana	716266
Sikkim	212499
Rajasthan	1122888
Punjab	911611
Odisha	833067
Nagaland	37944
Meghalaya	54473.0
Manipur	27490.0
Maharashtra	4334702
Madhya_Pradesh	1272905
Kerala	482470
Karnataka	1425762
Jharkhand	337489
Haryana	1101919.0
Gujarat	3409983.0
Goa	204110
Chhattisgarh	1198438
Bihar	345168
Assam	296587

Arunachal_Pradesh	113527
Andhra_Pradesh	1151729

Item	Construction	...	Gross State Domestic Product	\
state		...		
Uttar_Pradesh	11256450	...	104337115	
Uttarakhand	1342733.0	...	16198529.0	
Tripura	177899.0	...	2966662.0	
Telangana	2854024	...	51117765	
Sikkim	82058	...	1520933	
Rajasthan	5353326	...	61219447	
Punjab	2202962	...	36801089	
Odisha	2402396	...	32197092	
Nagaland	156072	...	1841424	
Meghalaya	150256.0	...	2440807.0	
Manipur	143182.0	...	1804276.0	
Maharashtra	9450211	...	179212165	
Madhya_Pradesh	4403151	...	48198169	
Kerala	7314003	...	52600230	
Karnataka	6104799	...	92178806	
Jharkhand	1789834	...	21710718	
Haryana	3702571.0	...	43746207.0	
Gujarat	5526017.0	...	89502727.0	
Goa	165819	...	4063307	
Chhattisgarh	2669855	...	23498180	
Bihar	3449763	...	37391988	
Assam	1733568	...	19809800	
Arunachal_Pradesh	147842	...	1676119	
Andhra_Pradesh	4664889	...	52646842	

Item	Population ('00)	Per Capita GSDP (Rs.)	Road transport*	\
state				
Uttar_Pradesh	2109940	49450	NaN	
Uttarakhand	105820.0	153076.0	307147.0	
Tripura	38350.0	77358.0	NaN	
Telangana	367660	139035	NaN	
Sikkim	6330	240274	NaN	
Rajasthan	721610	84837	NaN	
Punjab	290673	126606	NaN	
Odisha	435220	73979	NaN	
Nagaland	20550	89607	NaN	
Meghalaya	32020.0	76228.0	NaN	
Manipur	30873.0	58442.0	NaN	
Maharashtra	1172450	152853	NaN	
Madhya_Pradesh	765180	62989	NaN	
Kerala	339843	154778	NaN	
Karnataka	635100	145141	NaN	

Jharkhand	349660	62091	NaN
Haryana	266620.0	164077.0	NaN
Gujarat	633590.0	141263.0	NaN
Goa	14950	271793	NaN
Chhattisgarh	270530	86860	NaN
Bihar	1101240	33954	NaN
Assam	326780	60621	NaN
Arunachal_Pradesh	14870	112718	NaN
Andhra_Pradesh	501510	104977	NaN

Item	Services incidental to transport* Trade & repair services* \		
state			
Uttar_Pradesh		NaN	NaN
Uttarakhand		NaN	NaN
Tripura	88721.0		NaN
Telangana		NaN	NaN
Sikkim		NaN	NaN
Rajasthan		NaN	NaN
Punjab		NaN	NaN
Odisha		NaN	NaN
Nagaland		NaN	NaN
Meghalaya		NaN	NaN
Manipur		NaN	NaN
Maharashtra		NaN	NaN
Madhya_Pradesh		NaN	NaN
Kerala		NaN	7763847
Karnataka		NaN	NaN
Jharkhand		NaN	NaN
Haryana		NaN	NaN
Gujarat	2744163.0		NaN
Goa		NaN	NaN
Chhattisgarh		NaN	NaN
Bihar		NaN	NaN
Assam		NaN	NaN
Arunachal_Pradesh		NaN	NaN
Andhra_Pradesh		NaN	NaN

Item	Road transport** primary_gdp_percent secondary_gdp_percent \		
state			
Uttar_Pradesh	NaN	0.249185	0.244867
Uttarakhand	NaN	0.113959	0.471825
Tripura	NaN	0.317601	0.163279
Telangana	NaN	0.178673	0.194140
Sikkim	NaN	0.091244	0.555746
Rajasthan	NaN	0.312217	0.212821
Punjab	NaN	0.252603	0.214801
Odisha	NaN	0.279817	0.279208

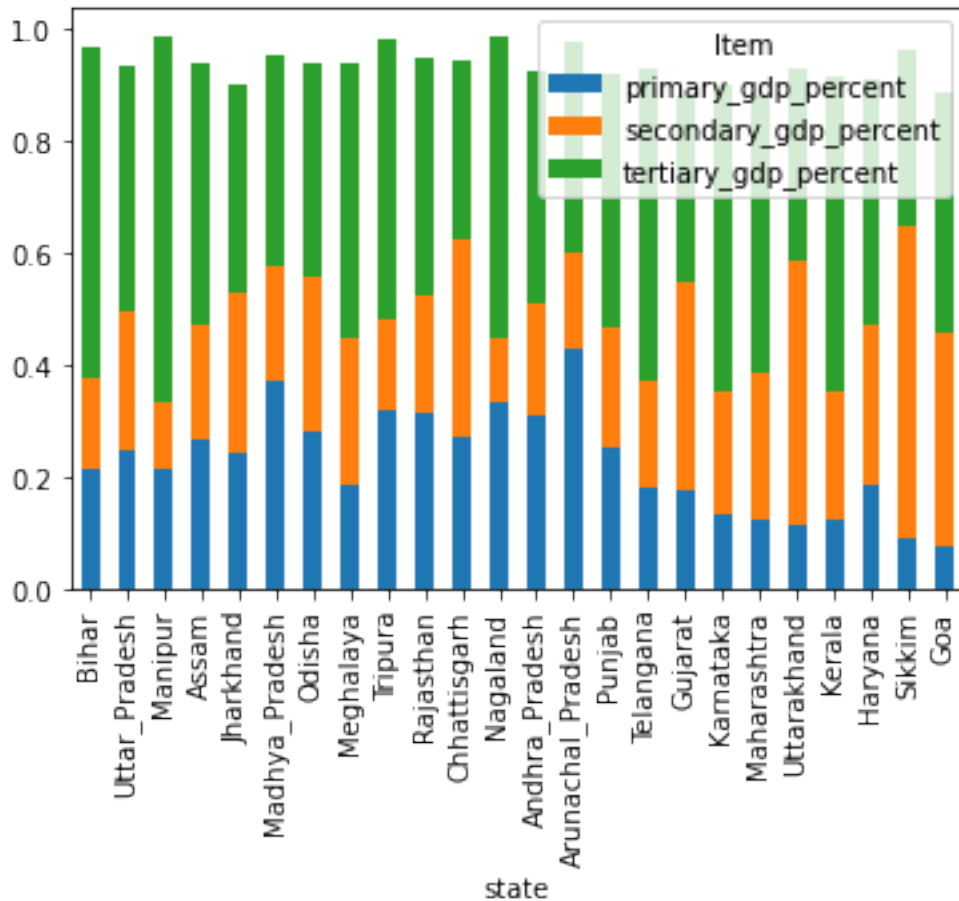
Nagaland	NaN	0.334620	0.115324
Meghalaya	NaN	0.184795	0.261365
Manipur	NaN	0.212351	0.122028
Maharashtra	NaN	0.121411	0.264743
Madhya_Pradesh	NaN	0.370429	0.208408
Kerala	2761427	0.123373	0.229467
Karnataka	NaN	0.130901	0.222225
Jharkhand	NaN	0.241740	0.287483
Haryana	NaN	0.183797	0.287143
Gujarat	NaN	0.177505	0.368967
Goa	NaN	0.076816	0.380856
Chhattisgarh	NaN	0.272396	0.350618
Bihar	NaN	0.214484	0.160058
Assam	NaN	0.268892	0.203591
Arunachal_Pradesh	NaN	0.427749	0.171521
Andhra_Pradesh	NaN	0.309681	0.199231

Item	tertiary_gdp_percent
state	
Uttar_Pradesh	0.440581
Uttarakhand	0.344968
Tripura	0.500464
Telangana	0.556977
Sikkim	0.317636
Rajasthan	0.424960
Punjab	0.454275
Odisha	0.380664
Nagaland	0.539233
Meghalaya	0.491909
Manipur	0.652524
Maharashtra	0.494559
Madhya_Pradesh	0.375893
Kerala	0.564138
Karnataka	0.547747
Jharkhand	0.374623
Haryana	0.439503
Gujarat	0.337648
Goa	0.427784
Chhattisgarh	0.322952
Bihar	0.593174
Assam	0.469823
Arunachal_Pradesh	0.376968
Andhra_Pradesh	0.418505

