Assignment: GDP Analysis

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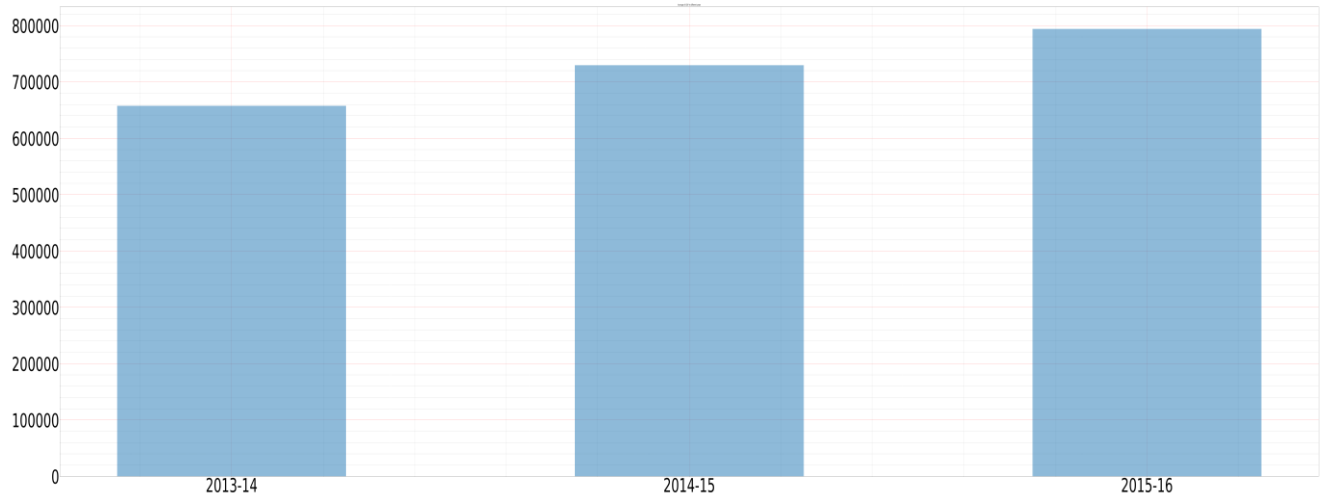
Tools used

- **IDE used:** Anaconda
- **Libraries used:**
  - matplotlib.pyplot
  - mpl_toolkits.mplot3d
  - numpy

Information About datasets

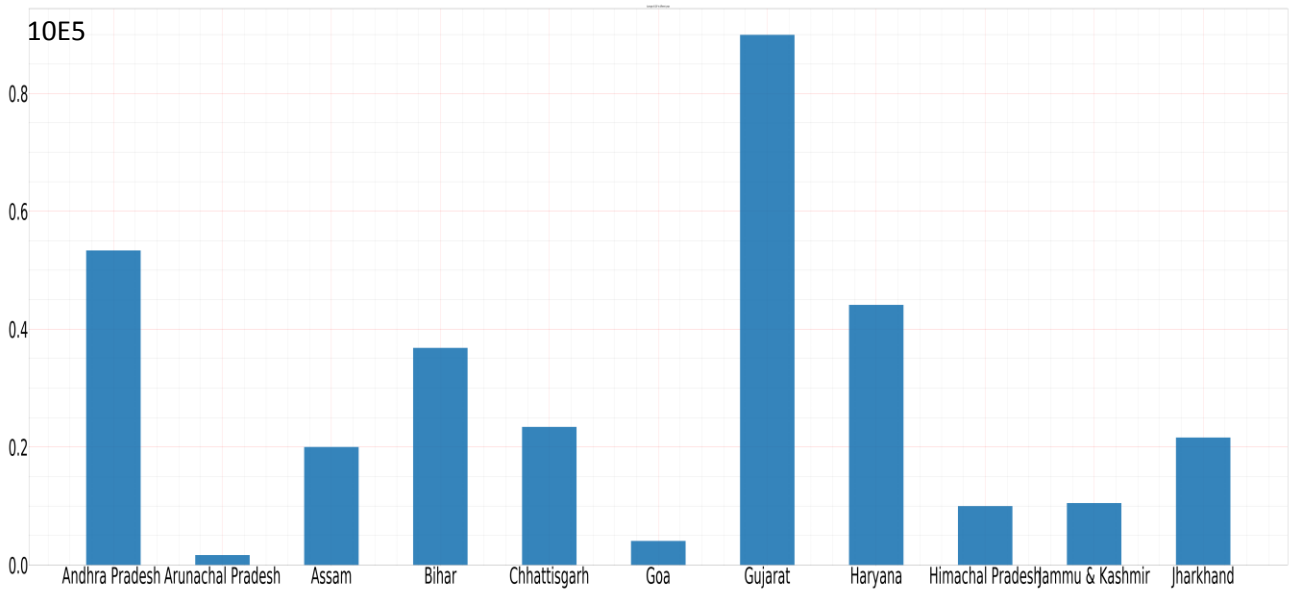
- **Data I-A:** This dataset consists of the GSDP (Gross State Domestic Product) data for the states and union territories.
- **Data I-B:** This dataset contains the distribution of GSDP among three sectors: the primary sector (agriculture), the secondary sector (industry) and the tertiary sector (services) along with taxes and subsidies.

average growth of states for the duration 2013-14, 2014-15 and 2015-16



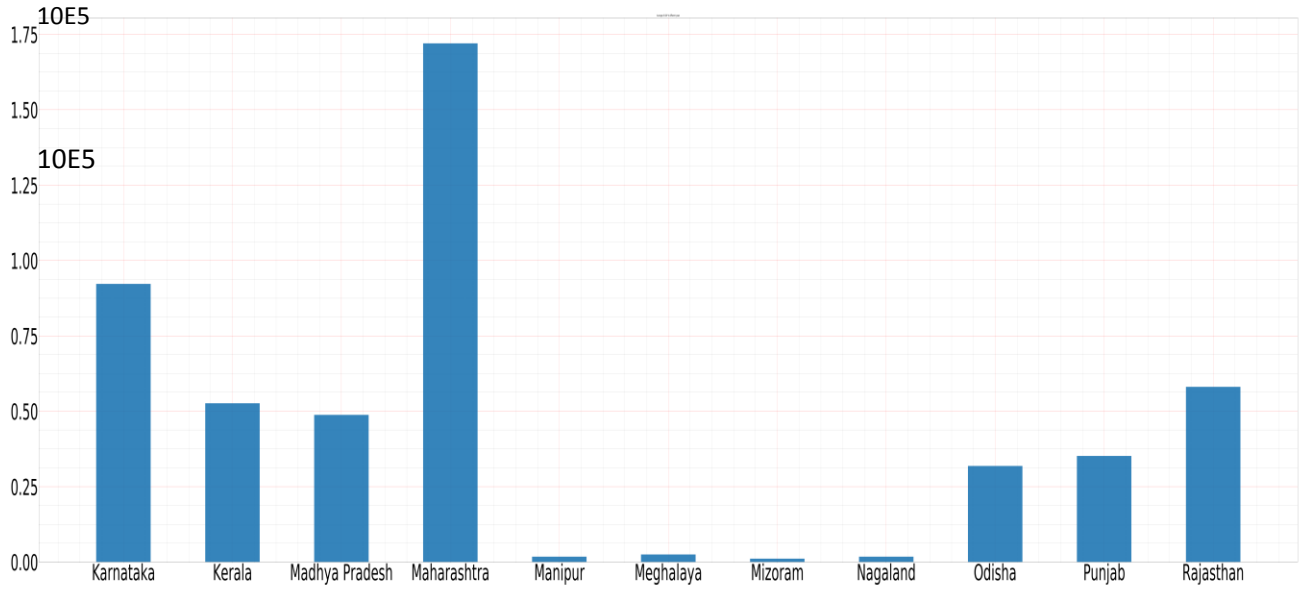
Assumptions:
Filled nan values with median
Dropped rows other than duration 2013-14, 2014-15 and 2015-16

average growth rates of the various states -1



Assumptions:
GDP values are written in scientific notation with 10E5.
Because of large count of states, each graph is showing data for 11 states only, so that it can be clearly visualized.
West Bengal column is dropped because it has no values.

average growth rates of the various states -2



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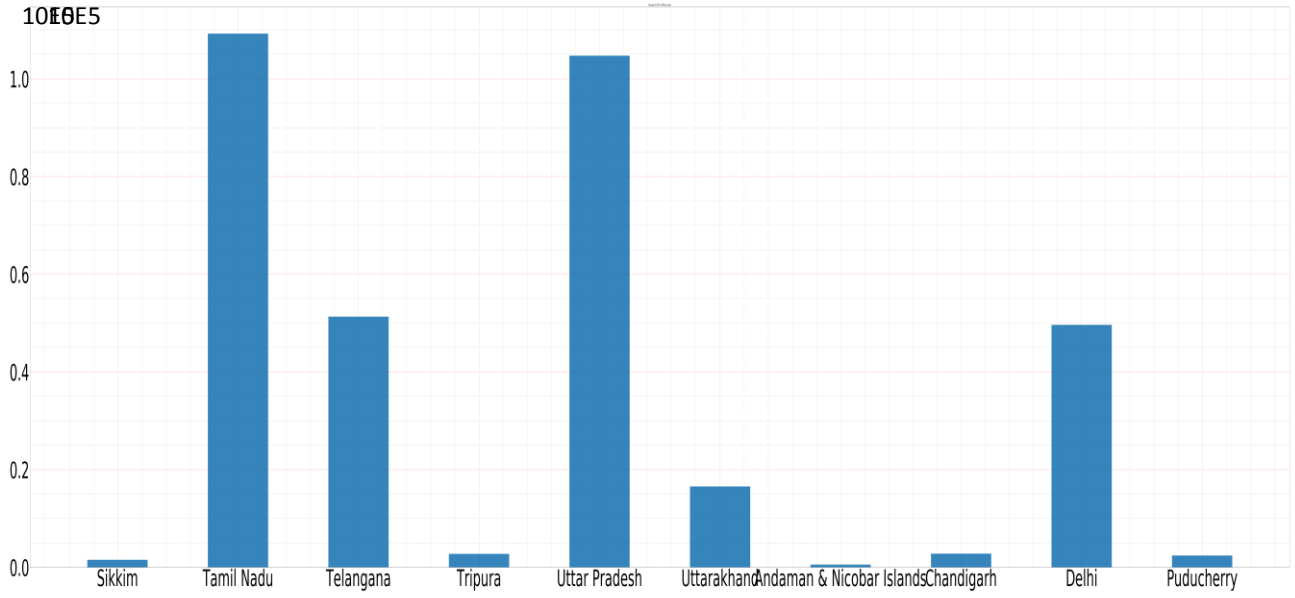
average growth rates of the various states -3



Assumptions:
GDP values are written in scientific notation with 10E5.
Because of large count of states, each graph is showing data for 11 states only, so that it can be clearly visualized.
West Bengal column is dropped because it has no values.

Questions !!

