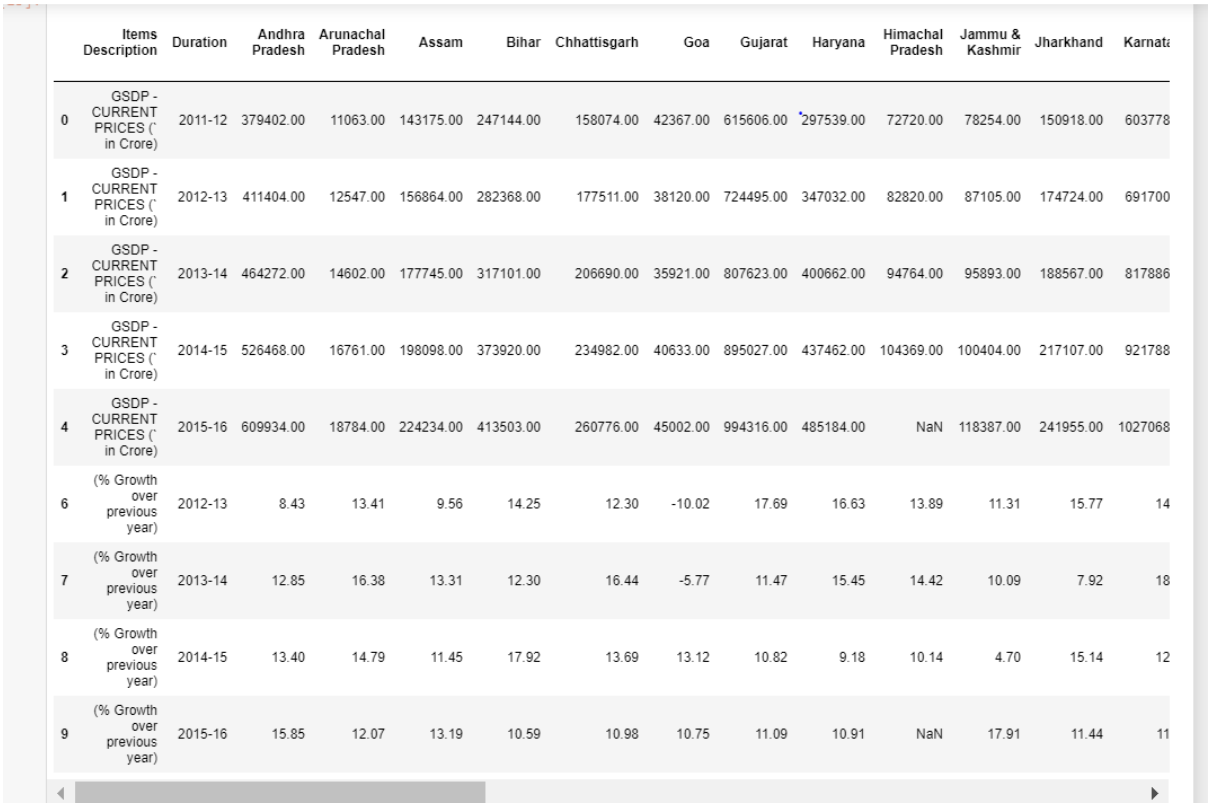
Remove the rows: '(% Growth over the previous year)' and 'GSDP - CURRENT PRICES (` in Crore)' for the year 2016-17.



	Items Description	Duration	Andhra Pradesh	Arunachal Pradesh	Assam	Bihar	Chhattisgarh	Goa	Gujarat	Haryana	Himachal Pradesh	Jammu & Kashmir	Jharkhand	Karnata
0	GSDP - CURRENT PRICES (` in Crore)	2011-12	379402.00	11063.00	143175.00	247144.00	158074.00	42367.00	615606.00	297539.00	72720.00	78254.00	150918.00	603778
1	GSDP - CURRENT PRICES (` in Crore)	2012-13	411404.00	12547.00	156864.00	282368.00	177511.00	38120.00	724495.00	347032.00	82820.00	87105.00	174724.00	691700
2	GSDP - CURRENT PRICES (` in Crore)	2013-14	464272.00	14602.00	177745.00	317101.00	206690.00	35921.00	807623.00	400662.00	94764.00	95893.00	188567.00	817886
3	GSDP - CURRENT PRICES (` in Crore)	2014-15	526468.00	16761.00	198098.00	373920.00	234982.00	40633.00	895027.00	437462.00	104369.00	100404.00	217107.00	921788
4	GSDP - CURRENT PRICES (` in Crore)	2015-16	609934.00	18784.00	224234.00	413503.00	260776.00	45002.00	994316.00	485184.00	NaN	118387.00	241955.00	1027068
6	(% Growth over previous year)	2012-13	8.43	13.41	9.56	14.25	12.30	-10.02	17.69	16.63	13.89	11.31	15.77	14
7	(% Growth over previous year)	2013-14	12.85	16.38	13.31	12.30	16.44	-5.77	11.47	15.45	14.42	10.09	7.92	18
8	(% Growth over previous year)	2014-15	13.40	14.79	11.45	17.92	13.69	13.12	10.82	9.18	10.14	4.70	15.14	12
9	(% Growth over previous year)	2015-16	15.85	12.07	13.19	10.59	10.98	10.75	11.09	10.91	NaN	17.91	11.44	11