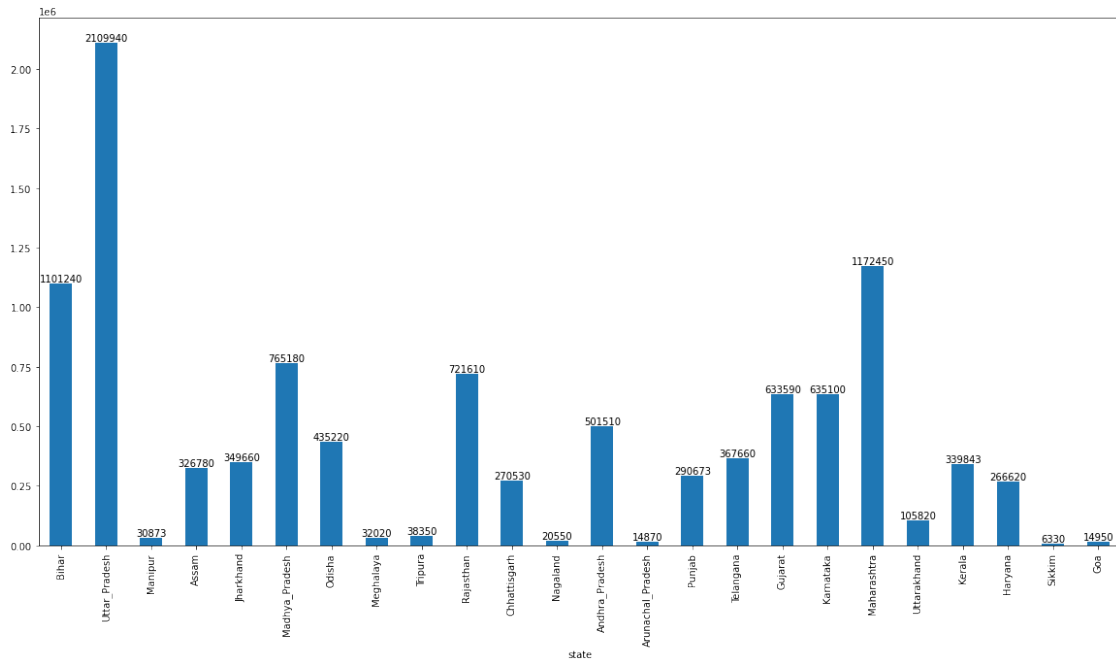
[24 rows x 40 columns]

```
[102]: gsva.sort_values("Per Capita GSDP (Rs.
      ↪")["primary_gdp_percent","secondary_gdp_percent","tertiary_gdp_percent"].
      ↪plot(kind="bar",stacked=True)
```

```
[102]: <AxesSubplot:xlabel='state'>
```



```
[103]: plt.figure(figsize=(20,10))
      ↪ gsva.sort_values("Per Capita GSDP (Rs.)")["Population ('00)"].plot(kind="bar")
      ↪ ax = plt.gca()
      ↪ for i in ax.patches:
      ↪     ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%d' %int(i.
      ↪ get_height()), fontsize=10, ha='center', va='bottom')
      ↪ plt.show()
```



1. For states which has low per capita income, has significant dependence on primary source whereas states which have high per capita income relies more on secondary and tertiary
2. UP has high GDP but due to its population, has low per capita income

```
[104]: per_capita=gsva["Per Capita GSDP (Rs.)"].sort_values()
```

```
[105]: per_capita.quantile([0.20,0.5,0.8,1])
```

```
[105]: 0.2    62629.8
       0.5    97292.0
       0.8   152942.2
       1.0   271793.0
       Name: Per Capita GSDP (Rs.), dtype: object
```

```
[106]: per_capita.sort_values(ascending=False)
```

```
[106]: state
Goa                271793
Sikkim             240274
Haryana            164077.0
Kerala             154778
Uttarakhand        153076.0
Maharashtra        152853
Karnataka          145141
Gujarat            141263.0
Telangana          139035
```

```

Punjab                126606
Arunachal_Pradesh     112718
Andhra_Pradesh        104977
Nagaland              89607
Chhattisgarh         86860
Rajasthan             84837
Tripura               77358.0
Meghalaya             76228.0
Odisha               73979
Madhya_Pradesh        62989
Jharkhand             62091
Assam                60621
Manipur              58442.0
Uttar_Pradesh         49450
Bihar                33954
Name: Per Capita GSDP (Rs.), dtype: object

```

```

[107]: category_1 = ['Goa', 'Sikkim', 'Kerala', 'Haryana']
category_2 = ['Arunachal_Pradesh', 'Punjab', 'Telangana', 'Gujarat', 'Karnataka',
             'Maharashtra', 'Uttarakhand']
category_3 = [ 'Madhya_Pradesh', 'Odisha', 'Meghalaya', 'Tripura', 'Rajasthan',
             'Chhattisgarh', 'Nagaland', 'Andhra_Pradesh']
category_4 = ['Bihar', 'Uttar_Pradesh', 'Manipur', 'Assam', 'Jharkhand' ]

categories_columns = ['Agriculture, forestry and fishing', 'Mining and_
↳quarrying', 'Manufacturing',
                    'Electricity, gas, water supply & other utility_
↳services', 'Construction',
                    'Trade, repair, hotels and restaurants',
                    'Transport, storage, communication & services related to_
↳broadcasting',
                    'Financial services', 'Real estate, ownership of dwelling_
↳& professional services',
                    'Public administration', 'Other services', 'Taxes on_
↳Products', 'Subsidies on products']

```

```

[108]: gsva

```

```

[108]: Item                Agriculture, forestry and fishing    Crops  Livestock  \
state
Uttar_Pradesh            25097754    16215212    7096876
Uttarakhand              1601423.0    866146.0    391188.0
Tripura                  799825.0    397591.0    88176.0
Telangana                7591501    4162493    2951299
Sikkim                   137447     114976     17338
Rajasthan                15044394    7673441    5356257
Punjab                   9285716     5690972    2638842

```

Odisha	6422978	4382636	788243
Nagaland	607897	375825	123800
Meghalaya	366521.0	223330.0	72442.0
Manipur	383140.0	226583.0	75483.0
Maharashtra	16475655	10435121	3972829
Madhya_Pradesh	16235647	13216013	1932769
Kerala	5930617	3070386	1656104
Karnataka	11219422	8157179	1868771
Jharkhand	3211065	2094466	562503
Haryana	8015238.0	4636731.0	2916173.0
Gujarat	13769969.0	9671086.0	2698910.0
Goa	308507	140421	30141
Chhattisgarh	3948847	2613371	352208
Bihar	7951890	4688237	2060296
Assam	3855548	2890544	173478
Arunachal_Pradesh	686117	415520	38387
Andhra_Pradesh	14819416	7893514	4309078

Item Forestry and logging Fishing and aquaculture \

state

Uttar_Pradesh	1404936	380730
Uttarakhand	339293.0	4796.0
Tripura	145096.0	168961.0
Telangana	210741	266968
Sikkim	4529	604
Rajasthan	1956660	58036
Punjab	848245	107657
Odisha	791463	460636
Nagaland	99802	8470
Meghalaya	61166.0	9583.0
Manipur	45831.0	35243.0
Maharashtra	1592564	475141
Madhya_Pradesh	965588	121277
Kerala	499808	704319
Karnataka	693082	500390
Jharkhand	445149	108947
Haryana	352254.0	110080.0
Gujarat	761616.0	638357.0
Goa	15744	122201
Chhattisgarh	597785	385483
Bihar	550132	653224
Assam	261987	529539
Arunachal_Pradesh	224017	8193
Andhra_Pradesh	346160	2270664

Item Mining and quarrying Primary Manufacturing \

state

Uttar_Pradesh	901501	25999255	12261649
Uttarakhand	244549.0	1845972.0	5866252.0
Tripura	142391.0	942216.0	228625.0
Telangana	1541853	9133354	6353711
Sikkim	1329	138776	550697
Rajasthan	4069385	19113780	6552580
Punjab	10354	9296070	4790341
Odisha	2586328	9009306	5754229
Nagaland	8280	616178	18346
Meghalaya	84529.0	451050.0	433213.0
Manipur	NaN	383140.0	49501.0
Maharashtra	5282727	21758383	33660294
Madhya_Pradesh	1618373	17854020	4368833
Kerala	558824	6489442	4273567
Karnataka	846882	12066304	12953843
Jharkhand	2037289	5248354	4114148
Haryana	25186.0	8040424.0	7756921.0
Gujarat	2117218.0	15887187.0	24087538.0
Goa	3622	312129	1177608
Chhattisgarh	2451970	6400817	4370593
Bihar	68107	8019997	2189965
Assam	1471149	5326697	2002936
Arunachal_Pradesh	30842	716959	26120
Andhra_Pradesh	1484300	16303716	4672266