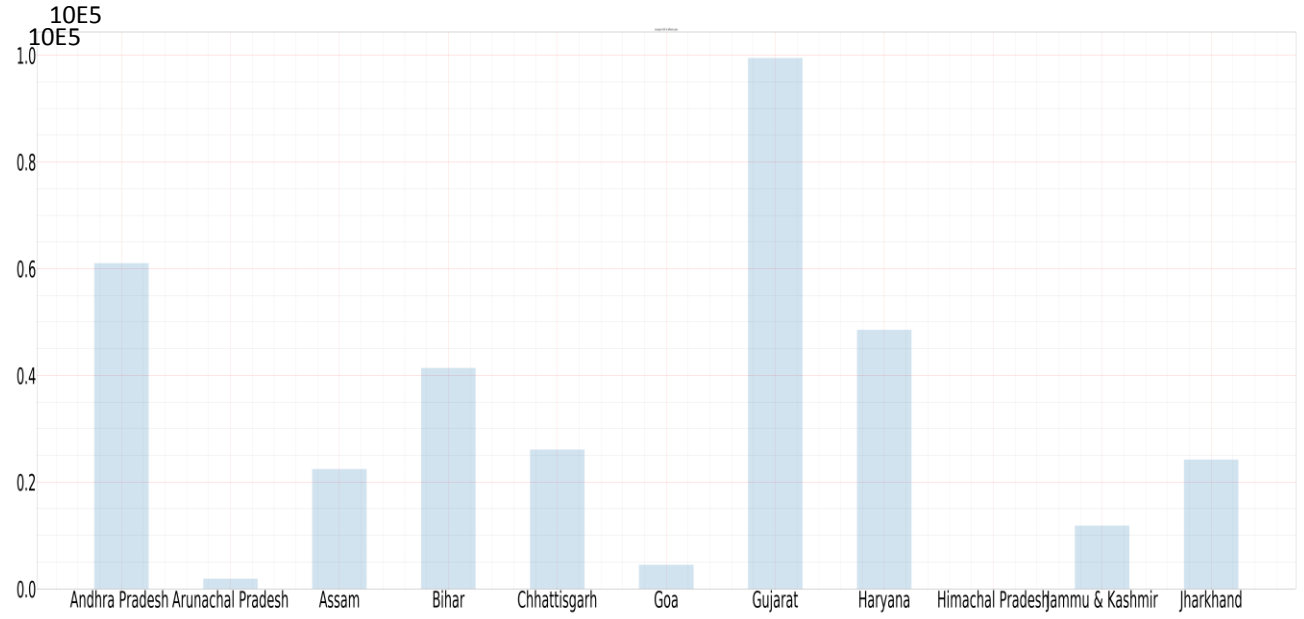
- Which states have been growing consistently fast, and which ones have been struggling?
  - These are the two states whose gdp growing consistently fast.
    - `Maharashtra 1.542839e+06`
    - `Tamil Nadu 1.037009e+06`
  - These are the two states which ones have been struggling.
    - `Mizoram 9.354667e+03`
    - `Andaman & Nicobar Islands 4.810000e+03`

Questions !!

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

- Due to the recent development I find it interesting to compare Jammu and Kashmir It has a mediocre contribution in national GDP.
    - `Jammu & Kashmir` `9.598933e+04`
    - `All_India GDP` `1.187990e+07`

GDP of the states for the year 2015-16



Assumptions:

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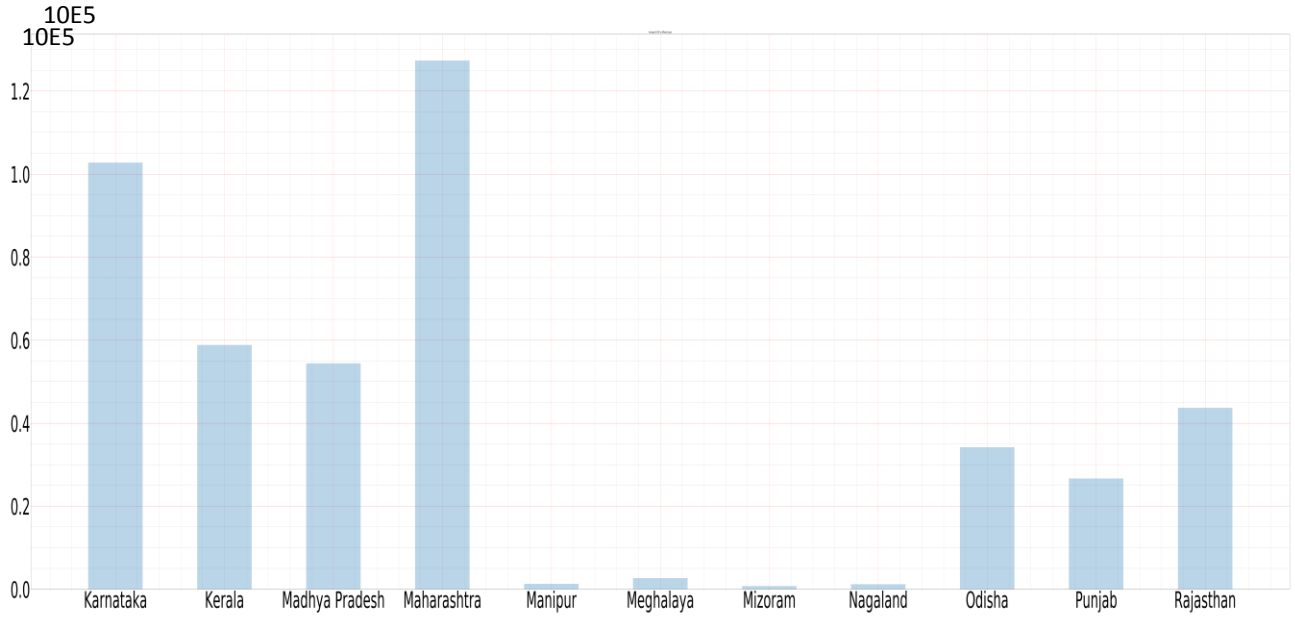
GDP of the states for the year 2015-16



Assumptions:
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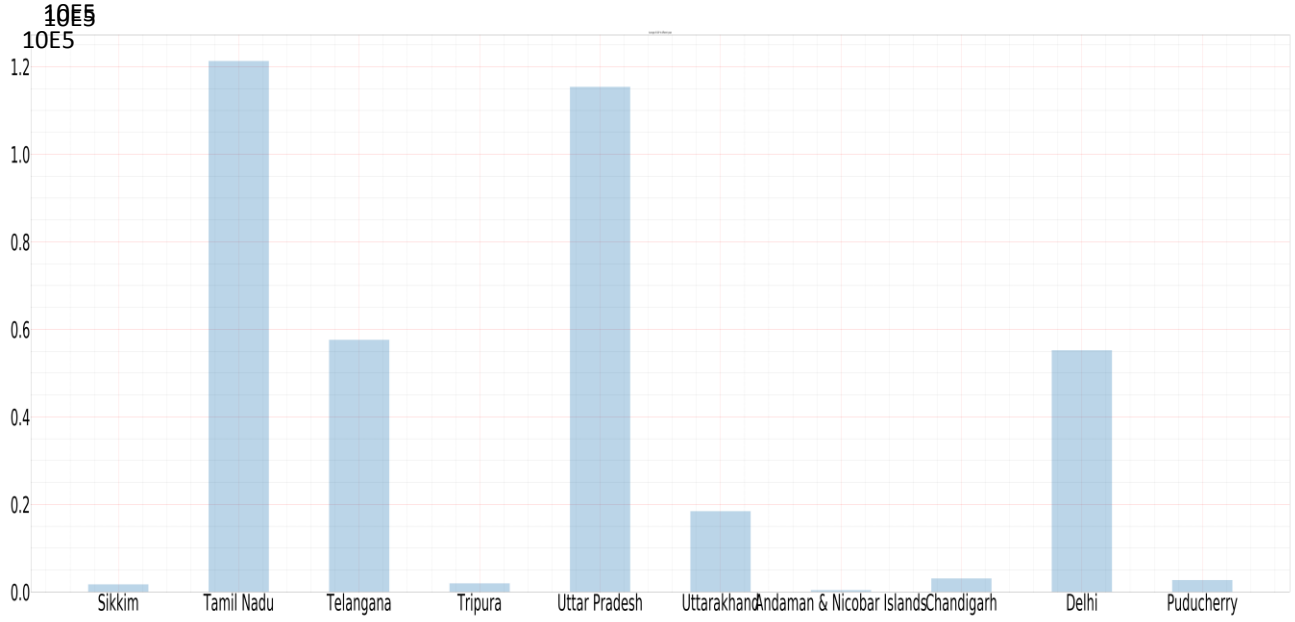
GDP of the states for the year 2015-16

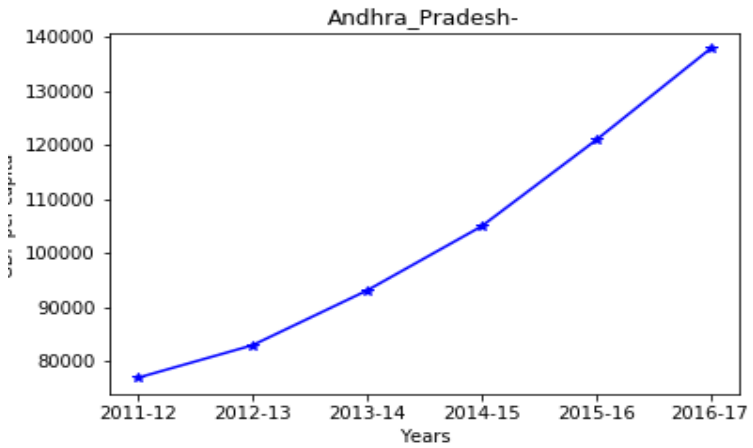


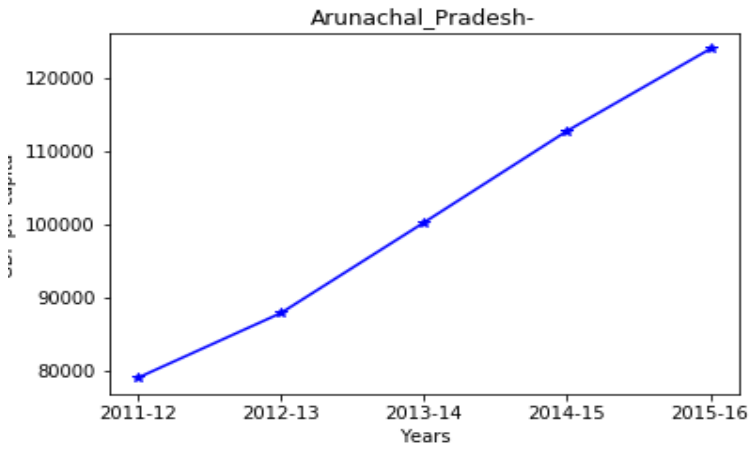
Assumptions:
GDP values are written in scientific notation with 10E5.
Because of large count of states, each graph is showing data for 11 states only, so that it can be clearly visualized.
West Bengal column is dropped because it has no values.

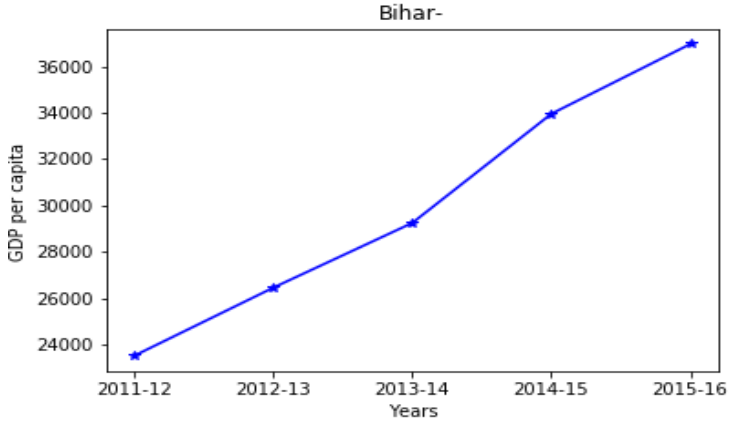
Questions !!