Calculate the average growth of states for the duration 2013-14, 2014-15 and 2015-16 by taking the mean of the row '(% Growth over previous year)

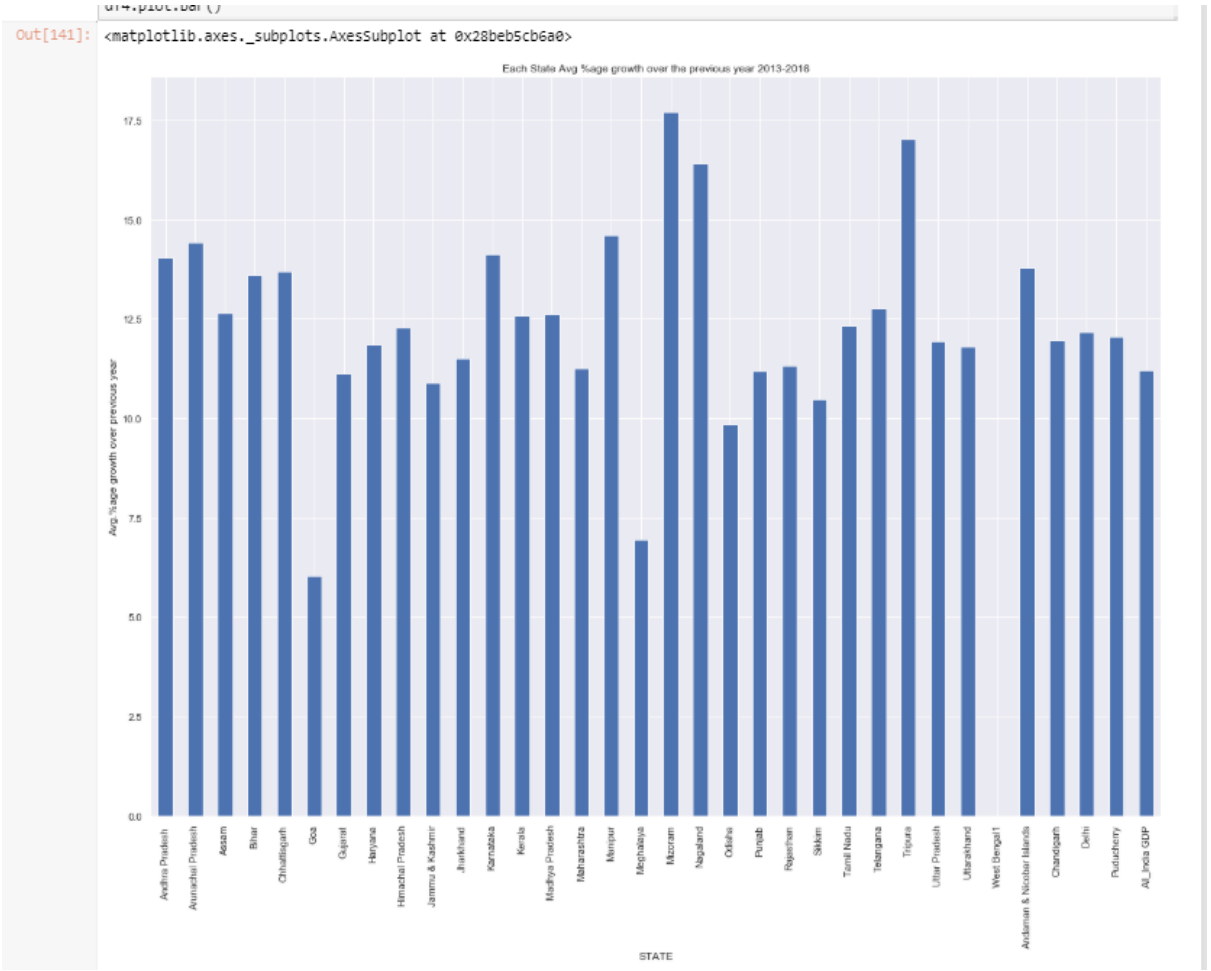
Out[64]:

Andhra Pradesh	14.033333
Arunachal Pradesh	14.413333
Assam	12.650000
Bihar	13.603333
Chhattisgarh	13.703333
Goa	6.033333
Gujarat	11.126667
Haryana	11.846667
Himachal Pradesh	12.280000
Jammu & Kashmir	10.900000
Jharkhand	11.500000
Karnataka	14.120000
Kerala	12.583333
Madhya Pradesh	12.626667
Maharashtra	11.260000
Manipur	14.610000
Meghalaya	6.953333
Mizoram	17.700000
Nagaland	16.415000
Odisha	9.836667
Punjab	11.185000
Rajasthan	11.320000
Sikkim	10.486667
Tamil Nadu	12.336667
Telangana	12.763333
Tripura	17.030000
Uttar Pradesh	11.940000
Uttarakhand	11.803333
West Bengal1	NaN
Andaman & Nicobar Islands	13.785000
Chandigarh	11.960000
Delhi	12.160000
Puducherry	12.053333
All_India GDP	11.203333

dtype: float64

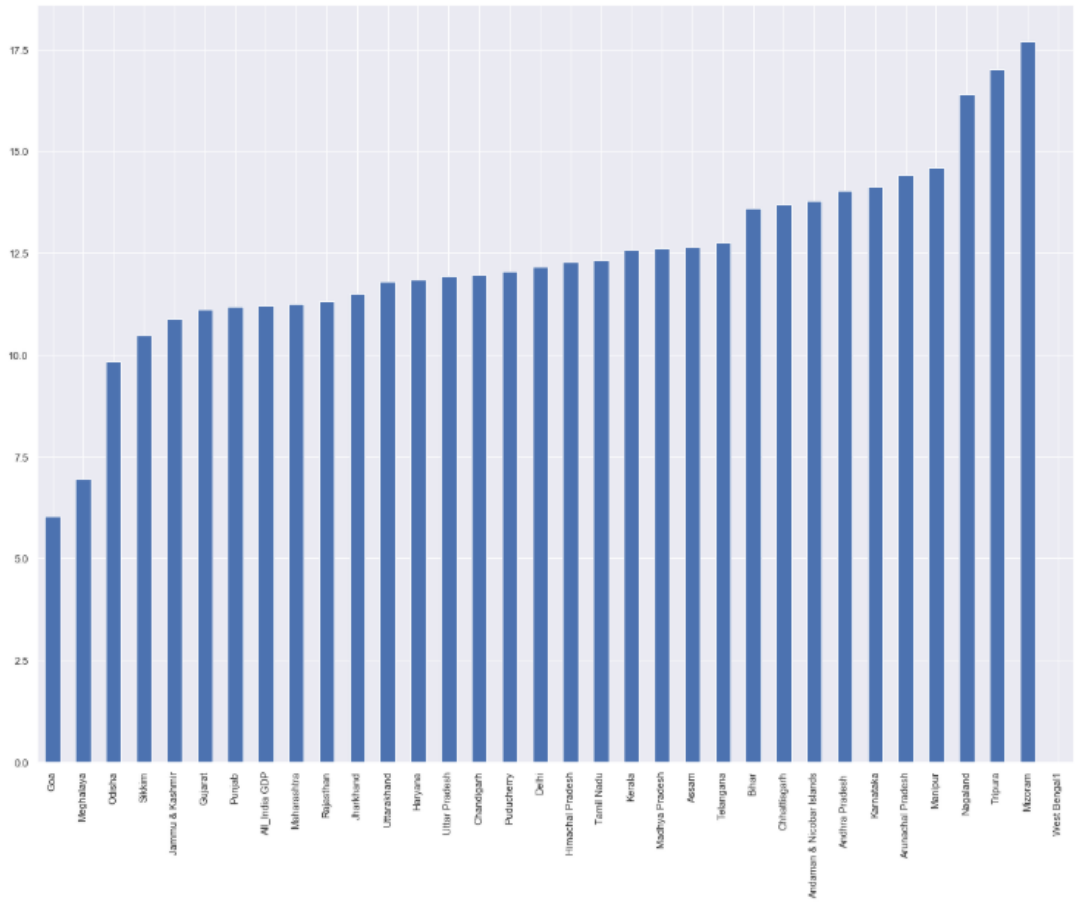
Plotting duration wise State versus Average GDP