Item	Electricity, gas, water supply & other utility services \
state	
Uttar_Pradesh	2030625
Uttarakhand	433880.0
Tripura	77870.0
Telangana	716266
Sikkim	212499
Rajasthan	1122888
Punjab	911611
Odisha	833067
Nagaland	37944
Meghalaya	54473.0
Manipur	27490.0
Maharashtra	4334702
Madhya_Pradesh	1272905
Kerala	482470
Karnataka	1425762
Jharkhand	337489
Haryana	1101919.0
Gujarat	3409983.0
Goa	204110
Chhattisgarh	1198438

Bihar	345168
Assam	296587
Arunachal_Pradesh	113527
Andhra_Pradesh	1151729

Item	Construction	...	Gross State Domestic Product	\
state		...		
Uttar_Pradesh	11256450	...	104337115	
Uttarakhand	1342733.0	...	16198529.0	
Tripura	177899.0	...	2966662.0	
Telangana	2854024	...	51117765	
Sikkim	82058	...	1520933	
Rajasthan	5353326	...	61219447	
Punjab	2202962	...	36801089	
Odisha	2402396	...	32197092	
Nagaland	156072	...	1841424	
Meghalaya	150256.0	...	2440807.0	
Manipur	143182.0	...	1804276.0	
Maharashtra	9450211	...	179212165	
Madhya_Pradesh	4403151	...	48198169	
Kerala	7314003	...	52600230	
Karnataka	6104799	...	92178806	
Jharkhand	1789834	...	21710718	
Haryana	3702571.0	...	43746207.0	
Gujarat	5526017.0	...	89502727.0	
Goa	165819	...	4063307	
Chhattisgarh	2669855	...	23498180	
Bihar	3449763	...	37391988	
Assam	1733568	...	19809800	
Arunachal_Pradesh	147842	...	1676119	
Andhra_Pradesh	4664889	...	52646842	

Item	Population ('00)	Per Capita GSDP (Rs.)	Road transport*	\
state				
Uttar_Pradesh	2109940	49450	NaN	
Uttarakhand	105820.0	153076.0	307147.0	
Tripura	38350.0	77358.0	NaN	
Telangana	367660	139035	NaN	
Sikkim	6330	240274	NaN	
Rajasthan	721610	84837	NaN	
Punjab	290673	126606	NaN	
Odisha	435220	73979	NaN	
Nagaland	20550	89607	NaN	
Meghalaya	32020.0	76228.0	NaN	
Manipur	30873.0	58442.0	NaN	
Maharashtra	1172450	152853	NaN	
Madhya_Pradesh	765180	62989	NaN	

Kerala	339843	154778	NaN
Karnataka	635100	145141	NaN
Jharkhand	349660	62091	NaN
Haryana	266620.0	164077.0	NaN
Gujarat	633590.0	141263.0	NaN
Goa	14950	271793	NaN
Chhattisgarh	270530	86860	NaN
Bihar	1101240	33954	NaN
Assam	326780	60621	NaN
Arunachal_Pradesh	14870	112718	NaN
Andhra_Pradesh	501510	104977	NaN

Item	Services incidental to transport* Trade & repair services* \		
state			
Uttar_Pradesh		NaN	NaN
Uttarakhand		NaN	NaN
Tripura	88721.0		NaN
Telangana		NaN	NaN
Sikkim		NaN	NaN
Rajasthan		NaN	NaN
Punjab		NaN	NaN
Odisha		NaN	NaN
Nagaland		NaN	NaN
Meghalaya		NaN	NaN
Manipur		NaN	NaN
Maharashtra		NaN	NaN
Madhya_Pradesh		NaN	NaN
Kerala		NaN	7763847
Karnataka		NaN	NaN
Jharkhand		NaN	NaN
Haryana		NaN	NaN
Gujarat	2744163.0		NaN
Goa		NaN	NaN
Chhattisgarh		NaN	NaN
Bihar		NaN	NaN
Assam		NaN	NaN
Arunachal_Pradesh		NaN	NaN
Andhra_Pradesh		NaN	NaN

Item	Road transport** primary_gdp_percent secondary_gdp_percent \		
state			
Uttar_Pradesh	NaN	0.249185	0.244867
Uttarakhand	NaN	0.113959	0.471825
Tripura	NaN	0.317601	0.163279
Telangana	NaN	0.178673	0.194140
Sikkim	NaN	0.091244	0.555746
Rajasthan	NaN	0.312217	0.212821

Punjab	NaN	0.252603	0.214801
Odisha	NaN	0.279817	0.279208
Nagaland	NaN	0.334620	0.115324
Meghalaya	NaN	0.184795	0.261365
Manipur	NaN	0.212351	0.122028
Maharashtra	NaN	0.121411	0.264743
Madhya_Pradesh	NaN	0.370429	0.208408
Kerala	2761427	0.123373	0.229467
Karnataka	NaN	0.130901	0.222225
Jharkhand	NaN	0.241740	0.287483
Haryana	NaN	0.183797	0.287143
Gujarat	NaN	0.177505	0.368967
Goa	NaN	0.076816	0.380856
Chhattisgarh	NaN	0.272396	0.350618
Bihar	NaN	0.214484	0.160058
Assam	NaN	0.268892	0.203591
Arunachal_Pradesh	NaN	0.427749	0.171521
Andhra_Pradesh	NaN	0.309681	0.199231

Item	tertiary_gdp_percent
------	----------------------

state	
Uttar_Pradesh	0.440581
Uttarakhand	0.344968
Tripura	0.500464
Telangana	0.556977
Sikkim	0.317636
Rajasthan	0.424960
Punjab	0.454275
Odisha	0.380664
Nagaland	0.539233
Meghalaya	0.491909
Manipur	0.652524
Maharashtra	0.494559
Madhya_Pradesh	0.375893
Kerala	0.564138
Karnataka	0.547747
Jharkhand	0.374623
Haryana	0.439503
Gujarat	0.337648
Goa	0.427784
Chhattisgarh	0.322952
Bihar	0.593174
Assam	0.469823
Arunachal_Pradesh	0.376968
Andhra_Pradesh	0.418505

[24 rows x 40 columns]

4 Category 1

```
[109]: agg=gsva.loc[category_1,categories_columns].sum()
```

```
[110]: agg_gsdp=gsva.loc[category_1,"Gross State Domestic Product"].sum()
```

```
[111]: agg
```

```
[111]: Item
Agriculture, forestry and fishing
14391809.0
Mining and quarrying
588961.0
Manufacturing
13758793.0
Electricity, gas, water supply & other utility services
2000998.0
Construction
11264451.0
Trade, repair, hotels and restaurants
13995159.0
Transport, storage, communication & services related to broadcasting
6818560.0
Financial services
3936489.0
Real estate, ownership of dwelling & professional services
14740245.0
Public administration
3571292.0
Other services
8059922.0
Taxes on Products
10774501.0
Subsidies on products
1970502.0
dtype: object
```

```
[112]: agg_gsdp
```

```
[112]: 101930677.0
```

```
[113]: ((agg/agg_gsdp)*100).sort_values(ascending=False)
```

```
[113]: Item
Real estate, ownership of dwelling & professional services
14.461049
Agriculture, forestry and fishing
14.119213
```

```

Trade, repair, hotels and restaurants
13.730076
Manufacturing
13.498187
Construction
11.05109
Taxes on Products
10.57042
Other services
7.907258
Transport, storage, communication & services related to broadcasting
6.689409
Financial services
3.861928
Public administration
3.503648
Electricity, gas, water supply & other utility services
1.963097
Subsidies on products
1.933179
Mining and quarrying
0.577805
dtype: object

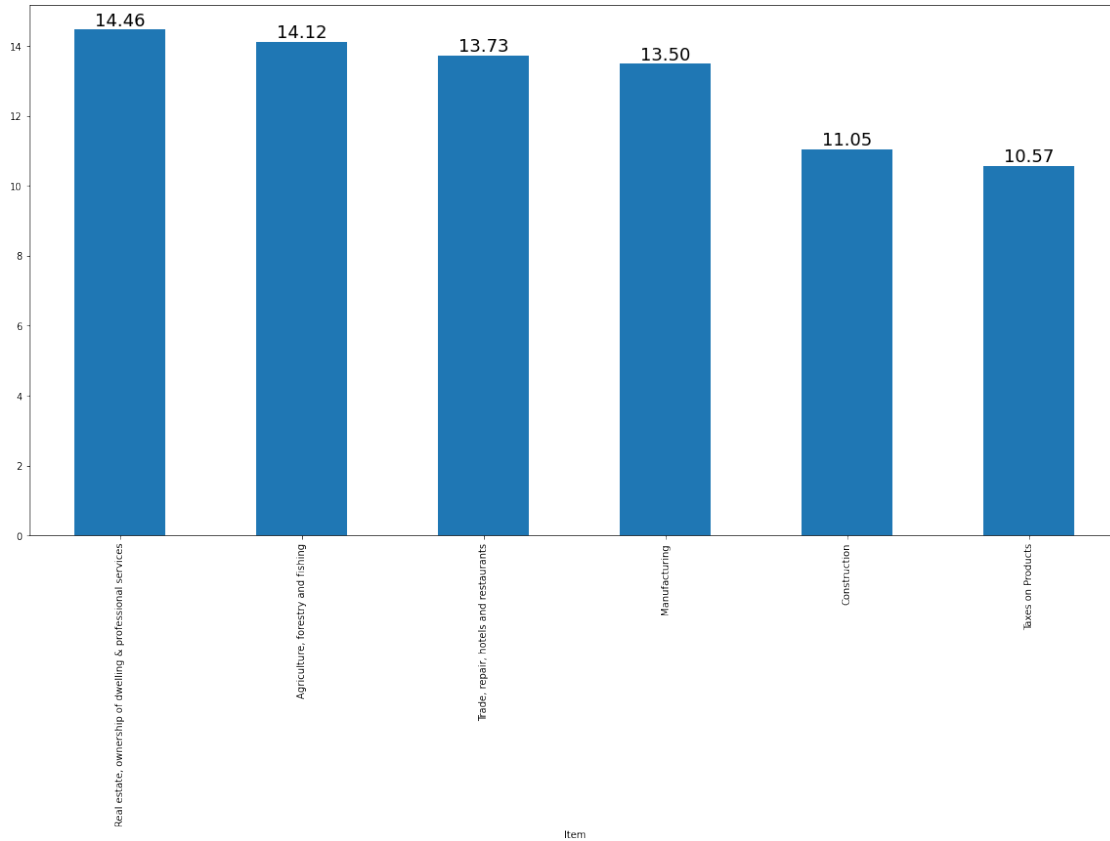
```

```

[114]: plt.figure(figsize=(20, 10))
((agg/agg_gsdp)*100).sort_values(ascending=False)[:6].plot.bar()

ax = plt.gca()
for i in ax.patches:
    ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%.2f' %float(i.
    ↳get_height()), fontsize=18, ha='center', va='bottom')
plt.show()