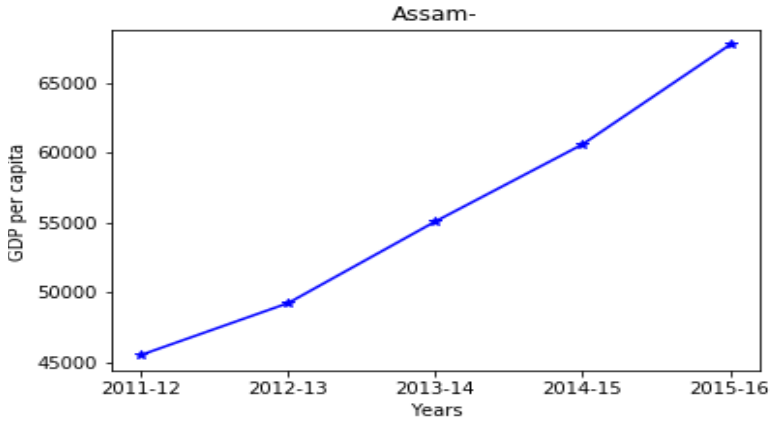
- Identify the top 5 and the bottom 5 states based on total GDP in 2015-16.
  - Top 5
    - Gujarat 994316
    - Karnataka 1.02707e+06
    - Uttar Pradesh 1.1538e+06
    - Tamil Nadu 1.21267e+06
    - Maharashtra 1.27297e+06
  - Last 5
    - Andaman & Nicobar Islands 3979
    - Mizoram 7259
    - Nagaland 11839
    - Manipur 12915
    - Sikkim 16637