Plotting average %age growth over previous year vs States in the duration 2013-16



It clearly depicts Mizoram (mean=17.7) is on top and Meghalaya (mean=6.95) is lowest.

```
Out[138]: <matplotlib.axes._subplots.AxesSubplot at 0x28be9a7c400>
```

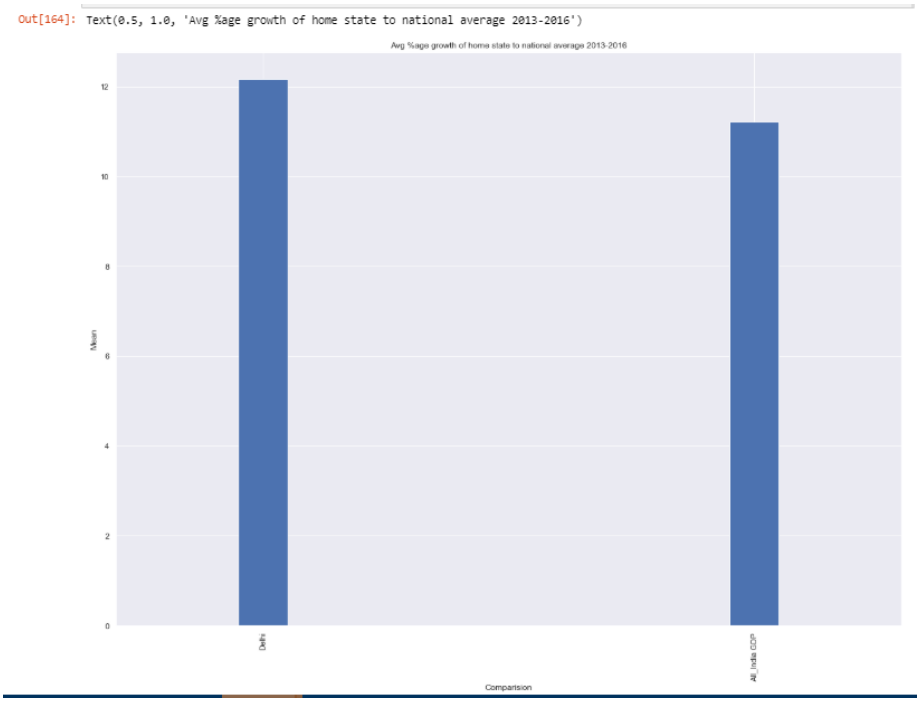


What has been the average growth rate of your home state, and how does it compare to the national average over this duration?

As I belong to Delhi so I compared the average growth rate of Delhi in comparision to national average over this duration and I found Delhi mean is 12.16 whereas All India GDP mean is 11.20.

```
Out[157]: Delhi           12.160000
          All_India GDP   11.203333
          dtype: float64
```

Out[164]: Text(0.5, 1.0, 'Avg %age growth of home state to national average 2013-2016')