```



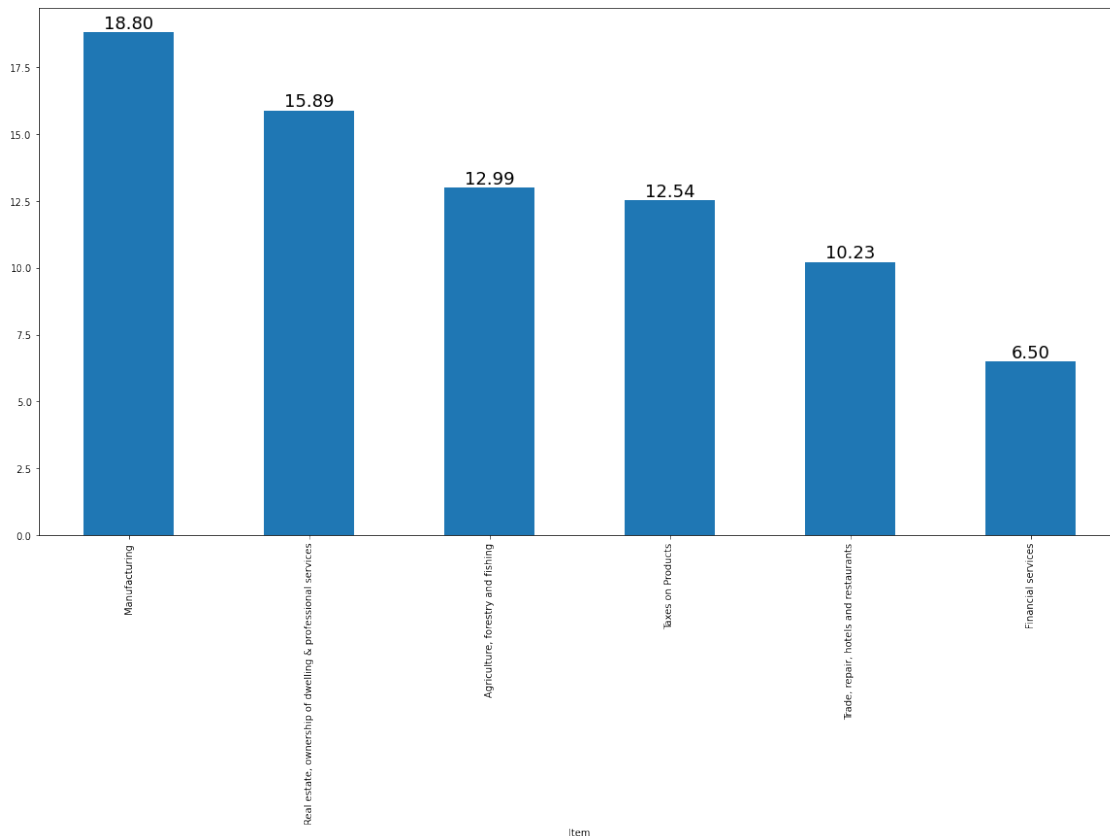
Category 1: There are only 4 states in this category, all of which are small (area-wise) and have good industrial base , agricultural, trade and real estate. 1. Trade and hospitality business should be promoted further 2. Manufacturing should be further promoted

5 Category 2 States

```
[115]: agg=gsva.loc[category_2,categories_columns].sum()
agg_gsdg=gsva.loc[category_2,"Gross State Domestic Product"].sum()
```

```
[116]: plt.figure(figsize=(20, 10))
((agg/agg_gsdg)*100).sort_values(ascending=False)[:6].plot.bar()

ax = plt.gca()
for i in ax.patches:
    ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%.2f' %float(i.
    ↳get_height()), fontsize=18, ha='center', va='bottom')
plt.show()
```



1. These states have relatively good per capita gdp and are driven by around equal percentage by industries and agriculture. This implies that these states have a pool of talent to drive industries and agriculture. Because of the talent, other industries can take their advantage and set up good industries.
2. States like Karnataka, Tamil Nadu, Gujarat and Maharashtra, which have a huge coastal area, can setup ports. Coastal area can help in harnessing clean energy and fisheries can be increased. Similarly, the tourism industry should also be encouraged.

6 Category 3 States

```
[117]: agg=gsva.loc[category_3, categories_columns].sum()
agg_gsdg=gsva.loc[category_3, "Gross State Domestic Product"].sum()
#round(100*agg/agg_gsdg).sort_values(ascending=False)[0:6].plot.bar()
```

```
[118]: plt.figure(figsize=(20, 10))
((agg/agg_gsdg)*100).sort_values(ascending=False)[:6].plot.bar()

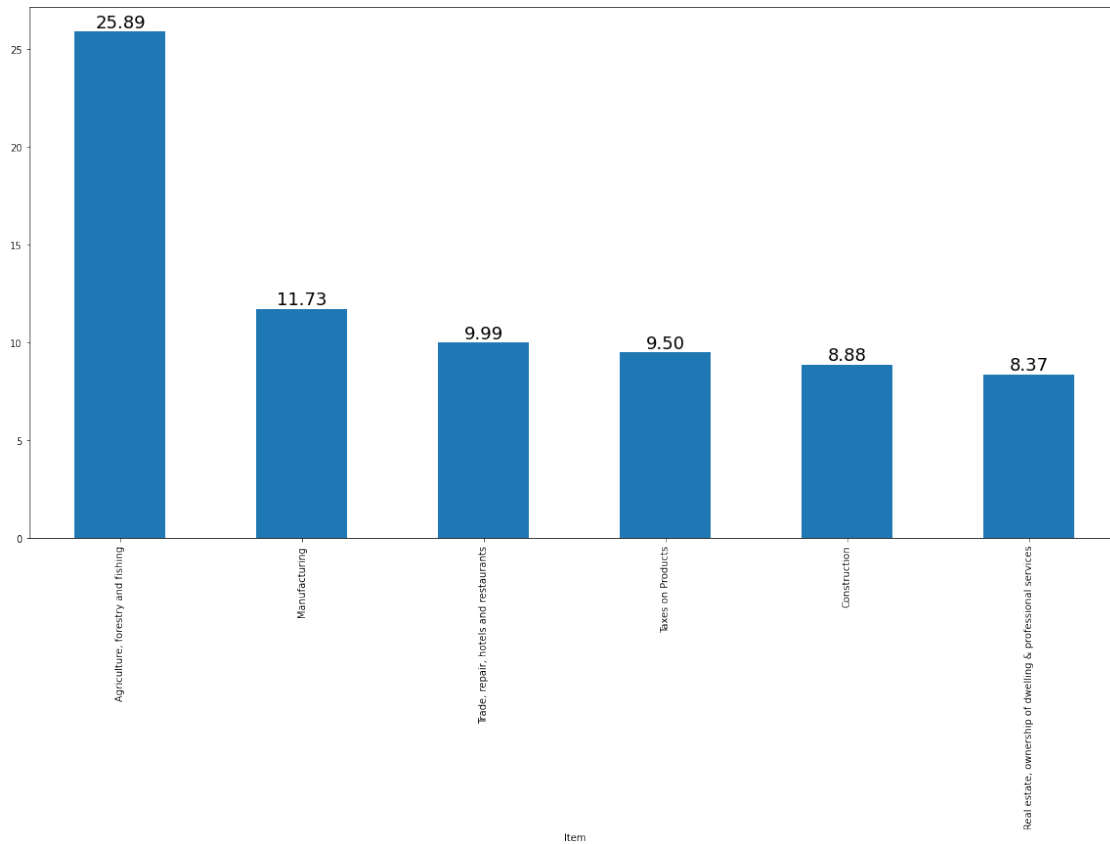
ax = plt.gca()
for i in ax.patches:
```



```

    ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%.2f' %float(i.
    ↪get_height()), fontsize=18, ha='center', va='bottom')
plt.show()