Part I-B:
(GDP per capita for all the states)-1

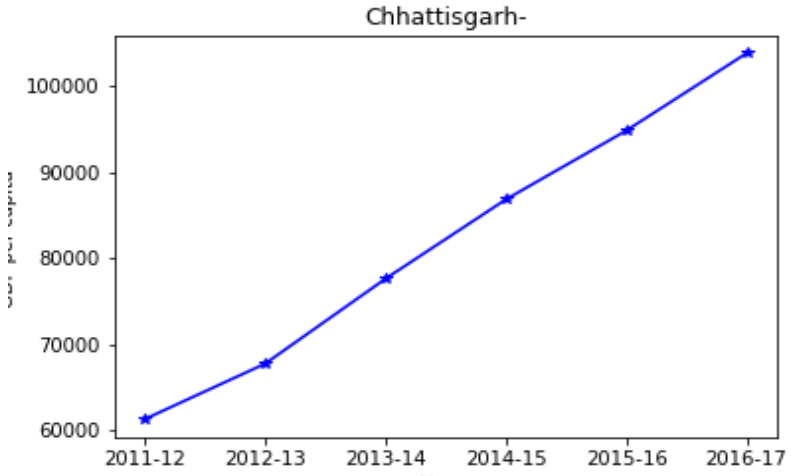


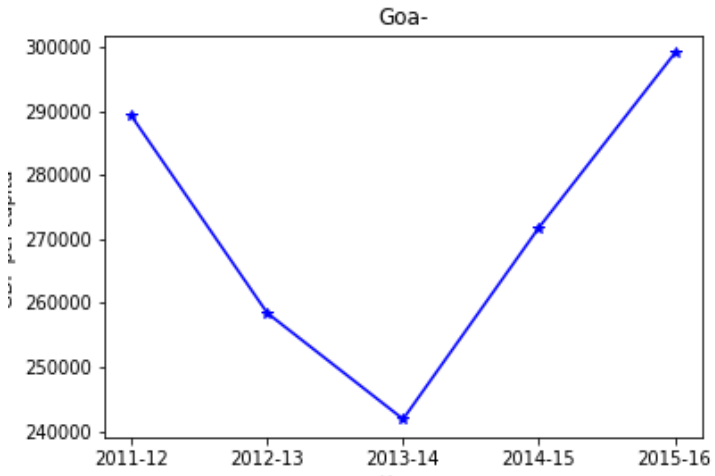


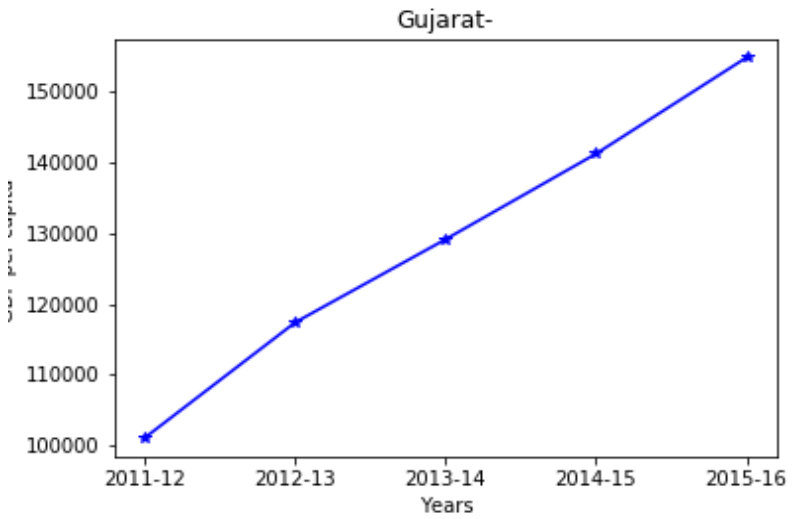


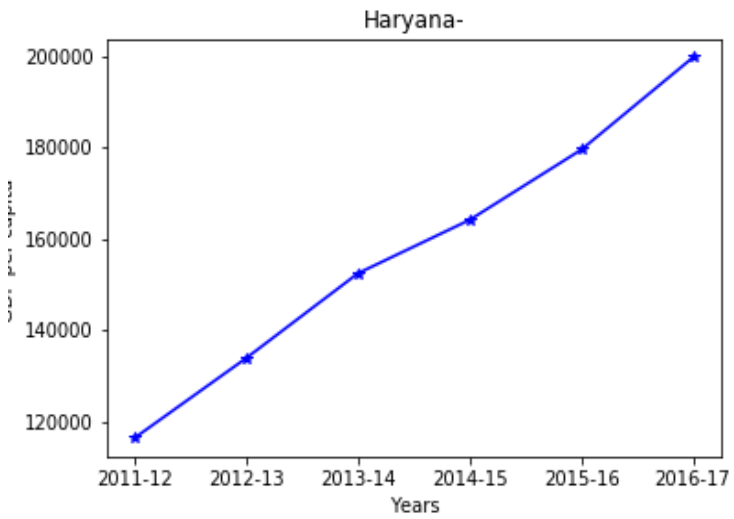


Part I-B:
(GDP per capita for all the states)-2

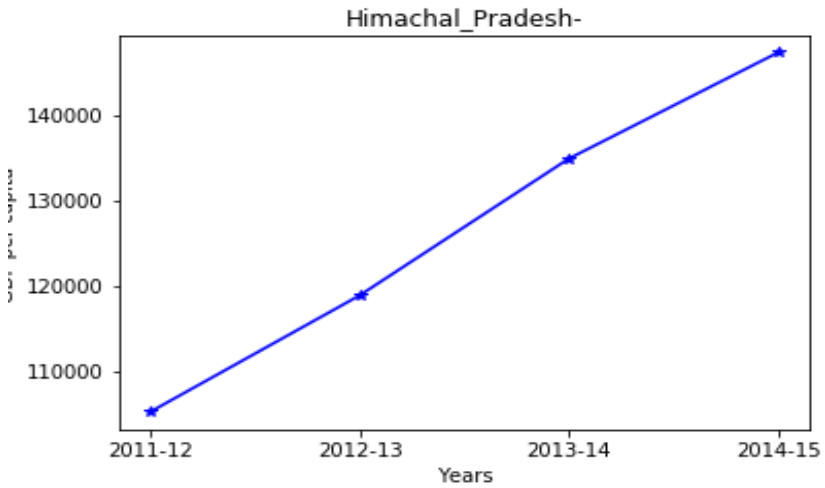


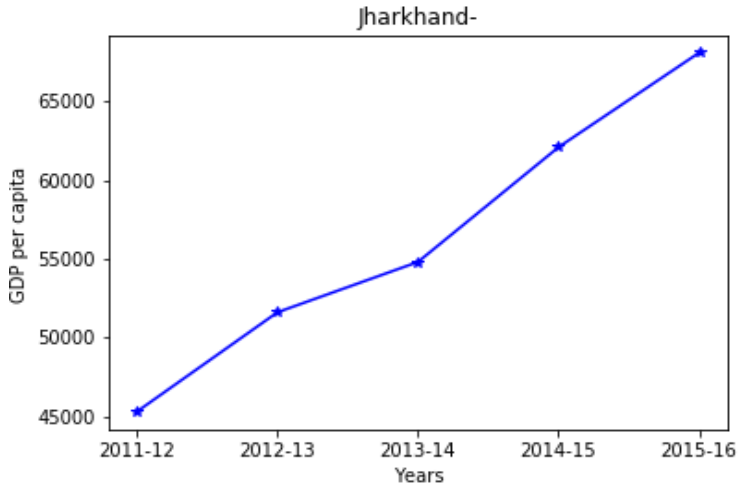


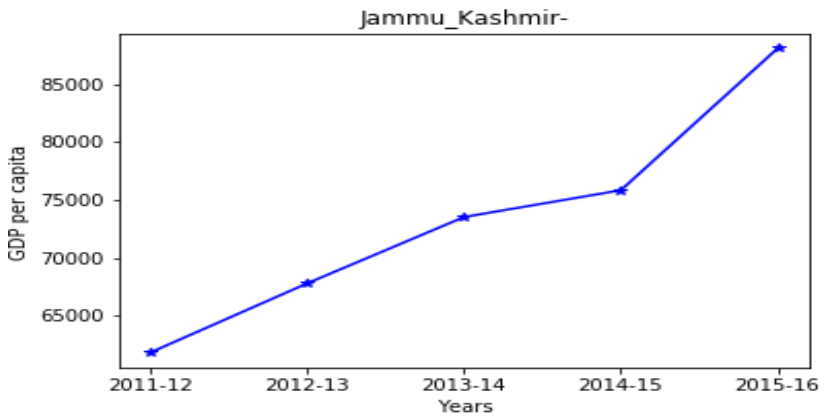


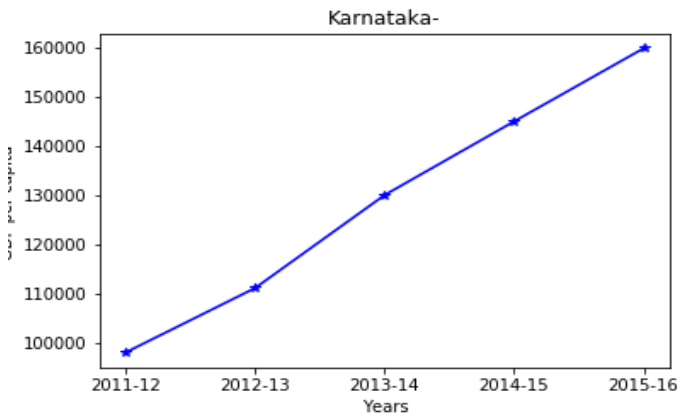


Part I-B:
(GDP per capita for all the states)-3

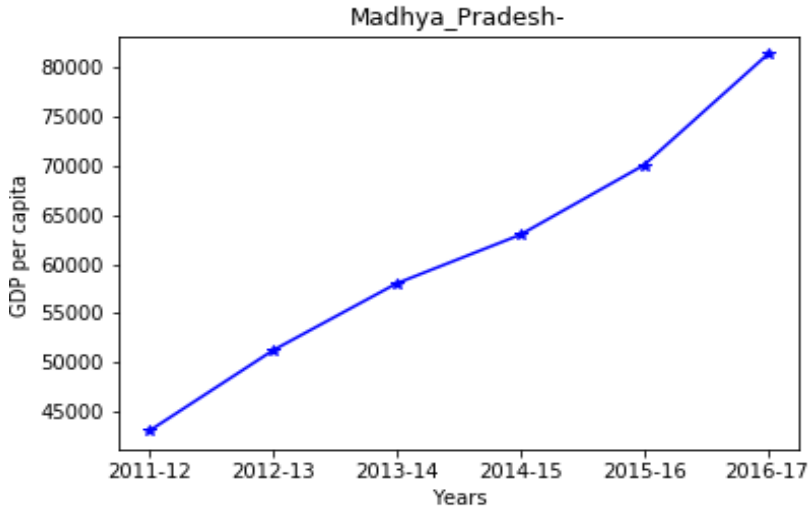


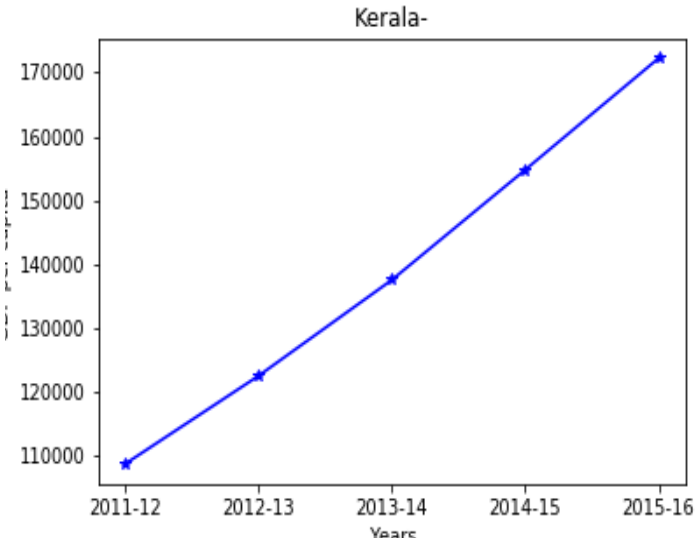


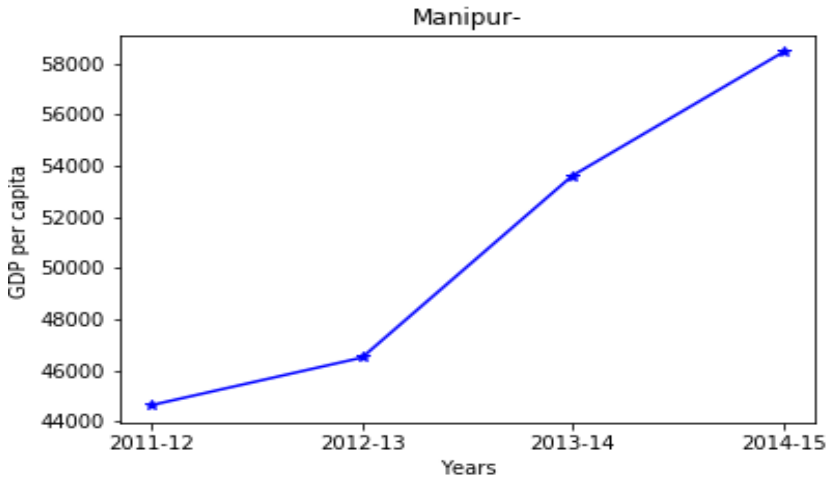


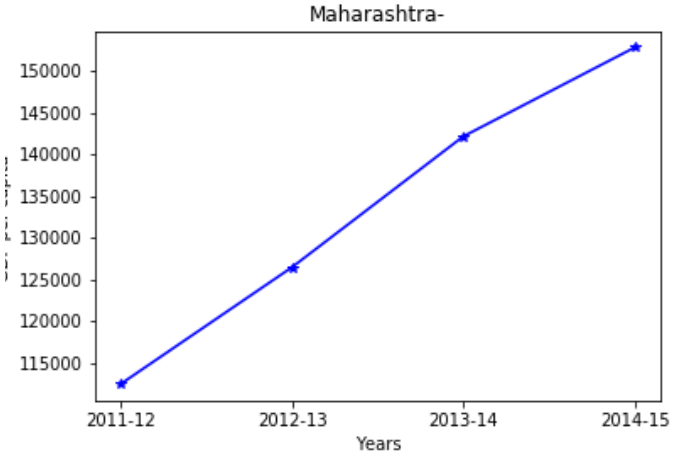


Part I-B:
(GDP per capita for all the states)-4

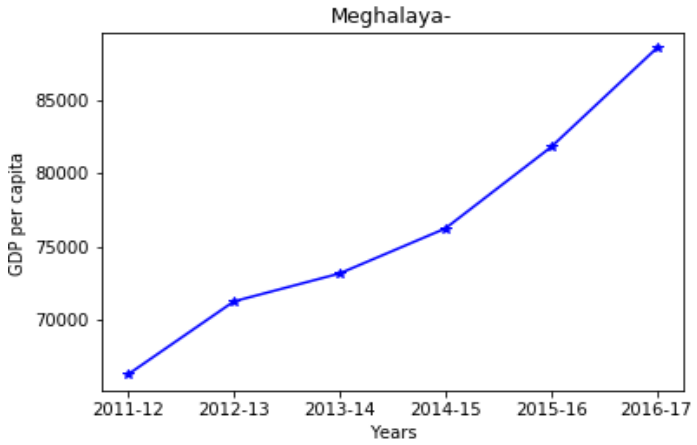


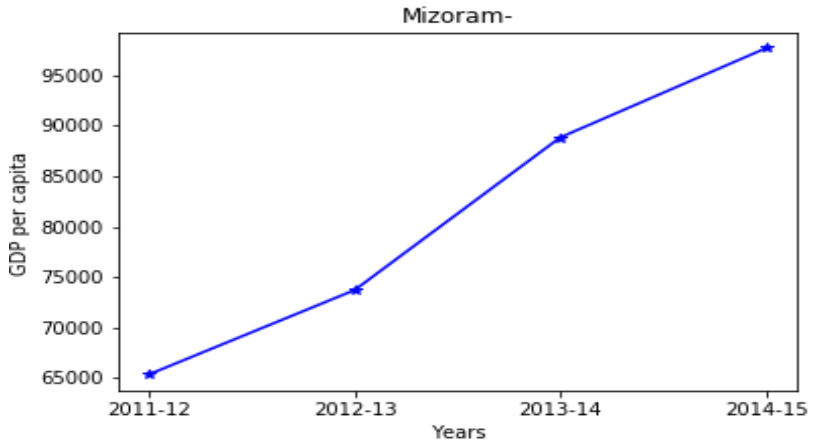


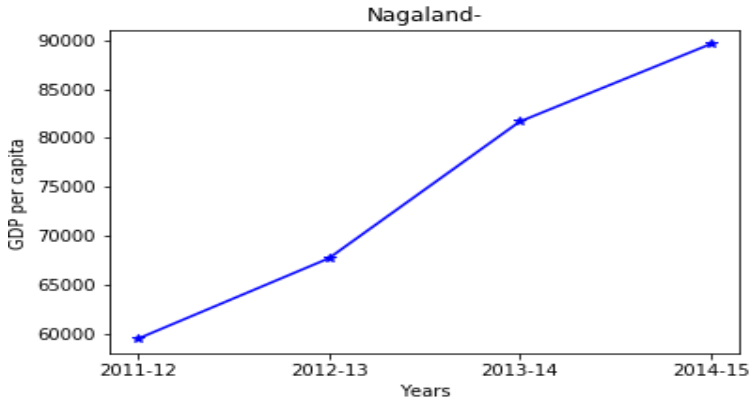


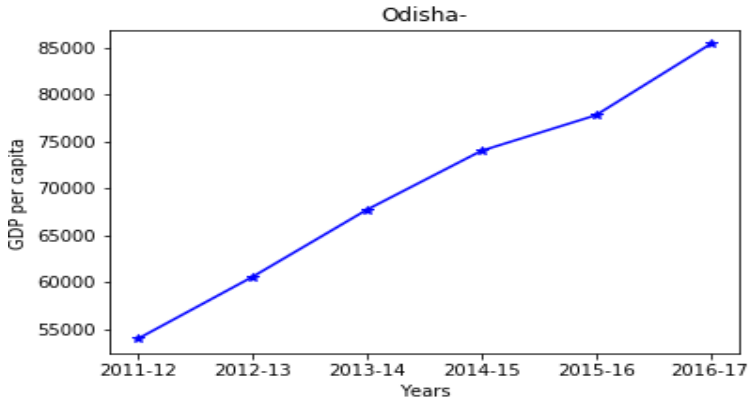


Part I-B:
(GDP per capita for all the states)-5

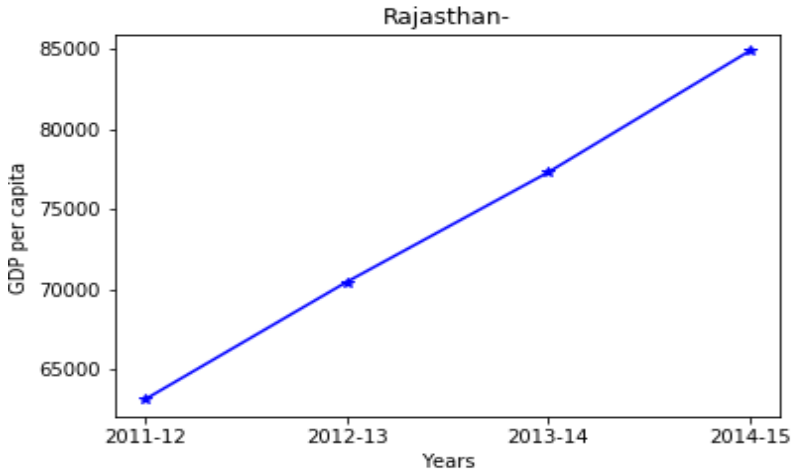


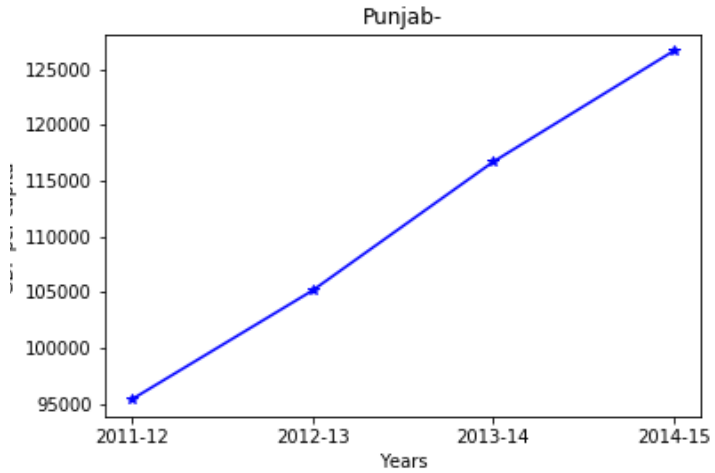