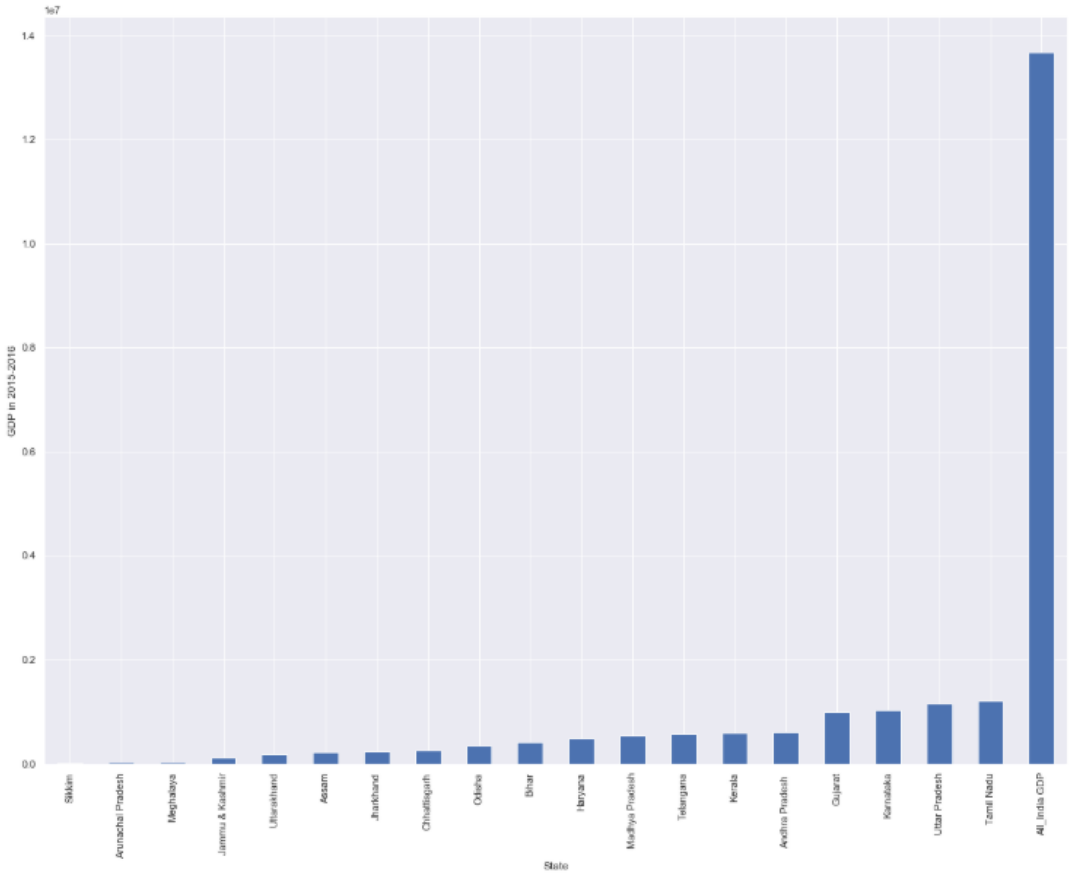


Plot the total GDP of the states for the year 2015-16:

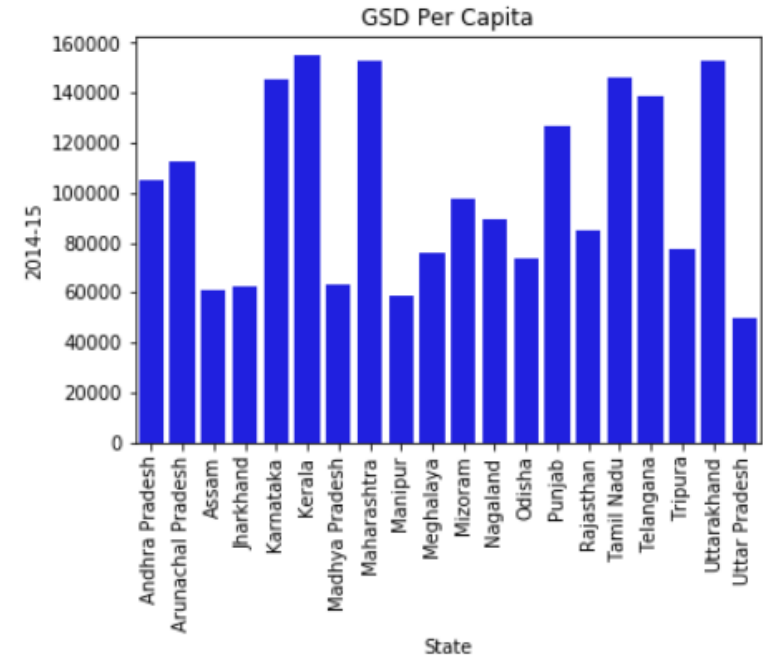
Identify the top 5 and the bottom 5 states based on total GDP.

===➔ Therefore, the top 5 states are Tamil Nadu,Uttar Pradesh,Karnataka,Gujarat and Andhra Pradesh. Similarly, the bottom 5 states are Sikkim,Arunachal Pradesh,Meghalaya,Jammu & Kashmir and Uttarakhand.