```



7 Category 4 States

```

[119]: agg=gsva.loc[category_4,categories_columns].sum()
agg_gsdg=gsva.loc[category_4,"Gross State Domestic Product"].sum()
#round(100*agg/agg_gsdg).sort_values(ascending=False)[0:6].plot.bar()

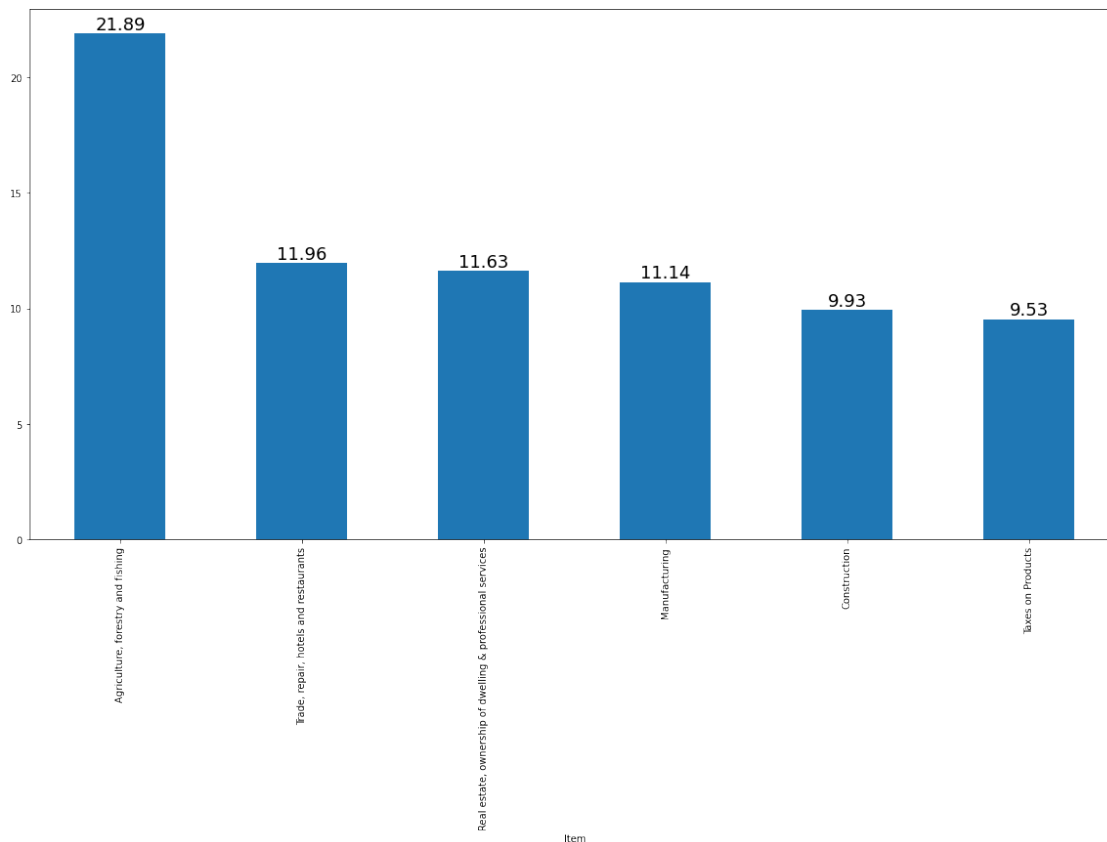
```

```

[120]: plt.figure(figsize=(20, 10))
((agg/agg_gsdg)*100).sort_values(ascending=False)[:6].plot.bar()

ax = plt.gca()
for i in ax.patches:
    ax.text(i.get_x() + i.get_width()/2 , i.get_height(), '%.2f' %float(i.
    ↪get_height()), fontsize=18, ha='center', va='bottom')
plt.show()

```



8 Part 2

```
[121]: drop_out_rate=pd.read_csv("rs_session243_au570_1.1.csv",index_col=0)
```

```
[122]: drop_out_rate
```

```
[122]:      Level of Education - State  Primary - 2012-2013  \
Sl. No.
1          A & N Islands          0.68
2        Andhra Pradesh          3.18
3    Arunachal Pradesh         15.16
4              Assam           6.24
5              Bihar            NaN
6        Chandigarh            NaN
7        Chhatisgarh          4.14
8    Dadra & Nagar Haveli         NaN
9        Daman & Diu            NaN
10             Delhi            NaN
11              Goa            NaN
12         Gujarat           0.74
```

13	Haryana	1.29
14	Himachal Pradesh	0.45
15	Jammu and Kashmir	6.30
16	Jharkhand	7.21
17	Karnataka	2.97
18	Kerala	NaN
19	Lakshadweep	2.50
20	Madhya Pradesh	6.11
21	Maharashtra	0.97
22	Manipur	9.86
23	Meghalaya	10.14
24	Mizoram	24.11
25	Nagaland	7.07
26	Odisha	3.56
27	Puducherry	0.34
28	Punjab	1.99
29	Rajasthan	7.97
30	Sikkim	3.60
31	Tamil Nadu	4.06
32	Telangana	NaN
33	Tripura	2.22
34	Uttar Pradesh	10.28
35	Uttarakhand	1.16
36	West Bengal	6.30
All India	All India	4.67

Primary - 2014-2015 Primary - 2014-2015.1 \

Sl. No.		
1	1.21	0.51
2	4.35	6.72
3	10.89	10.82
4	7.44	15.36
5	2.09	NaN
6	NaN	NaN
7	1.42	2.91
8	1.57	1.47
9	0.85	1.11
10	NaN	NaN
11	0.20	0.73
12	0.76	0.89
13	0.41	5.61
14	0.46	0.64
15	5.46	6.79
16	6.41	5.48
17	2.32	2.02
18	NaN	NaN
19	NaN	NaN

20	10.14	6.59
21	0.55	1.26
22	18.00	9.66
23	10.34	9.46
24	12.96	10.10
25	19.41	5.61
26	2.94	2.86
27	0.66	0.37
28	1.29	3.05
29	8.39	5.02
30	4.57	2.27
31	0.46	NaN
32	5.81	2.08
33	3.58	1.28
34	7.08	8.58
35	3.07	4.04
36	2.91	1.47
All India	4.34	4.13

Sl. No.	Upper Primary - 2012-2013	Upper Primary - 2013-2014 \
1	1.23	0.51
2	3.36	3.78
3	7.47	5.59
4	7.20	7.05
5	NaN	2.98
6	0.10	1.08
7	5.42	3.80
8	3.38	4.13
9	NaN	3.58
10	NaN	2.78
11	NaN	NaN
12	5.20	5.55
13	0.46	2.55
14	0.51	0.78
15	5.52	4.30
16	5.47	7.42
17	5.05	2.51
18	NaN	NaN
19	0.29	1.86
20	8.53	11.70
21	1.74	0.61
22	6.06	7.02
23	7.85	6.84
24	19.28	6.02
25	9.83	17.86
26	3.81	2.80

27	0.68	0.60
28	2.78	2.85
29	4.42	6.03
30	3.15	5.14
31	1.24	4.52
32	NaN	4.71
33	3.08	2.72
34	1.06	0.53
35	0.13	1.68
36	5.18	4.31
All India	3.13	3.77

Sl. No.	Upper Primary - 2014-2015	Secondary - 2012-2013 \
1	1.69	5.56
2	5.20	12.72
3	6.71	12.93
4	10.51	26.77
5	4.08	30.14
6	0.44	NaN
7	5.85	14.86
8	4.02	24.41
9	3.11	11.52
10	0.76	5.32
11	0.07	7.96
12	6.41	13.55
13	5.81	8.98
14	0.87	8.37
15	5.44	17.33
16	8.99	18.50
17	3.85	39.92
18	NaN	9.45
19	2.78	7.68
20	9.20	13.63
21	1.79	16.20
22	4.20	9.75
23	6.52	26.03
24	4.78	21.42
25	7.92	26.51
26	3.81	49.86
27	0.56	15.21
28	3.22	9.80
29	3.07	13.65
30	1.57	9.23
31	NaN	10.20
32	2.30	NaN
33	1.99	25.50