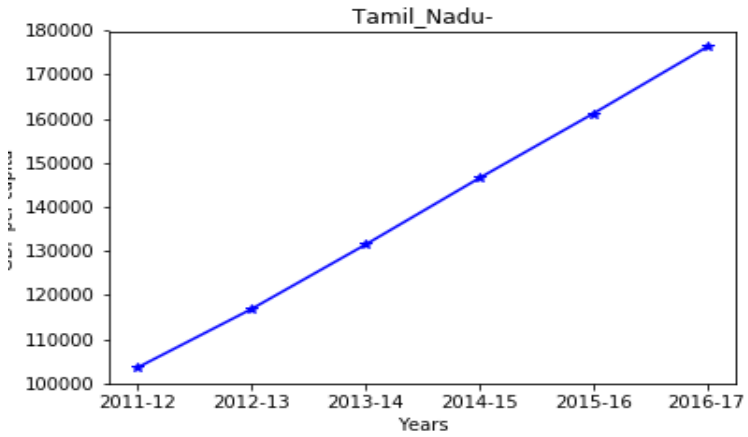


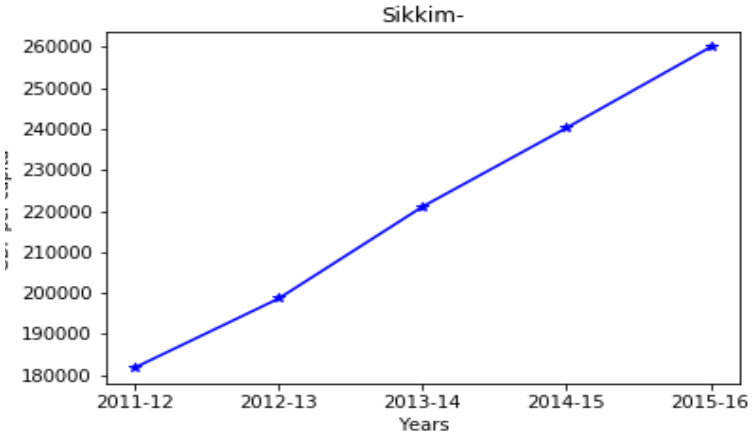


Part I-B:
(GDP per capita for all the states)-6

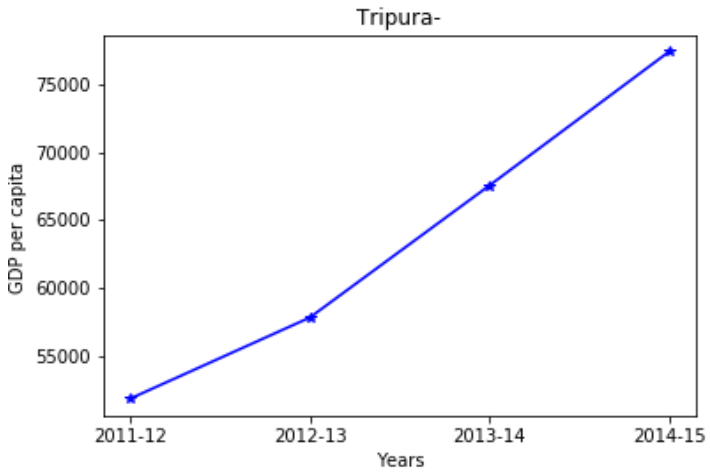


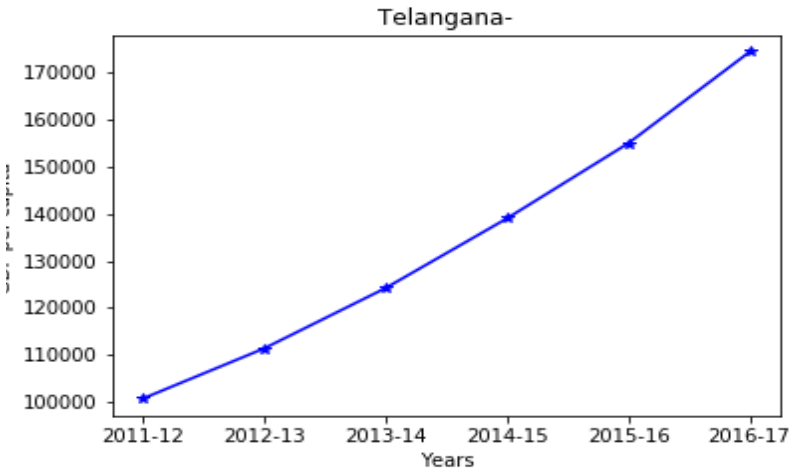


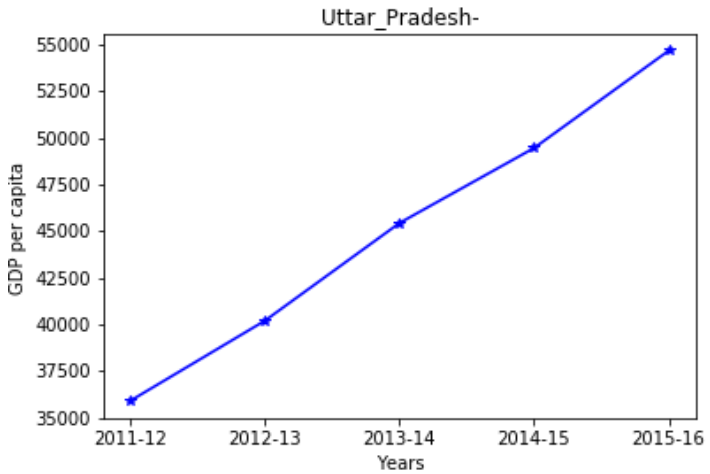


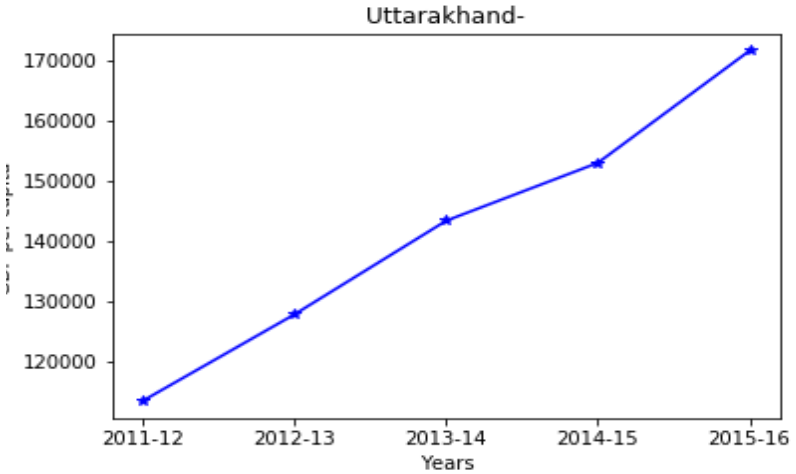


Part I-B:
(GDP per capita for all the states)-8









Questions !!

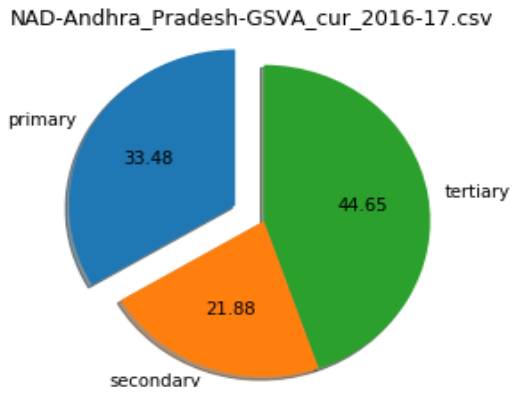
Identify the top 5 and the bottom 5 states based on the GDP per capita.

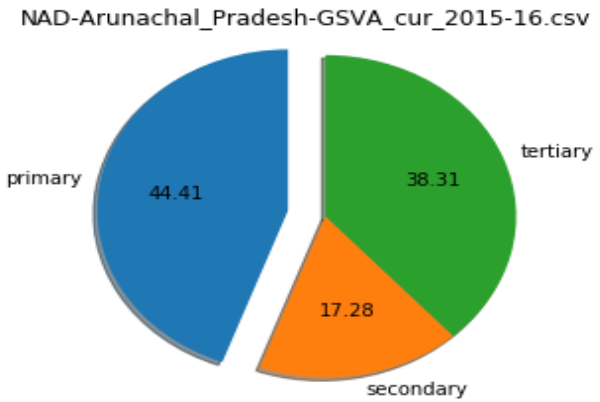
- Top 5
  - Andhra_Pradesh 616818
  - Arunachal_Pradesh 503727
  - Assam 278253
  - Bihar 150153
  - Chhattisgarh 492280
  - Last 5
  - Tamil_Nadu 835717
  - Telangana 804862
  - Tripura 254679
  - Uttarakhand 709847
  - Uttar_Pradesh 225663

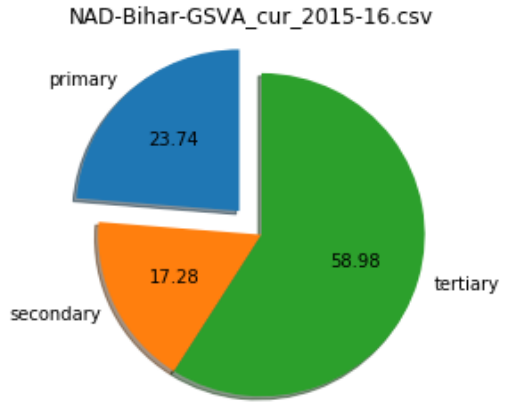
Questions !!

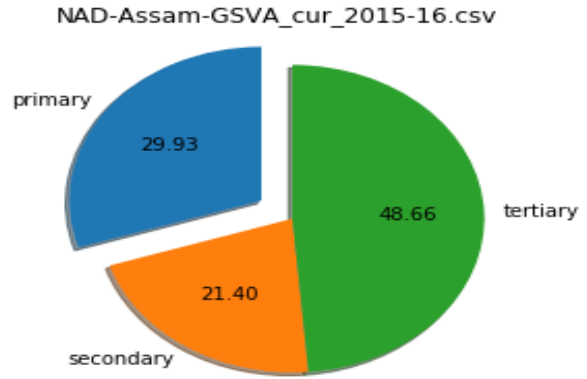
- Find the ratio of the highest per capita GDP to the lowest per capita GDP
  - `Ratio of Andhra_Pradesh with Uttar_Pradesh`
  - `616818:225663=2.7333590353757593`

percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states. -1

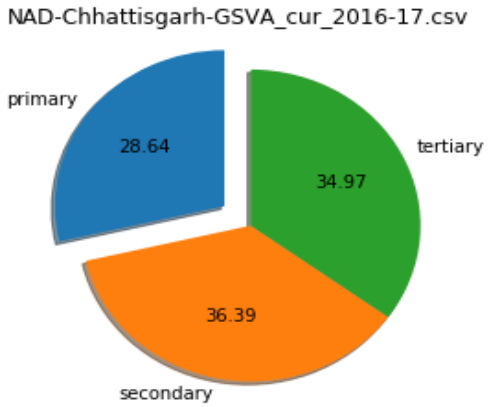


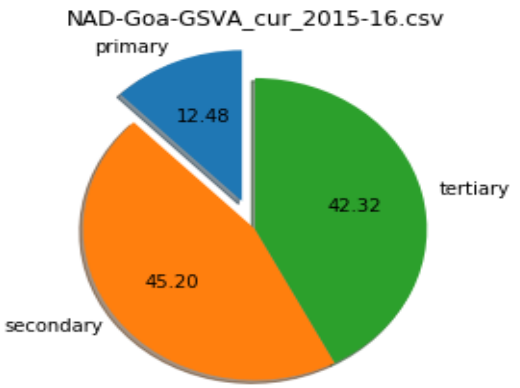


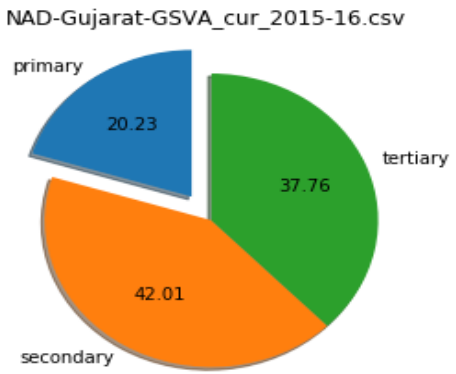


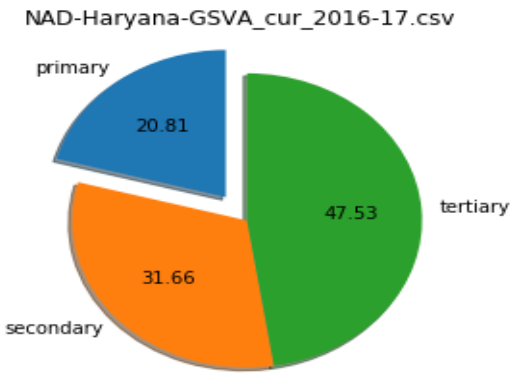


percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states. -2

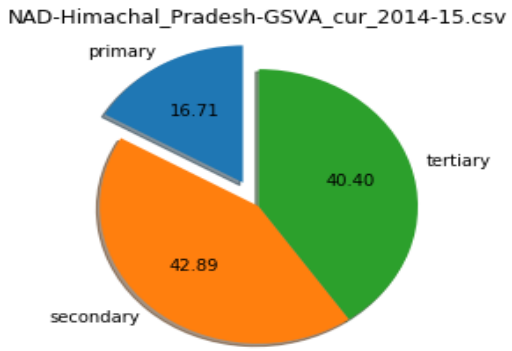


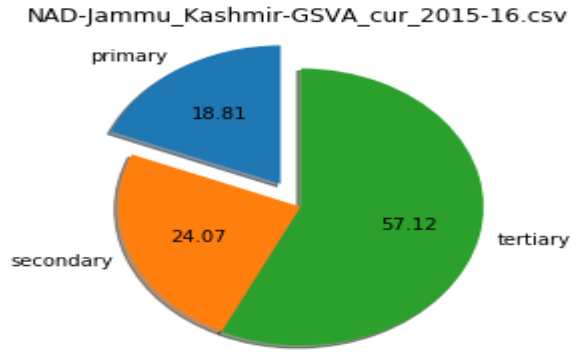


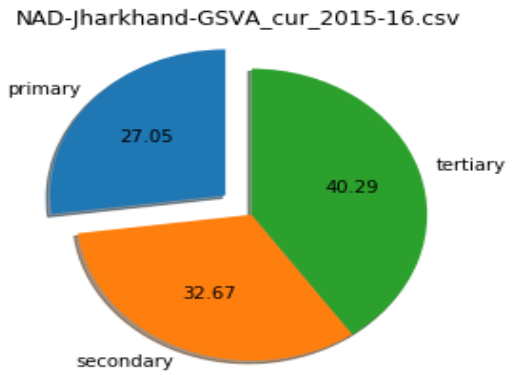


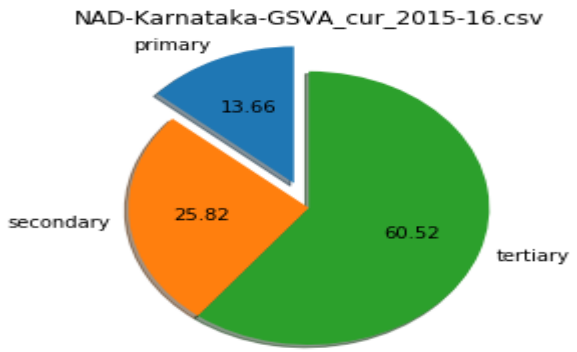


percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states. -3

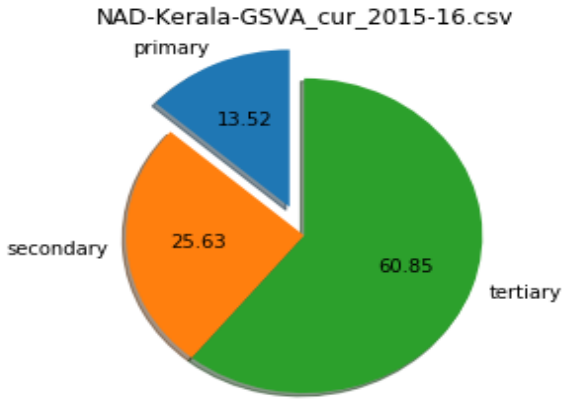


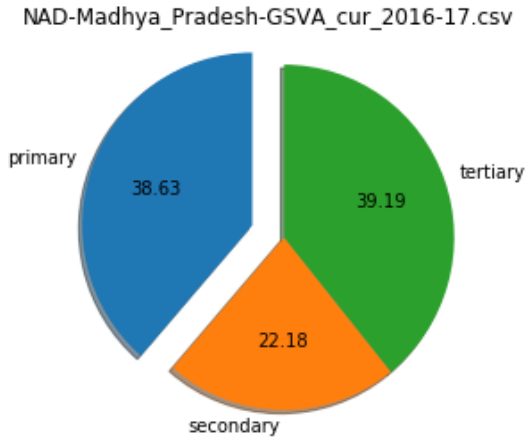


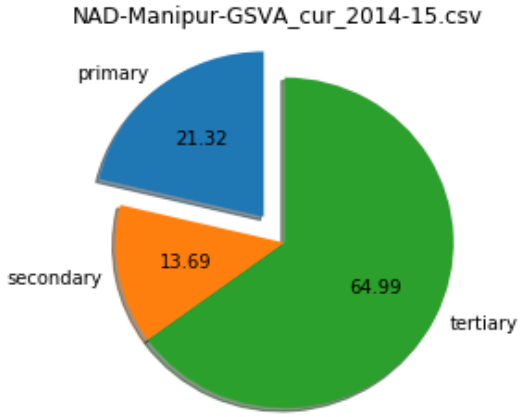


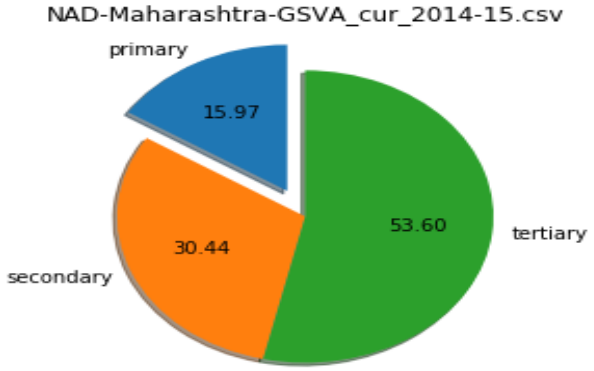


percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states. -4

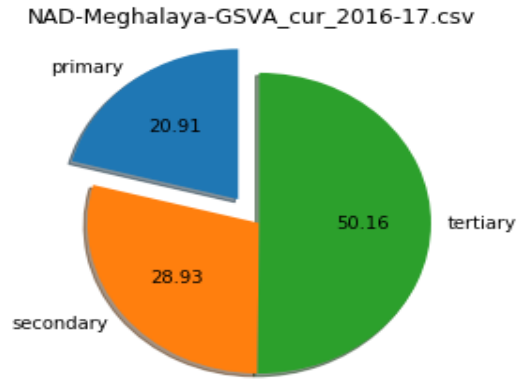


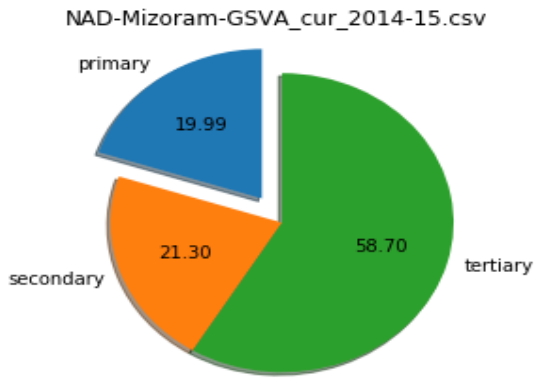


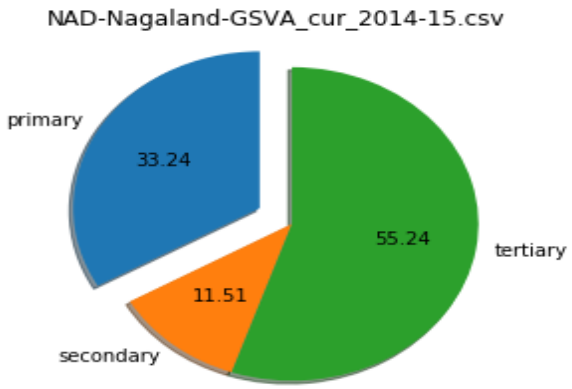


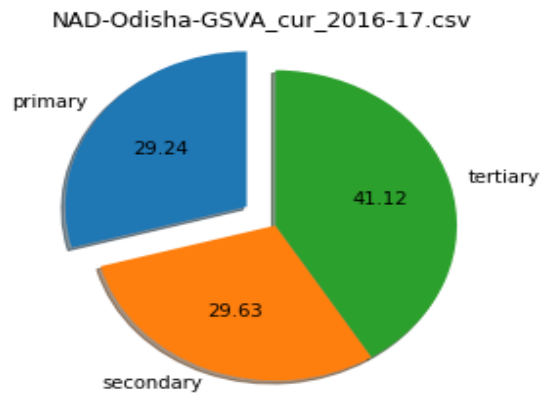


percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states. -5

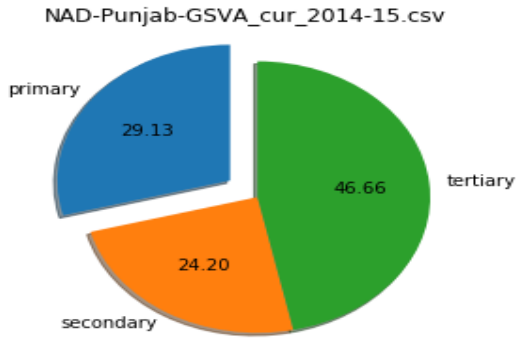


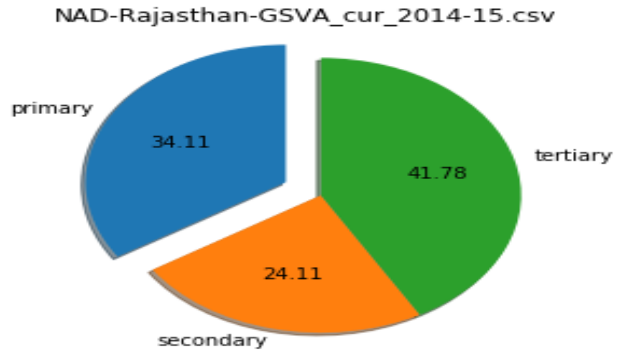


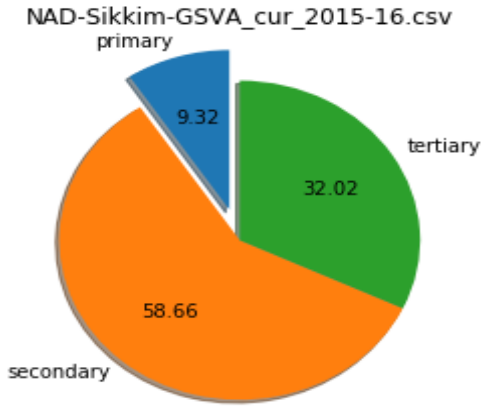


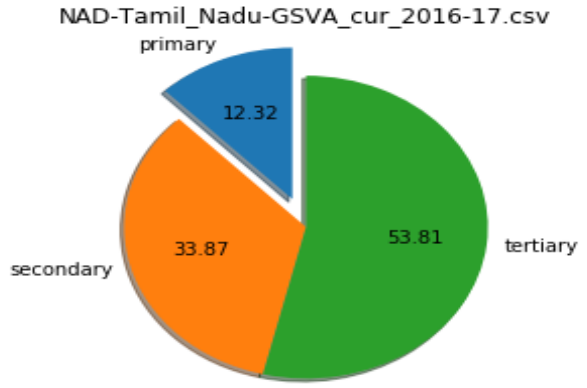


percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states. -6

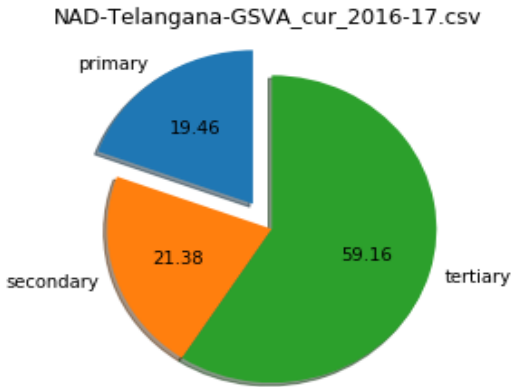


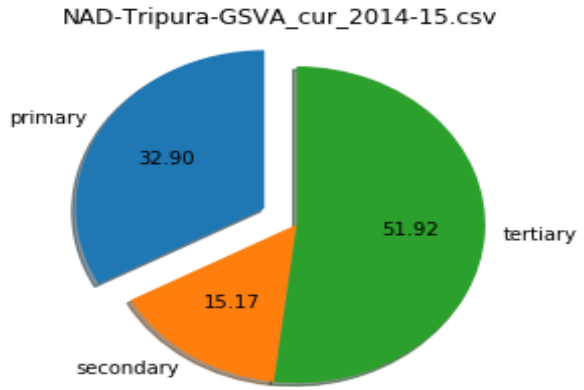


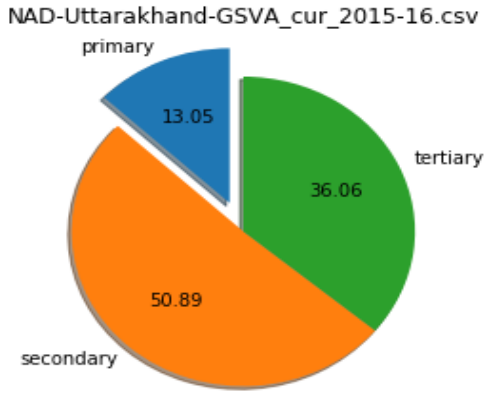


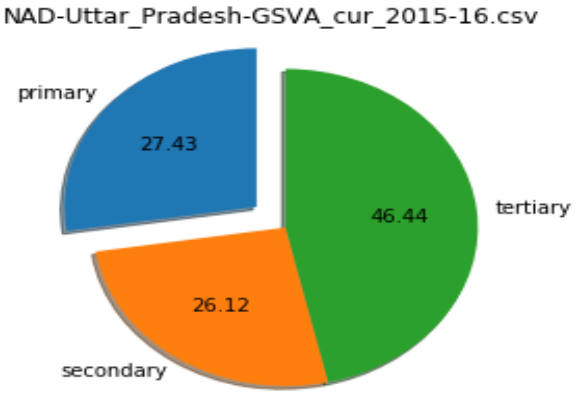


percentage contribution of the primary, secondary and tertiary sectors as a percentage of the total GDP for all the states. -7









the top **sub-sectors** that contribute to approximately 80% of the GSDP of each category

- States in category 1:
  - Assam,Bihar,Jharkhand,Manipur,Tripura,Uttar_Pradesh
- States in category 2:
  - Jammu_Kashmir,Madhya_Pradesh,Meghalaya,Mizoram,Nagaland,Odisha,Punjab,Rajasthan
- States in category 3:
  - Andhra_Pradesh,Arunachal_Pradesh,Chhattisgarh,Gujarat,Himachal_Pradesh,Karnataka,Kerala,Maharashtra,Uttarakhand