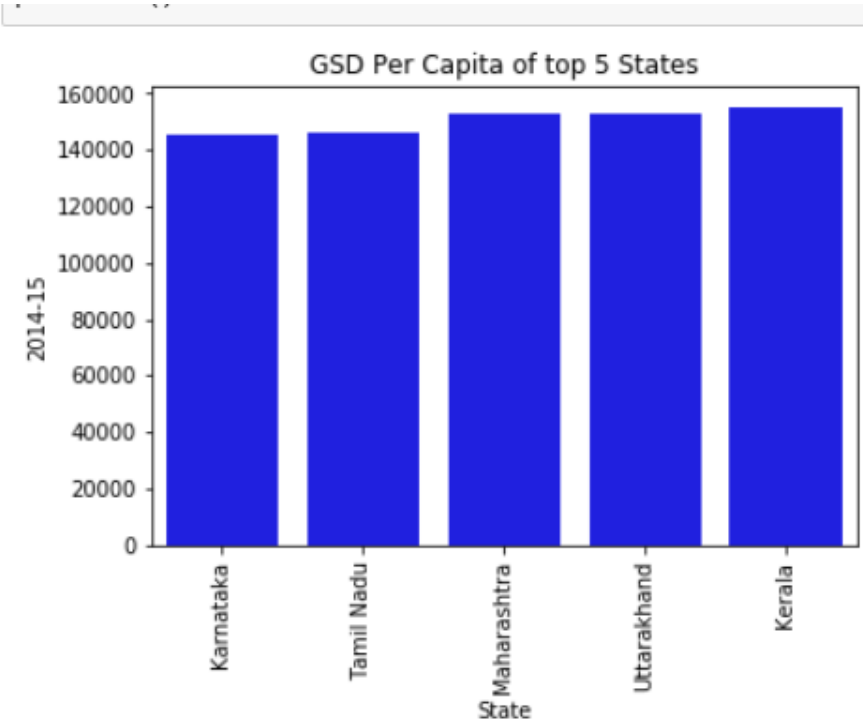
```
Out[260]: Text(0, 0.5, 'GDP in 2015-2016')
```

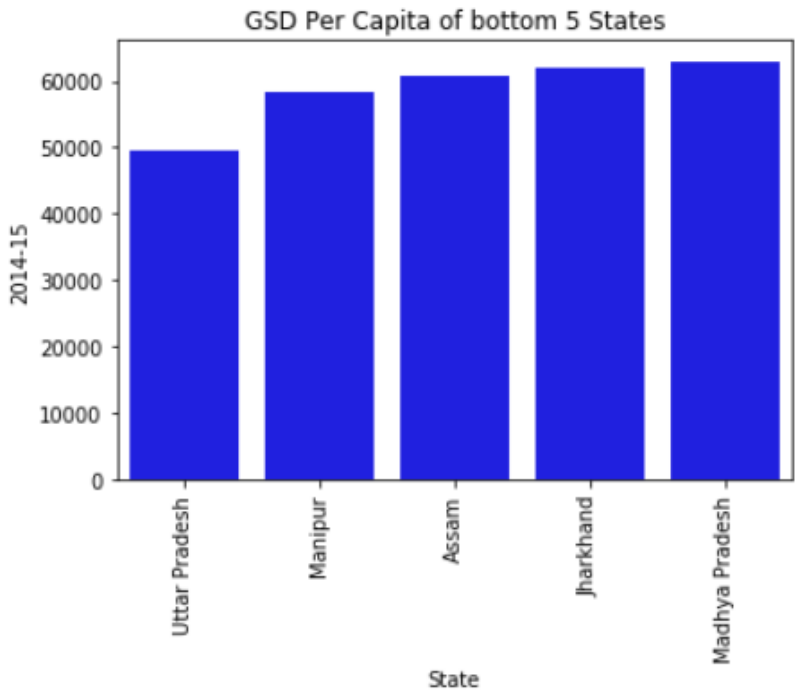


Filter out the union territories (Delhi, Chandigarh, Andaman and Nicobar Islands, etc.) for further analysis, as they are governed directly by the centre, not state governments. Plot the GDP per capita for all the states.



Identify the top 5 and the bottom 5 states based on the GDP per capita.





Find the ratio of the highest per capita GDP to the lowest per capita GDP.

```
In [30]: round(highest_gdp/lowest_gdp,1)
Out[30]: 3.1
```

The ratio of highest to lowest per capita GDP is 3.1 .

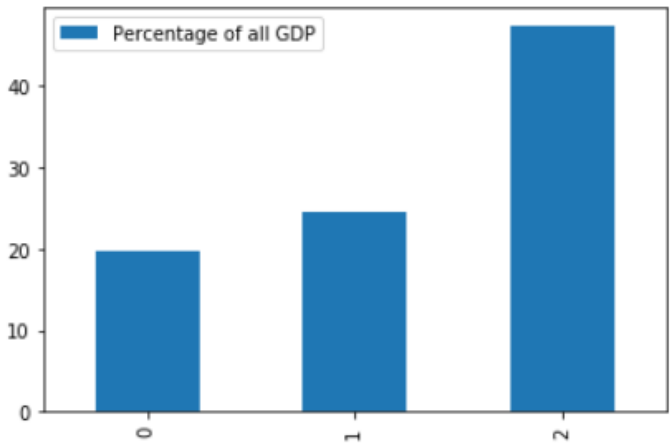
Plot the percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states.

Out[234]:

	Sectors	Percentage of all GDP
0	Primary%	19.801623
1	Secondary%	24.601848
2	Tertiary%	47.322674

In [235]:
```
df9.plot.bar()
```

Out[235]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x1c708047358>
```



Categorize the states into four groups based on the GDP per capita (C1, C2, C3, C4, where C1 would have the highest per capita GDP and C4, the lowest). The quantile values are (0.20,0.5, 0.85, 1), i.e., the states lying between the 85th and the 100th percentile are in C1; those between the 50th and the 85th percentiles are in C2, and so on.

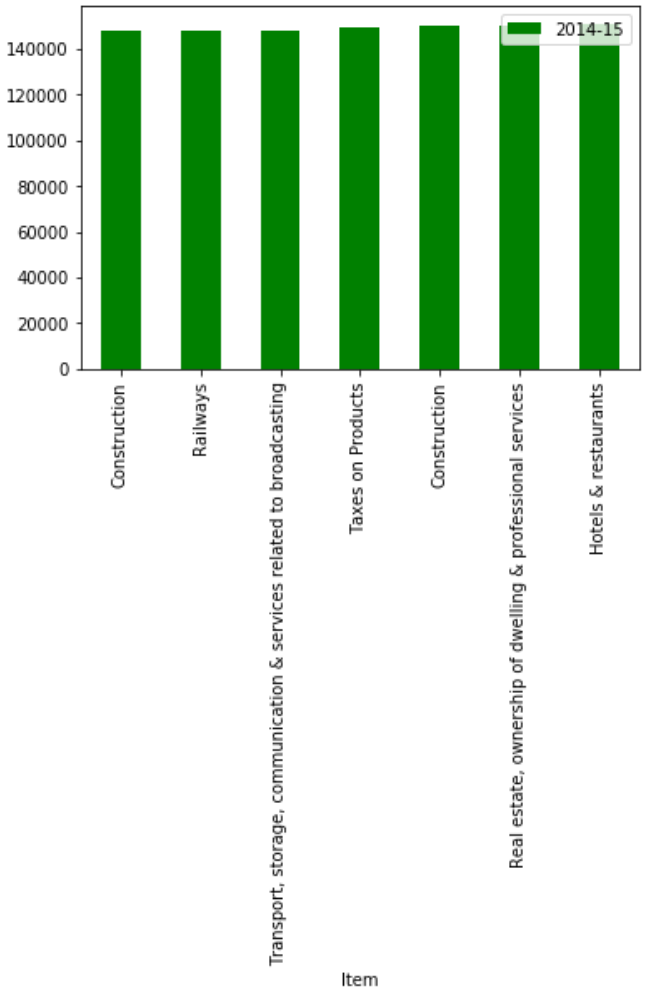
```
quant_85 = 147455.5
quant_50 = 93647.0
quant_100 = 154778.0
quant_20 = 62809.4
```

```
#C1 = gsdppercapita[(gsdppercapita['2014-15'] >= quant_100)
C1 = gsdppercapita[(gsdppercapita['2014-15'] >= quant_85) & (gsdppercapita['2014-15'] < quant_100)]
C2 = gsdppercapita[(gsdppercapita['2014-15'] >= quant_50) & (gsdppercapita['2014-15'] < quant_85)]
C3 = gsdppercapita[(gsdppercapita['2014-15'] >= quant_20) & (gsdppercapita['2014-15'] < quant_50)]
C4 = gsdppercapita[gsdppercapita['2014-15'] <= quant_20]
```

For each category (C1, C2, C3, C4): Find the top 3/4/5 sub-sectors (such as agriculture, forestry and fishing, crops, manufacturing etc., not primary, secondary and tertiary) that contribute to approximately 80% of the GSDP of each category.

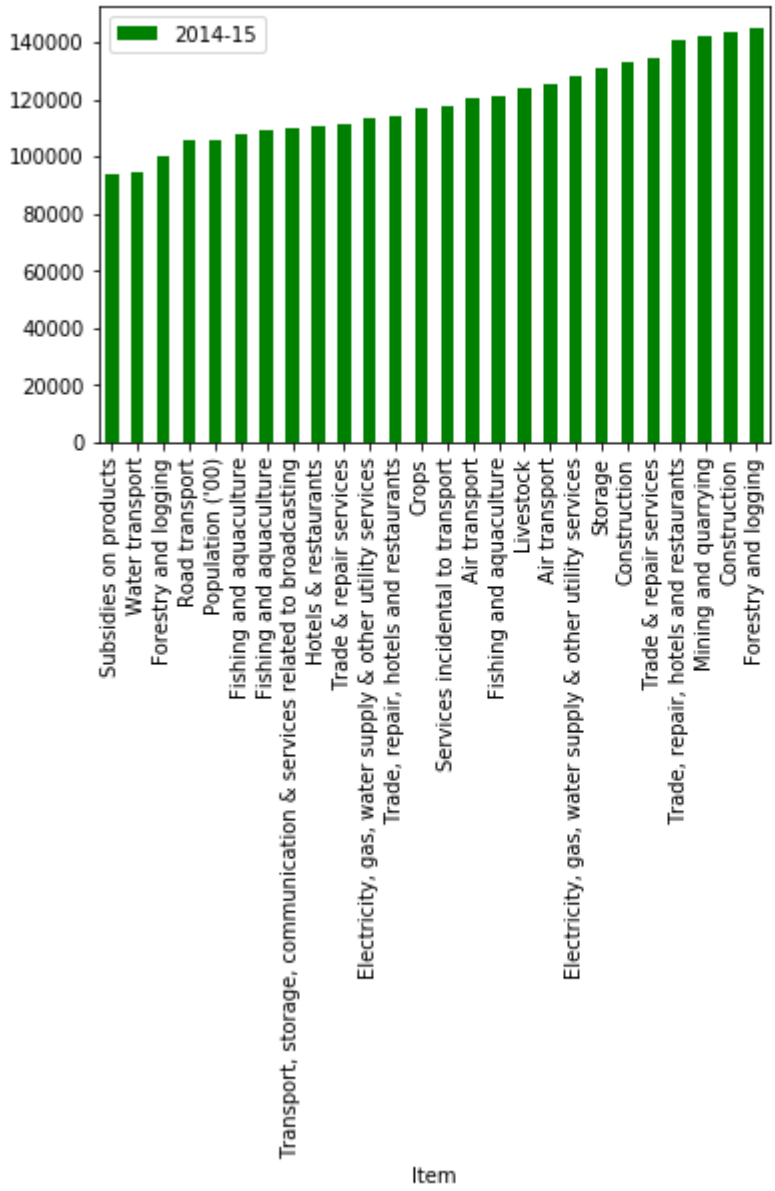
For C1 Category:-

	Item	2014-15	percentage
9	Construction	147842.0	0.141462
15	Railways	147897.0	0.141515
14	Transport, storage, communication & services r...	148189.0	0.141794
28	Taxes on Products	149345.0	0.142900
9	Construction	150256.0	0.143772
23	Real estate, ownership of dwelling & professio...	150409.0	0.143918
13	Hotels & restaurants	151163.0	0.144640



For C2 Category: -

	Item	2014-15	percentage
29	Subsidies on products	94002.0	0.089945
17	Water transport	94200.0	0.090135
3	Forestry and logging	99802.0	0.095495
16	Road transport	105783.0	0.101218
31	Population ('00)	105820.0	0.101253
4	Fishing and aquaculture	107657.0	0.103011
4	Fishing and aquaculture	108947.0	0.104245
14	Transport, storage, communication & services r...	109726.0	0.104991
13	Hotels & restaurants	110904.0	0.106118
12	Trade & repair services	111324.0	0.106520
8	Electricity, gas, water supply & other utility...	113527.0	0.108628
11	Trade, repair, hotels and restaurants	114315.0	0.109382
1	Crops	116609.0	0.111577
19	Services incidental to transport	117469.0	0.112400
18	Air transport	120691.0	0.115483
4	Fishing and aquaculture	121277.0	0.116043
2	Livestock	123800.0	0.118457
18	Air transport	125029.0	0.119633
8	Electricity, gas, water supply & other utility...	128365.0	0.122825
20	Storage	131237.0	0.125574
9	Construction	133228.0	0.127479
12	Trade & repair services	134174.0	0.128384
11	Trade, repair, hotels and restaurants	140781.0	0.134706
5	Mining and quarrying	142391.0	0.136246
9	Construction	143182.0	0.137003
3	Forestry and logging	145096.0	0.138834


2014-15
140000
120000
100000
80000
60000
40000
20000
0
Subsidies on products
Water transport
Forestry and logging
Road transport
Population ('00)
Fishing and aquaculture
Fishing and aquaculture
Transport, storage, communication & services related to broadcasting
Hotels & restaurants
Trade & repair services
Electricity, gas, water supply & other utility services
Trade, repair, hotels and restaurants
Crops
Services incidental to transport
Air transport
Fishing and aquaculture
Livestock
Air transport
Electricity, gas, water supply & other utility services
Storage
Construction
Trade & repair services
Trade, repair, hotels and restaurants
Mining and quarrying
Construction
Forestry and logging
Item