34	2.70	NaN
35	1.19	9.68
36	4.30	17.30
All India	4.03	14.54

Sl. No.	Secondary - 2013-2014	Secondary - 2014-2015 \
1	7.20	9.870
2	12.65	15.710
3	14.49	17.110
4	30.43	27.060
5	25.33	25.900
6	NaN	NaN
7	23.41	21.260
8	28.59	16.770
9	19.86	32.270
10	8.90	11.810
11	9.58	11.150
12	21.61	25.040
13	12.51	15.890
14	9.09	6.070
15	15.36	17.280
16	23.15	24.000
17	27.57	26.180
18	14.46	12.320
19	8.03	6.763
20	26.47	24.770
21	14.47	12.870
22	13.81	14.380
23	24.75	20.520
24	18.70	21.880
25	35.11	18.230
26	49.48	29.560
27	14.24	12.190
28	8.83	8.860
29	18.77	13.480
30	12.89	15.890
31	12.20	8.100
32	17.43	15.530
33	25.09	28.420
34	7.30	10.220
35	8.70	10.400
36	18.34	17.800
All India	17.86	17.060

Sl. No.	Senior Secondary - 2012-2013	Senior Secondary - 2013-2014 \
---------	------------------------------	--------------------------------

1	14.14	15.87
2	0.35	11.79
3	5.11	17.07
4	4.69	7.24
5	NaN	NaN
6	13.65	11.28
7	NaN	NaN
8	9.65	6.24
9	1.26	9.86
10	14.47	16.25
11	11.26	13.36
12	0.46	7.83
13	NaN	2.18
14	9.02	7.07
15	10.66	7.64
16	NaN	NaN
17	15.33	NaN
18	NaN	6.40
19	6.59	2.82
20	NaN	1.55
21	3.20	3.34
22	7.93	3.20
23	NaN	NaN
24	NaN	NaN
25	18.29	14.19
26	NaN	NaN
27	5.25	11.16
28	8.28	5.81
29	NaN	NaN
30	8.10	12.91
31	1.87	4.44
32	NaN	13.43
33	8.87	9.11
34	NaN	NaN
35	1.59	NaN
36	8.13	7.90
All India	NaN	1.54

Senior Secondary - 2014-2015

Sl. No.	
1	16.93
2	NaN
3	18.42
4	NaN
5	NaN
6	10.55
7	2.76

8	9.47
9	40.48
10	17.32
11	13.91
12	7.04
13	5.75
14	7.41
15	12.65
16	3.41
17	1.96
18	0.47
19	3.12
20	NaN
21	1.83
22	NaN
23	NaN
24	6.91
25	6.97
26	NaN
27	4.50
28	5.83
29	NaN
30	11.76
31	3.41
32	0.77
33	8.93
34	2.10
35	3.01
36	8.11
All India	NaN

```
[123]: drop_out_rate.rename(columns={'Level of Education - State':
↳ 'State'},inplace=True)
```

```
[124]: drop_out_rate.replace({"Andhra Pradesh":"Andhra_Pradesh","Arunachal Pradesh":
↳ "Arunachal_Pradesh",
                                "Uttar Pradesh":"Uttar_Pradesh","Madhya Pradesh":
↳ "Madhya_Pradesh"},inplace=True)
```

```
[125]: drop_out_rate
```

```
[125]:
```

	State	Primary - 2012-2013	Primary - 2014-2015 \
Sl. No.			
1	A & N Islands	0.68	1.21
2	Andhra_Pradesh	3.18	4.35
3	Arunachal_Pradesh	15.16	10.89
4	Assam	6.24	7.44

5	Bihar	NaN	2.09
6	Chandigarh	NaN	NaN
7	Chhatisgarh	4.14	1.42
8	Dadra & Nagar Haveli	NaN	1.57
9	Daman & Diu	NaN	0.85
10	Delhi	NaN	NaN
11	Goa	NaN	0.20
12	Gujarat	0.74	0.76
13	Haryana	1.29	0.41
14	Himachal Pradesh	0.45	0.46
15	Jammu and Kashmir	6.30	5.46
16	Jharkhand	7.21	6.41
17	Karnataka	2.97	2.32
18	Kerala	NaN	NaN
19	Lakshadweep	2.50	NaN
20	Madhya_Pradesh	6.11	10.14
21	Maharashtra	0.97	0.55
22	Manipur	9.86	18.00
23	Meghalaya	10.14	10.34
24	Mizoram	24.11	12.96
25	Nagaland	7.07	19.41
26	Odisha	3.56	2.94
27	Puducherry	0.34	0.66
28	Punjab	1.99	1.29
29	Rajasthan	7.97	8.39
30	Sikkim	3.60	4.57
31	Tamil Nadu	4.06	0.46
32	Telangana	NaN	5.81
33	Tripura	2.22	3.58
34	Uttar_Pradesh	10.28	7.08
35	Uttrakhand	1.16	3.07
36	West Bengal	6.30	2.91
All India	All India	4.67	4.34

Primary - 2014-2015.1 Upper Primary - 2012-2013 \

Sl. No.		
1	0.51	1.23
2	6.72	3.36
3	10.82	7.47
4	15.36	7.20
5	NaN	NaN
6	NaN	0.10
7	2.91	5.42
8	1.47	3.38
9	1.11	NaN
10	NaN	NaN
11	0.73	NaN

12	0.89	5.20
13	5.61	0.46
14	0.64	0.51
15	6.79	5.52
16	5.48	5.47
17	2.02	5.05
18	NaN	NaN
19	NaN	0.29
20	6.59	8.53
21	1.26	1.74
22	9.66	6.06
23	9.46	7.85
24	10.10	19.28
25	5.61	9.83
26	2.86	3.81
27	0.37	0.68
28	3.05	2.78
29	5.02	4.42
30	2.27	3.15
31	NaN	1.24
32	2.08	NaN
33	1.28	3.08
34	8.58	1.06
35	4.04	0.13
36	1.47	5.18
All India	4.13	3.13

Sl. No.	Upper Primary - 2013-2014	Upper Primary - 2014-2015 \
1	0.51	1.69
2	3.78	5.20
3	5.59	6.71
4	7.05	10.51
5	2.98	4.08
6	1.08	0.44
7	3.80	5.85
8	4.13	4.02
9	3.58	3.11
10	2.78	0.76
11	NaN	0.07
12	5.55	6.41
13	2.55	5.81
14	0.78	0.87
15	4.30	5.44
16	7.42	8.99
17	2.51	3.85
18	NaN	NaN

19	1.86	2.78
20	11.70	9.20
21	0.61	1.79
22	7.02	4.20
23	6.84	6.52
24	6.02	4.78
25	17.86	7.92
26	2.80	3.81
27	0.60	0.56
28	2.85	3.22
29	6.03	3.07
30	5.14	1.57
31	4.52	NaN
32	4.71	2.30
33	2.72	1.99
34	0.53	2.70
35	1.68	1.19
36	4.31	4.30
All India	3.77	4.03

Sl. No.	Secondary - 2012-2013	Secondary - 2013-2014 \
1	5.56	7.20
2	12.72	12.65
3	12.93	14.49
4	26.77	30.43
5	30.14	25.33
6	NaN	NaN
7	14.86	23.41
8	24.41	28.59
9	11.52	19.86
10	5.32	8.90
11	7.96	9.58
12	13.55	21.61
13	8.98	12.51
14	8.37	9.09
15	17.33	15.36
16	18.50	23.15
17	39.92	27.57
18	9.45	14.46
19	7.68	8.03
20	13.63	26.47
21	16.20	14.47
22	9.75	13.81
23	26.03	24.75
24	21.42	18.70
25	26.51	35.11

26	49.86	49.48
27	15.21	14.24
28	9.80	8.83
29	13.65	18.77
30	9.23	12.89
31	10.20	12.20
32	NaN	17.43
33	25.50	25.09
34	NaN	7.30
35	9.68	8.70
36	17.30	18.34
All India	14.54	17.86

Sl. No.	Secondary - 2014-2015	Senior Secondary - 2012-2013 \
1	9.870	14.14
2	15.710	0.35
3	17.110	5.11
4	27.060	4.69
5	25.900	NaN
6	NaN	13.65
7	21.260	NaN
8	16.770	9.65
9	32.270	1.26
10	11.810	14.47
11	11.150	11.26
12	25.040	0.46
13	15.890	NaN
14	6.070	9.02
15	17.280	10.66
16	24.000	NaN
17	26.180	15.33
18	12.320	NaN
19	6.763	6.59
20	24.770	NaN
21	12.870	3.20
22	14.380	7.93
23	20.520	NaN
24	21.880	NaN
25	18.230	18.29
26	29.560	NaN
27	12.190	5.25
28	8.860	8.28
29	13.480	NaN
30	15.890	8.10
31	8.100	1.87
32	15.530	NaN