- States in category 4:
  - Goa,Haryana,Sikkim,Tamil_Nadu,Telangana

the top **sub-sectors** that contribute to approximately 80% of the GSDP of each category

Category 1

```
Subsector : Agriculture, forestry and fishing
Contribution : 190516074.0
Subsector : Crops
Contribution : 126400795.0
Subsector : Trade, repair, hotels and restauran
Contribution : 98056120.0
Subsector : Real estate, ownership of dwelling
Contribution : 97289273.0
Subsector : Manufacturing
Contribution : 94139557.0
```

the top **sub-sectors** that contribute to approximately 80% of the GSDP of each category

Category 2

```
Subsector : Agriculture, forestry and fishing
Contribution : 421213896.0
Subsector : Crops
Contribution : 286883608.0
Subsector : Manufacturing
Contribution : 201157828.0
Subsector : Trade, repair, hotels and restauran
Contribution : 190693882.0
Subsector : Trade & repair services
Contribution : 177295168.0
```

the top **sub-sectors** that contribute to approximately 80% of the GSDP of each category

Category 3

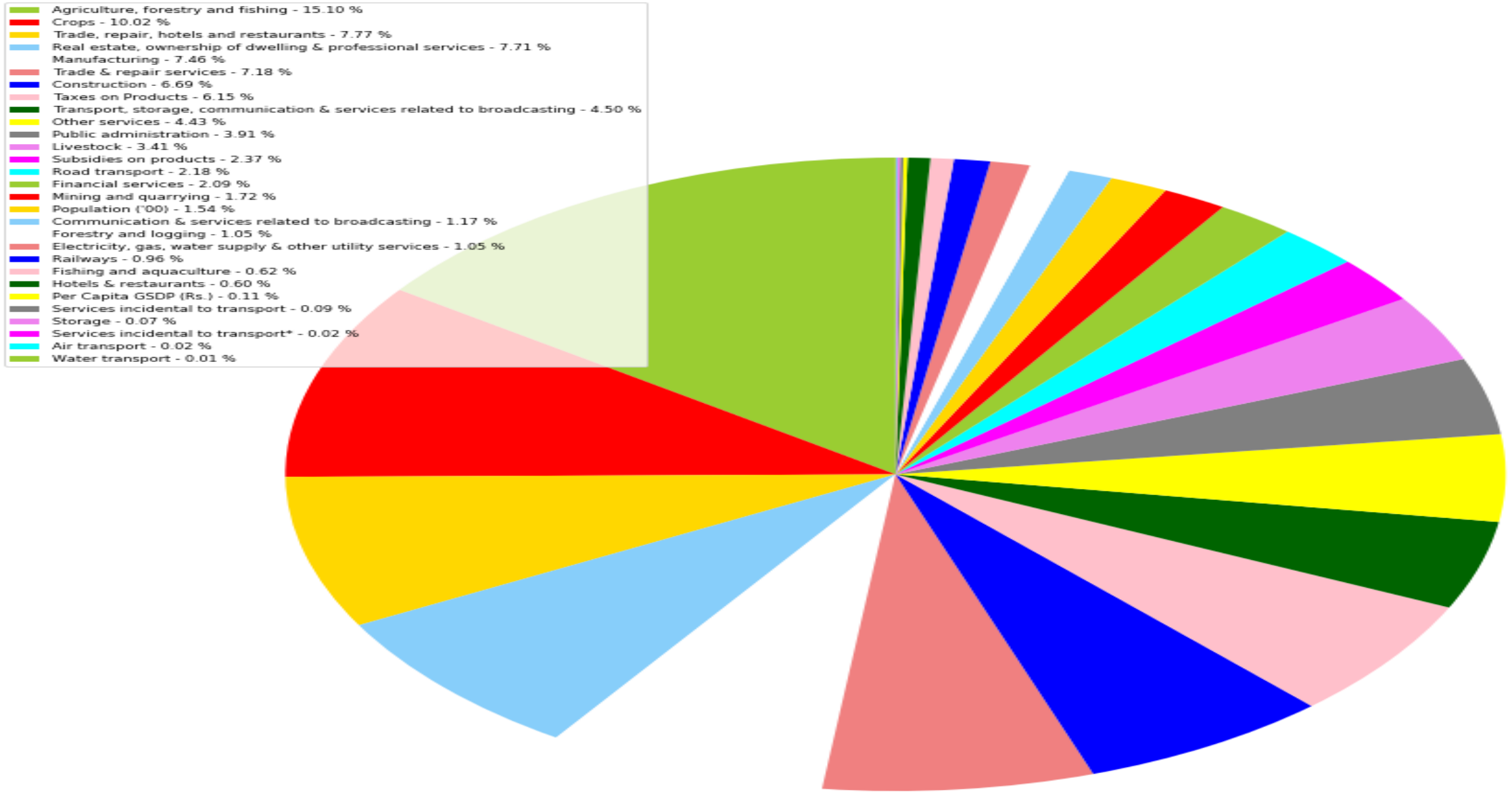
Subsector : Agriculture, forestry and fishing
Contribution : 747445116.0
Subsector : Manufacturing
Contribution : 596526140.0
Subsector : Crops
Contribution : 490747080.0
Subsector : Real estate, ownership of dwelling
Contribution : 473801541.0
Subsector : Taxes on Products
Contribution : 426020857.75

the top **sub-sectors** that contribute to approximately 80% of the GSDP of each category

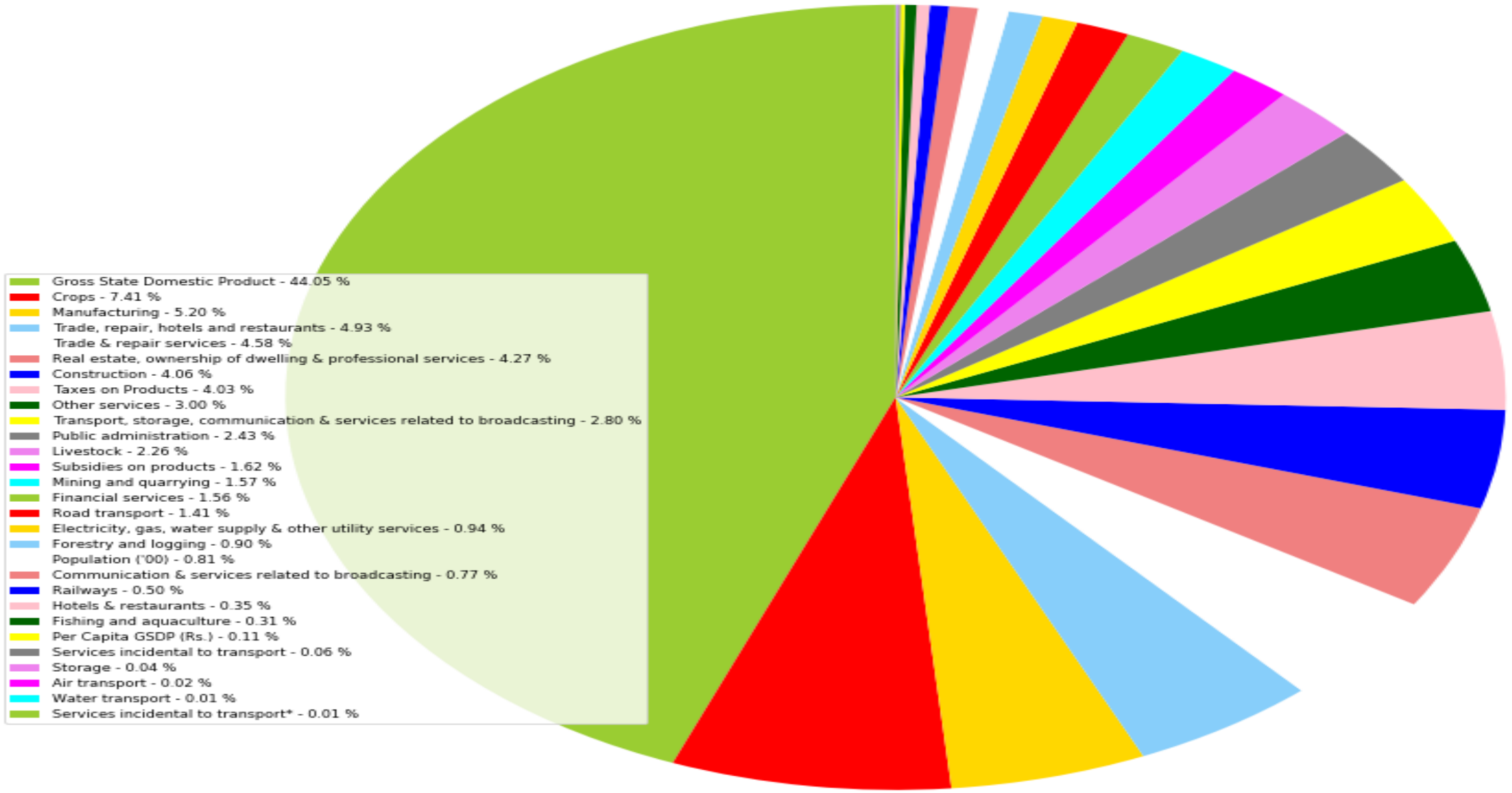
Category 4

```
Subsector : Agriculture, forestry and fishing
Contribution : 909365033.0
Subsector : Manufacturing
Contribution : 799492370.0
Subsector : Real estate, ownership of dwelling
Contribution : 665042163.0
Subsector : Crops
Contribution : 583666668.0
Subsector : Taxes on Products
Contribution : 558210586.75
Subsector : Trade, repair, hotels and restauran
Contribution : 547263084.0
```

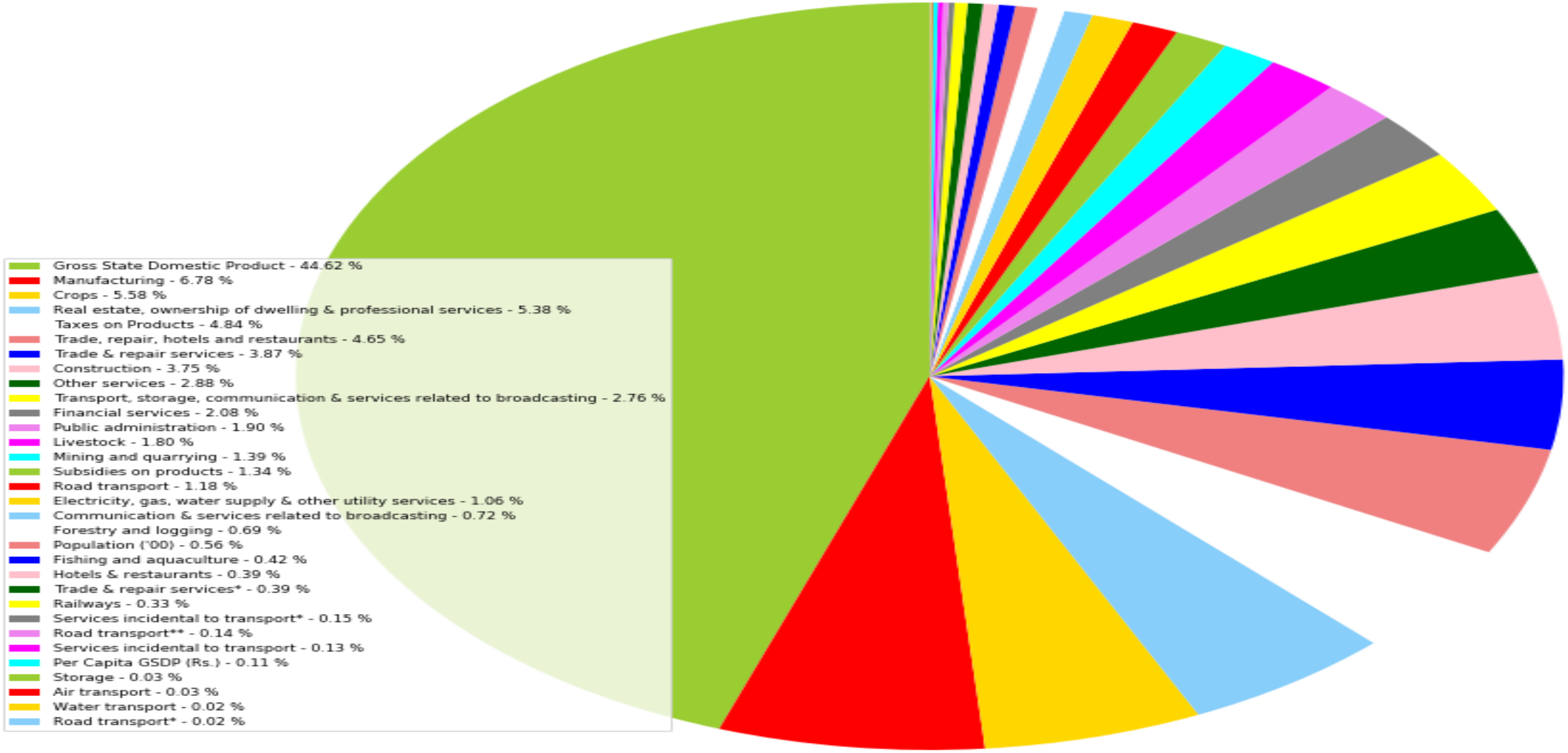
Plot the contribution of the sub-sectors as a percentage of the GSDP of each category(Category 1)



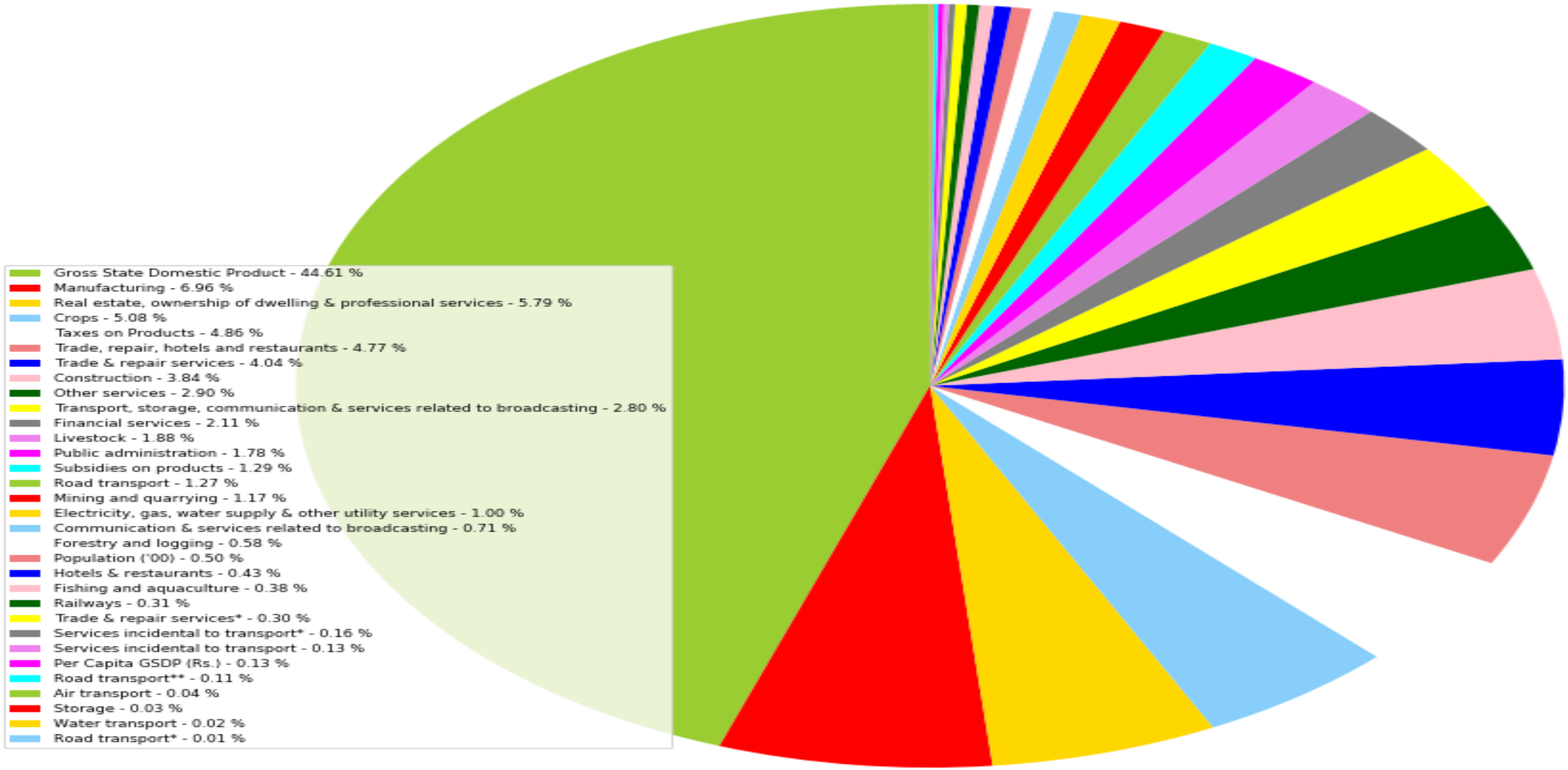
Plot the contribution of the sub-sectors as a percentage of the GSDP of each category(Category 2)



Plot the contribution of the sub-sectors as a percentage of the GSDP of each category(Category 3)



Plot the contribution of the sub-sectors as a percentage of the GSDP of each category(Category 4)

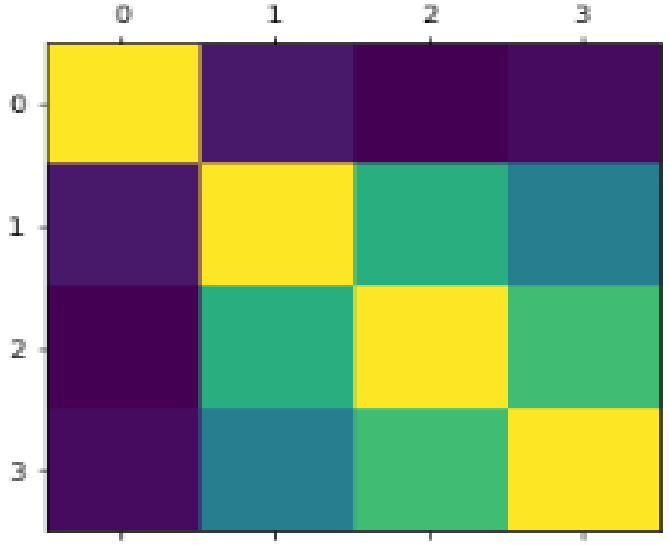


Questions !!

- How does the GDP distribution of the top states (C1) differ from the others?
  - GDP per capita allows us to compare the prosperity of countries with different population sizes. Top states have more gdp than others.
- Which sub-sectors seem to be correlated with high GDP?
  - 1.Agriculture, forestry
  - 2.Fishing
  - 3.Crops ,Trade repair, hotels and restaurants
- Which sub-sectors do the various categories need to focus on?
    - Air transport ,Water transport, Road transport

Part-II: GDP and Education

- Any correlation of GDP per capita with dropout rates in education (primary, upper primary and sec



Assumptions:
I have only taken states that are also in DATA-B
First column is GDP per capita
Second is dropout Rate of primary 2014-15
Third is dropout Rate of upper primary 2014-15
Fourth is dropout Rate of upper secondary 2014-15

one reasonable hypothesis for the observations from the data

- Education is vital for economic development. According to Vision 2030 of World Economic Forum , “Education is key component of economic growth because it has directly influence on entrepreneurship, productivity growth and then increases employment opportunities and women empowerment. Education helps in making potential youth for the enhancement of ability, creativity and systematically skills to contest with the fast changing Global inclination. Students drop outs reduces literacy rate of country and non-innovative environment.