33	28.420	8.87
34	10.220	NaN
35	10.400	1.59
36	17.800	8.13
All India	17.060	NaN

	Senior Secondary - 2013-2014	Senior Secondary - 2014-2015
Sl. No.		
1	15.87	16.93
2	11.79	NaN
3	17.07	18.42
4	7.24	NaN
5	NaN	NaN
6	11.28	10.55
7	NaN	2.76
8	6.24	9.47
9	9.86	40.48
10	16.25	17.32
11	13.36	13.91
12	7.83	7.04
13	2.18	5.75
14	7.07	7.41
15	7.64	12.65
16	NaN	3.41
17	NaN	1.96
18	6.40	0.47
19	2.82	3.12
20	1.55	NaN
21	3.34	1.83
22	3.20	NaN
23	NaN	NaN
24	NaN	6.91
25	14.19	6.97
26	NaN	NaN
27	11.16	4.50
28	5.81	5.83
29	NaN	NaN
30	12.91	11.76
31	4.44	3.41
32	13.43	0.77
33	9.11	8.93
34	NaN	2.10
35	NaN	3.01
36	7.90	8.11
All India	1.54	NaN

```
[126]: drop_out_rate=drop_out_rate.set_index("State")
```

[127]: drop_out_rate

[127]: Primary - 2012-2013 Primary - 2014-2015 \

State		
A & N Islands	0.68	1.21
Andhra_Pradesh	3.18	4.35
Arunachal_Pradesh	15.16	10.89
Assam	6.24	7.44
Bihar	NaN	2.09
Chandigarh	NaN	NaN
Chhatisgarh	4.14	1.42
Dadra & Nagar Haveli	NaN	1.57
Daman & Diu	NaN	0.85
Delhi	NaN	NaN
Goa	NaN	0.20
Gujarat	0.74	0.76
Haryana	1.29	0.41
Himachal Pradesh	0.45	0.46
Jammu and Kashmir	6.30	5.46
Jharkhand	7.21	6.41
Karnataka	2.97	2.32
Kerala	NaN	NaN
Lakshadweep	2.50	NaN
Madhya_Pradesh	6.11	10.14
Maharashtra	0.97	0.55
Manipur	9.86	18.00
Meghalaya	10.14	10.34
Mizoram	24.11	12.96
Nagaland	7.07	19.41
Odisha	3.56	2.94
Puducherry	0.34	0.66
Punjab	1.99	1.29
Rajasthan	7.97	8.39
Sikkim	3.60	4.57
Tamil Nadu	4.06	0.46
Telangana	NaN	5.81
Tripura	2.22	3.58
Uttar_Pradesh	10.28	7.08
Uttrakhand	1.16	3.07
West Bengal	6.30	2.91
All India	4.67	4.34

Primary - 2014-2015.1 Upper Primary - 2012-2013 \

State		
A & N Islands	0.51	1.23
Andhra_Pradesh	6.72	3.36
Arunachal_Pradesh	10.82	7.47

Assam	15.36	7.20
Bihar	NaN	NaN
Chandigarh	NaN	0.10
Chhatisgarh	2.91	5.42
Dadra & Nagar Haveli	1.47	3.38
Daman & Diu	1.11	NaN
Delhi	NaN	NaN
Goa	0.73	NaN
Gujarat	0.89	5.20
Haryana	5.61	0.46
Himachal Pradesh	0.64	0.51
Jammu and Kashmir	6.79	5.52
Jharkhand	5.48	5.47
Karnataka	2.02	5.05
Kerala	NaN	NaN
Lakshadweep	NaN	0.29
Madhya_Pradesh	6.59	8.53
Maharashtra	1.26	1.74
Manipur	9.66	6.06
Meghalaya	9.46	7.85
Mizoram	10.10	19.28
Nagaland	5.61	9.83
Odisha	2.86	3.81
Puducherry	0.37	0.68
Punjab	3.05	2.78
Rajasthan	5.02	4.42
Sikkim	2.27	3.15
Tamil Nadu	NaN	1.24
Telangana	2.08	NaN
Tripura	1.28	3.08
Uttar_Pradesh	8.58	1.06
Uttrakhand	4.04	0.13
West Bengal	1.47	5.18
All India	4.13	3.13

Upper Primary - 2013-2014 Upper Primary - 2014-2015 \

State		
A & N Islands	0.51	1.69
Andhra_Pradesh	3.78	5.20
Arunachal_Pradesh	5.59	6.71
Assam	7.05	10.51
Bihar	2.98	4.08
Chandigarh	1.08	0.44
Chhatisgarh	3.80	5.85
Dadra & Nagar Haveli	4.13	4.02
Daman & Diu	3.58	3.11
Delhi	2.78	0.76

Goa	NaN	0.07
Gujarat	5.55	6.41
Haryana	2.55	5.81
Himachal Pradesh	0.78	0.87
Jammu and Kashmir	4.30	5.44
Jharkhand	7.42	8.99
Karnataka	2.51	3.85
Kerala	NaN	NaN
Lakshadweep	1.86	2.78
Madhya_Pradesh	11.70	9.20
Maharashtra	0.61	1.79
Manipur	7.02	4.20
Meghalaya	6.84	6.52
Mizoram	6.02	4.78
Nagaland	17.86	7.92
Odisha	2.80	3.81
Puducherry	0.60	0.56
Punjab	2.85	3.22
Rajasthan	6.03	3.07
Sikkim	5.14	1.57
Tamil Nadu	4.52	NaN
Telangana	4.71	2.30
Tripura	2.72	1.99
Uttar_Pradesh	0.53	2.70
Uttrakhand	1.68	1.19
West Bengal	4.31	4.30
All India	3.77	4.03

Secondary - 2012-2013 Secondary - 2013-2014 \

State		
A & N Islands	5.56	7.20
Andhra_Pradesh	12.72	12.65
Arunachal_Pradesh	12.93	14.49
Assam	26.77	30.43
Bihar	30.14	25.33
Chandigarh	NaN	NaN
Chhatisgarh	14.86	23.41
Dadra & Nagar Haveli	24.41	28.59
Daman & Diu	11.52	19.86
Delhi	5.32	8.90
Goa	7.96	9.58
Gujarat	13.55	21.61
Haryana	8.98	12.51
Himachal Pradesh	8.37	9.09
Jammu and Kashmir	17.33	15.36
Jharkhand	18.50	23.15
Karnataka	39.92	27.57

Kerala	9.45	14.46
Lakshadweep	7.68	8.03
Madhya_Pradesh	13.63	26.47
Maharashtra	16.20	14.47
Manipur	9.75	13.81
Meghalaya	26.03	24.75
Mizoram	21.42	18.70
Nagaland	26.51	35.11
Odisha	49.86	49.48
Puducherry	15.21	14.24
Punjab	9.80	8.83
Rajasthan	13.65	18.77
Sikkim	9.23	12.89
Tamil Nadu	10.20	12.20
Telangana	NaN	17.43
Tripura	25.50	25.09
Uttar_Pradesh	NaN	7.30
Uttrakhand	9.68	8.70
West Bengal	17.30	18.34
All India	14.54	17.86

Secondary - 2014-2015 Senior Secondary - 2012-2013 \

State		
A & N Islands	9.870	14.14
Andhra_Pradesh	15.710	0.35
Arunachal_Pradesh	17.110	5.11
Assam	27.060	4.69
Bihar	25.900	NaN
Chandigarh	NaN	13.65
Chhatisgarh	21.260	NaN
Dadra & Nagar Haveli	16.770	9.65
Daman & Diu	32.270	1.26
Delhi	11.810	14.47
Goa	11.150	11.26
Gujarat	25.040	0.46
Haryana	15.890	NaN
Himachal Pradesh	6.070	9.02
Jammu and Kashmir	17.280	10.66
Jharkhand	24.000	NaN
Karnataka	26.180	15.33
Kerala	12.320	NaN
Lakshadweep	6.763	6.59
Madhya_Pradesh	24.770	NaN
Maharashtra	12.870	3.20
Manipur	14.380	7.93
Meghalaya	20.520	NaN
Mizoram	21.880	NaN

Nagaland	18.230	18.29
Odisha	29.560	NaN
Puducherry	12.190	5.25
Punjab	8.860	8.28
Rajasthan	13.480	NaN
Sikkim	15.890	8.10
Tamil Nadu	8.100	1.87
Telangana	15.530	NaN
Tripura	28.420	8.87
Uttar_Pradesh	10.220	NaN
Uttrakhand	10.400	1.59
West Bengal	17.800	8.13
All India	17.060	NaN

Senior Secondary - 2013-2014 \

State	
A & N Islands	15.87
Andhra_Pradesh	11.79
Arunachal_Pradesh	17.07
Assam	7.24
Bihar	NaN
Chandigarh	11.28
Chhatisgarh	NaN
Dadra & Nagar Haveli	6.24
Daman & Diu	9.86
Delhi	16.25
Goa	13.36
Gujarat	7.83
Haryana	2.18
Himachal Pradesh	7.07
Jammu and Kashmir	7.64
Jharkhand	NaN
Karnataka	NaN
Kerala	6.40
Lakshadweep	2.82
Madhya_Pradesh	1.55
Maharashtra	3.34
Manipur	3.20
Meghalaya	NaN
Mizoram	NaN
Nagaland	14.19
Odisha	NaN
Puducherry	11.16
Punjab	5.81
Rajasthan	NaN
Sikkim	12.91
Tamil Nadu	4.44

Telangana	13.43
Tripura	9.11
Uttar_Pradesh	NaN
Uttrakhand	NaN
West Bengal	7.90
All India	1.54

Senior Secondary - 2014-2015

State	
A & N Islands	16.93
Andhra_Pradesh	NaN
Arunachal_Pradesh	18.42
Assam	NaN
Bihar	NaN
Chandigarh	10.55
Chhatisgarh	2.76
Dadra & Nagar Haveli	9.47
Daman & Diu	40.48
Delhi	17.32
Goa	13.91
Gujarat	7.04
Haryana	5.75
Himachal Pradesh	7.41
Jammu and Kashmir	12.65
Jharkhand	3.41
Karnataka	1.96
Kerala	0.47
Lakshadweep	3.12
Madhya_Pradesh	NaN
Maharashtra	1.83
Manipur	NaN
Meghalaya	NaN
Mizoram	6.91
Nagaland	6.97
Odisha	NaN
Puducherry	4.50
Punjab	5.83
Rajasthan	NaN
Sikkim	11.76
Tamil Nadu	3.41
Telangana	0.77
Tripura	8.93
Uttar_Pradesh	2.10
Uttrakhand	3.01
West Bengal	8.11
All India	NaN

```
[128]: gsva_drop=pd.
        ↪merge(gsva,drop_out_rate,how="inner",left_index=True,right_index=True)

[129]: gsva_drop.columns

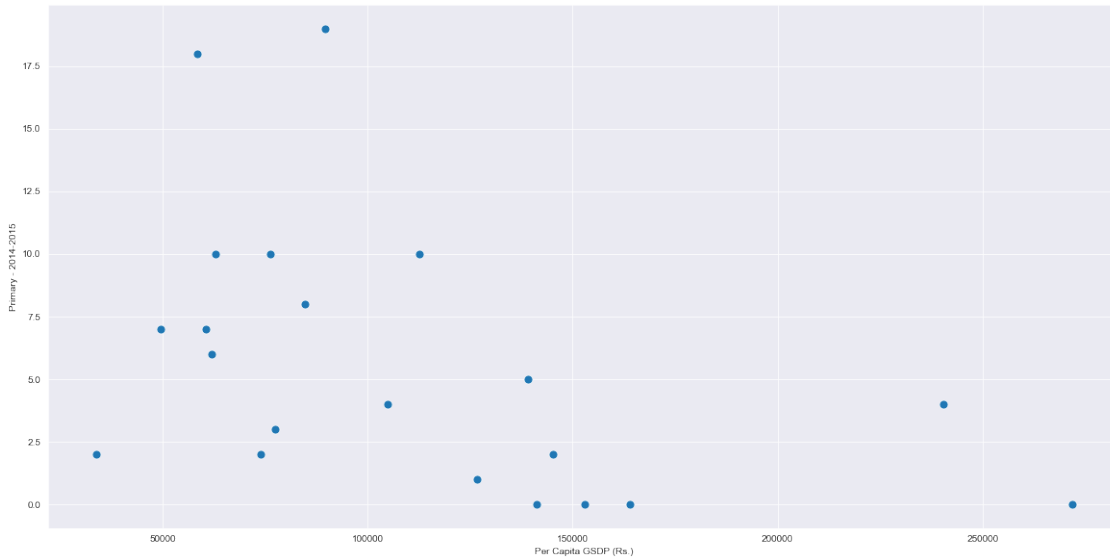
[129]: Index(['Agriculture, forestry and fishing', 'Crops', 'Livestock',
            'Forestry and logging', 'Fishing and aquaculture',
            'Mining and quarrying', 'Primary', 'Manufacturing',
            'Electricity, gas, water supply & other utility services',
            'Construction', 'Secondary', 'Trade, repair, hotels and restaurants',
            'Trade & repair services', 'Hotels & restaurants',
            'Transport, storage, communication & services related to broadcasting',
            'Railways', 'Road transport', 'Water transport', 'Air transport',
            'Services incidental to transport', 'Storage',
            'Communication & services related to broadcasting',
            'Financial services',
            'Real estate, ownership of dwelling & professional services',
            'Public administration', 'Other services', 'Tertiary',
            'TOTAL GSVA at basic prices', 'Taxes on Products',
            'Subsidies on products', 'Gross State Domestic Product',
            'Population ('00)', 'Per Capita GSDP (Rs.)', 'Road transport*',
            'Services incidental to transport*', 'Trade & repair services*',
            'Road transport**', 'primary_gdp_percent', 'secondary_gdp_percent',
            'tertiary_gdp_percent', 'Primary - 2012-2013', 'Primary - 2014-2015',
            'Primary - 2014-2015.1', 'Upper Primary - 2012-2013',
            'Upper Primary - 2013-2014', 'Upper Primary - 2014-2015',
            'Secondary - 2012-2013', 'Secondary - 2013-2014',
            'Secondary - 2014-2015', 'Senior Secondary - 2012-2013',
            'Senior Secondary - 2013-2014', 'Senior Secondary - 2014-2015'],
            dtype='object')

[130]: gsva_primary=gsva_drop[["Per Capita GSDP (Rs.)","Primary - 2014-2015"]]

[131]: gsva_primary.dropna(inplace=True)

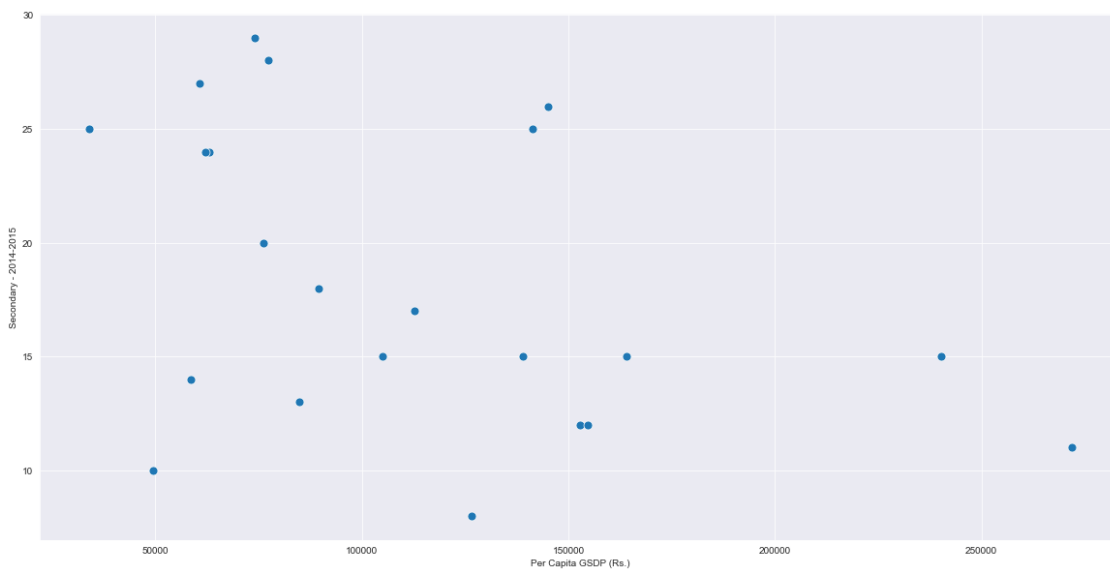
[132]: gsva_primary['Primary - 2014-2015']=gsva_primary['Primary - 2014-2015'].
        ↪astype(int)

[133]: plt.figure(figsize=(20, 10))
        sns.set_style('darkgrid')
        sns.scatterplot(data=gsva_primary, x="Per Capita GSDP (Rs.)", y="Primary - 2014-2015", s=80)
        plt.show()
```



```
[134]: gsva_secondary=gsva_drop[["Per Capita GSDP (Rs.)","Secondary - 2014-2015"]]
gsva_secondary.dropna(inplace=True)
gsva_secondary['Secondary - 2014-2015']=gsva_secondary['Secondary - 2014-2015'] .
↳astype(int)
```

```
[135]: plt.figure(figsize=(20, 10))
sns.scatterplot(data=gsva_secondary, x="Per Capita GSDP (Rs.)", y="Secondary - 2014-2015", s=80)
plt.show()
```



[]: