



ANALYSE GROWTH AND PRESENT INSIGHTS TO THE TELANGANA GOVERNMENT

Author: Bao Thai

Date: Sep 15th 2023

About the project:

- ❖ Telangana is one of the fastest-growing states in India and one of the states with an open data policy. (They have published all their data online)
- ❖ Peter Pandey is an aspiring data analyst looking for a project with real-time data to add to his portfolio. He wanted to analyse Telangana's growth among different sectors quantitatively and provide useful Insights to the Telangana government that would help them to make data-informed decisions that would further support the growth of the state

Resource: <https://codebasics.io/challenge/codebasics-resume-project-challenge>



Objective:

- ❖ Explore the Stamp Registration, Transportation and Ts-Ipass Datasets.
- ❖ Analyze trends and patterns, categories and time period.
- ❖ Identify growth opportunities and areas needing attention.
- ❖ Find correlation among these departments and report the overall growth of the state through insights and relevant visuals such as shape maps.



Audiences (Stackholders):

From Telangana Government

- ❖ Kalvakuntla Taraka Rama Rao / KTR Minister for IT, Industries and Municipal Administration: <https://www.linkedin.com/in/ktramarao>
- ❖ Jayesh Ranjan Secretary, Information Technology (IT); Government of Telangana: <https://www.linkedin.com/in/jayesh-ranjan-37415963>
- ❖ Dileep Konatham Director at Government of Telangana <https://www.linkedin.com/in/dileep-konatham-2624b91b5>
- ❖ Venu Panjarla Open Data Telangana <https://www.linkedin.com/in/venupanjarla>



Audiences (Stackholders):

From Codebasics Team

- ❖ Dhaval Patel Founder, Codebasics <https://www.linkedin.com/in/dhavalays/>
- ❖ Hemanand Vadivel Co-Founder, Codebasics <https://www.linkedin.com/in/hemvad/> codebasics.io



Content

01



STAMP REGISTRATION

02



TRANSPORTATION

03



TS IPASS



REGISTRATION & STAMPS DEPARTMENT

Government of Telangana

[Home](#)[About Us](#)[Organization ▾](#)[Acts&Rules ▾](#)[FAQ's ▾](#)[RTI Act ▾](#)[Downloads ▾](#)[Citizen's Charter](#)[Ready Reckoner](#)[EODB ▾](#)[Login](#)

PROPERTY REGISTRATION

[Market Value Search](#)[Prohibited Properties](#)[Certified Copy](#)[Encumbrance Search\(EC\)](#)[GPA Search](#)[Duty Fee Calculator](#)

STAMP REGISTRATION

1. How does the revenue generated from document registration vary across districts in Telangana? List down the top 5 districts that showed the highest document registration revenue growth between FY 2019 and 2022.
2. How does the revenue generated from document registration compare to the revenue generated from e-stamp challans across districts? List down the top 5 districts where e-stamps revenue contributes significantly more to the revenue than the documents in FY 2022?
3. Is there any alteration of e-Stamp challan count and document registration count pattern since the implementation of e-Stamp challan? If so, what suggestions would you propose to the government?
4. Categorize districts into three segments based on their stamp registration revenue generation during the fiscal year 2021 to 2022.

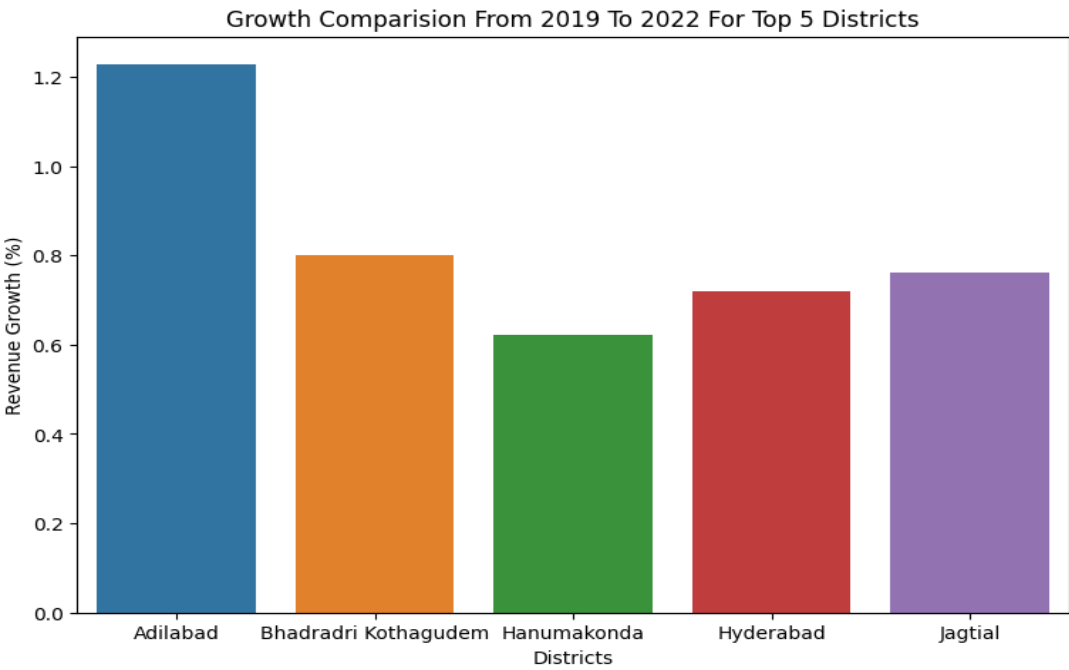
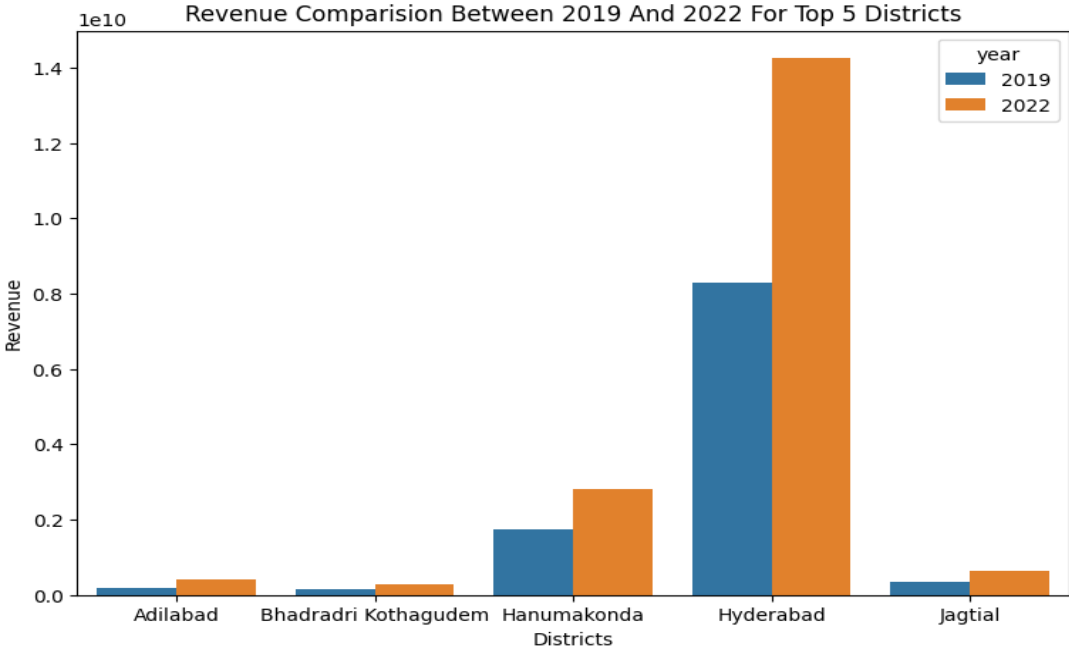
STAMP REGISTRATION

1, How does the revenue generated from document registration vary across districts in Telangana? List down the top 5 districts that showed the highest document registration revenue growth between FY 2019 and 2022.

The revenue generated from document registration varies across districts in Telangana. Here are the top 5 districts that showed the highest document registration revenue growth between FY 2019 and 2022:

- 1. **Adilabad:** The revenue increased from **178,082,233** in 2019 to **396,840,845** in 2022, showing a growth of approximately **123%**.
- 2. **Bhadradri Kothagudem:** The revenue increased from **162,466,947** in 2019 to **292,643,450** in 2022, showing a growth of approximately **80%**.
- 3. **Hanumakonda:** The revenue increased from **1,738,280,378** in 2019 to **2,817,238,587** in 2022, showing a growth of approximately **62%**.
- 4. **Hyderabad:** The revenue increased from **8,299,406,278** in 2019 to **14,266,012,441** in 2022, showing a growth of approximately **72%**.
- 5. **Jagtial:** The revenue increased from **357,209,544** in 2019 to **628,898,536** in 2022, showing a growth of approximately **76%**.

These figures indicate significant growth in document registration revenue across these districts over the period of three fiscal years.



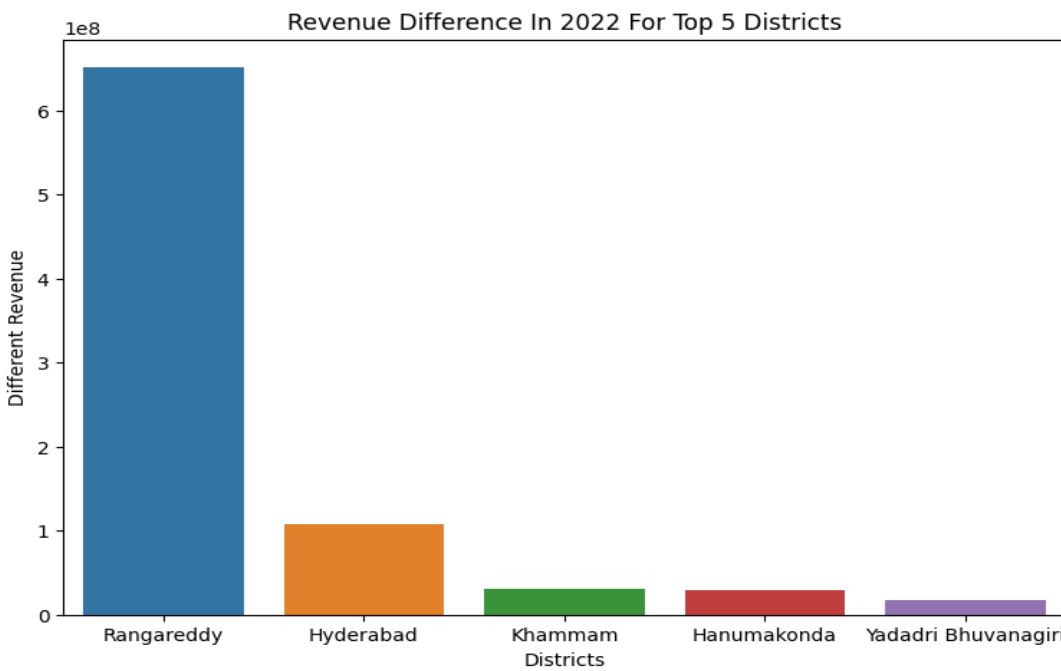
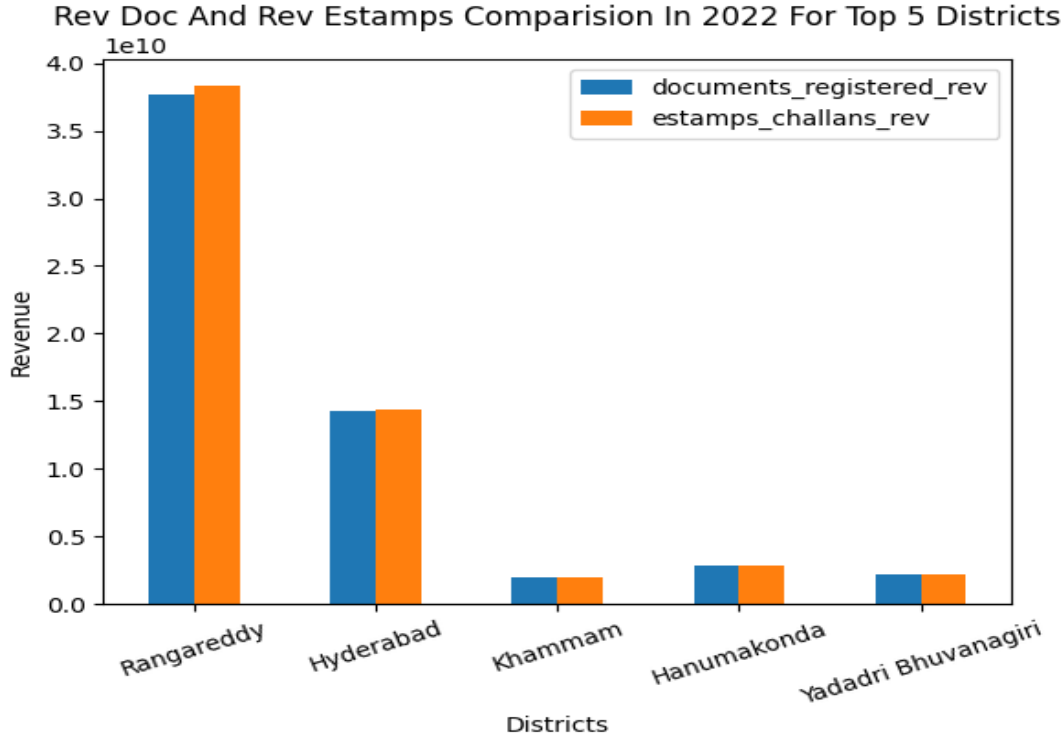
STAMP REGISTRATION

2. How does the revenue generated from document registration compare to the revenue generated from e-stamp challans across districts? List down the top 5 districts where e-stamps revenue contributes significantly more to the revenue than the documents in FY 2022?

The revenue generated from document registration and e-stamp challans varies across districts. Here are the top 5 districts where e-stamps revenue contributes significantly more to the revenue than the documents in FY 2022:

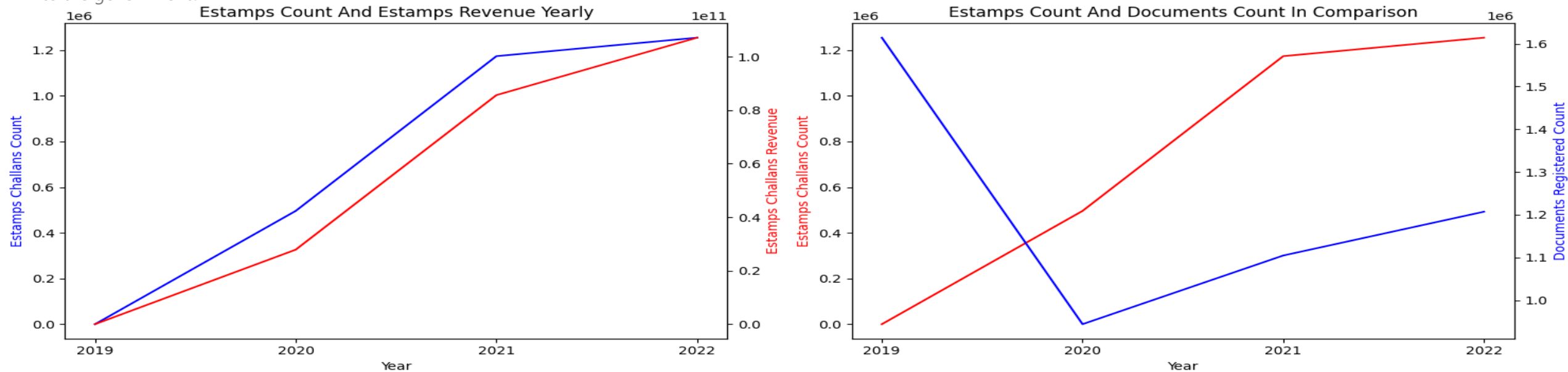
- 1. **Rangareddy:** The revenue from documents registered was **37,697,750,946**, while the revenue from e-stamps challans was **38,349,357,618**. The difference in revenue is **651,606,672**.
- 2. **Hyderabad:** The revenue from documents registered was **14,266,012,441**, while the revenue from e-stamps challans was **14,374,315,032**. The difference in revenue is **108,302,591**.
- 3. **Khammam:** The revenue from documents registered was **1,971,647,539**, while the revenue from e-stamps challans was **2,002,220,314**. The difference in revenue is **30,572,775**.
- 4. **Hanumakonda:** The revenue from documents registered was **2,817,238,587**, while the revenue from e-stamps challans was **2,846,856,844**. The difference in revenue is **29,618,257**.
- 5. **Yadadri Bhuvanagiri:** The revenue from documents registered was **2,167,480,603**, while the revenue from e-stamps challans was **2,185,270,667**. The difference in revenue is **17,790,064**.

These figures indicate that e-stamp challans contribute significantly more to the total revenue than document registration in these districts for FY 2022.



STAMP REGISTRATION

3. Is there any alteration of e-Stamp challan count and document registration count pattern since the implementation of e-Stamp challan? If so, what suggestions would you propose to the government?



From the charts above we can see that since the implementation of e-Stamp challan in 2020:

- The count of e-Stamp challans has been increasing year by year.
- The revenue from e-Stamp challans has also been increasing significantly.
- The count of documents registered decreased in 2020 compared to 2019 but started increasing again in the following years.
- The revenue from documents registered also shows a similar pattern.

Based on these observations:

- It seems that the implementation of e-Stamp challan has been successful and well-received as indicated by the increasing counts and revenues.
- However, it's important to ensure that document registration does not decrease as it's also a significant source of revenue.

As for suggestions to the government:

- **Promote Awareness:** Continue to promote awareness about the benefits and convenience of e-Stamp challans to encourage more people to use this service.
- **Improve Accessibility:** Ensure that the process of obtaining e-Stamp challans is easy and accessible to everyone across all districts.
- **Monitor Trends:** Keep monitoring the trends in both e-Stamp challan and document registration counts and revenues to identify any potential issues or opportunities for improvement.
- **Maintain Balance:** While promoting e-Stamp challans, also ensure that document registration services are not neglected. Both services are important and contribute significantly to the revenue

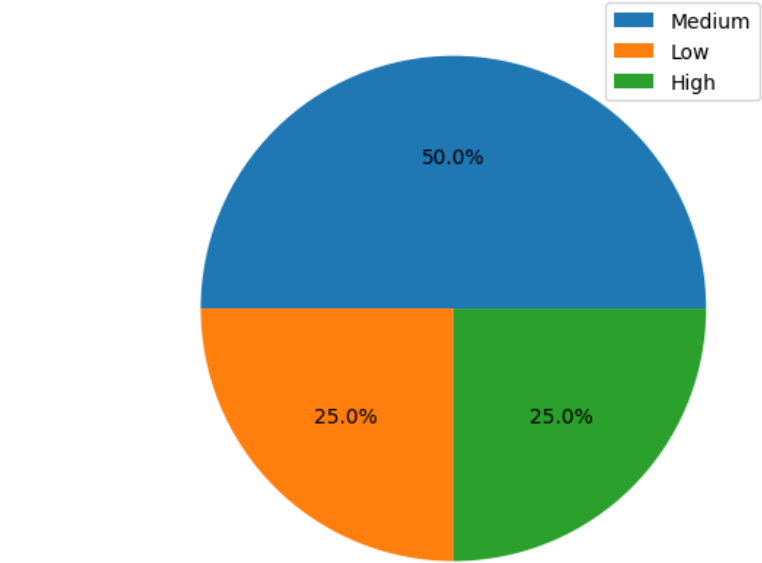
STAMP REGISTRATION

4. Categorize districts into three segments based on their stamp registration revenue generation during the fiscal year 2021 to 2022

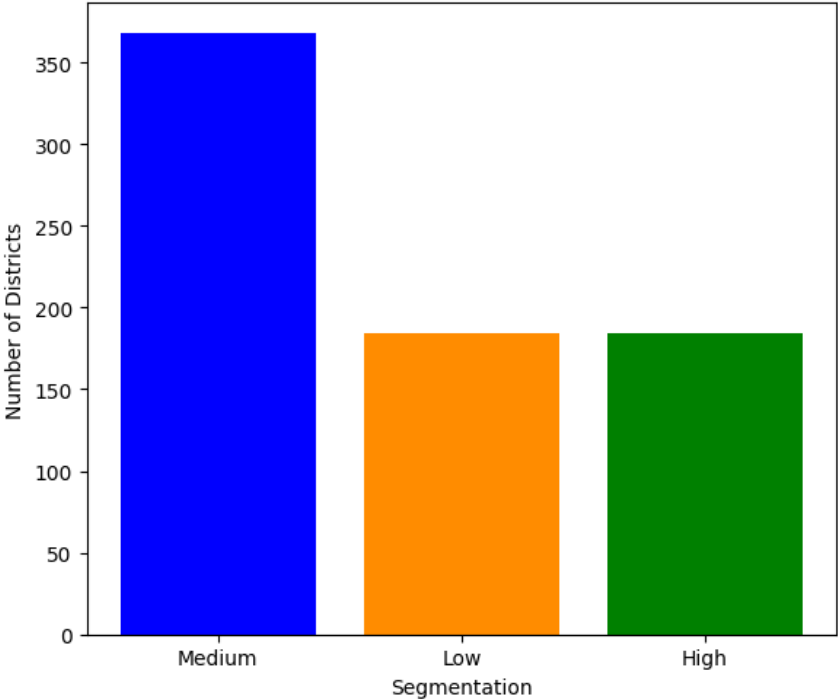
The districts have been categorized into three segments based on their stamp registration revenue generation during the fiscal year 2021 to 2022. The segments are as follows:

- **High:** 184 districts
- **Medium:** 368 districts
- **Low:** 184 districts

District Segmentation Based on Stamp Registration Revenue In 2021 2022



District Segmentation Based on Stamp Registration Revenue In 2021 2022





Regional Transport Office in Telangana
Hyderabad Motor Vehicle Department

TRANSPORTATION

5. Investigate whether there is any correlation between vehicle sales and specific months or seasons in different districts. Are there any months or seasons that consistently show higher or lower sales rate, and if yes, what could be the driving factors? (Consider Fuel-Type category only)
6. How does the distribution of vehicles vary by vehicle class (MotorCycle, MotorCar, AutoRickshaw, Agriculture) across different districts? Are there any districts with a predominant preference for a specific vehicle class? Consider FY 2022 for analysis.
7. List down the top 3 and bottom 3 districts that have shown the highest and lowest vehicle sales growth during FY 2022 compared to FY 2021? (Consider and compare categories: Petrol, Diesel and Electric)

TRANSPORTATION

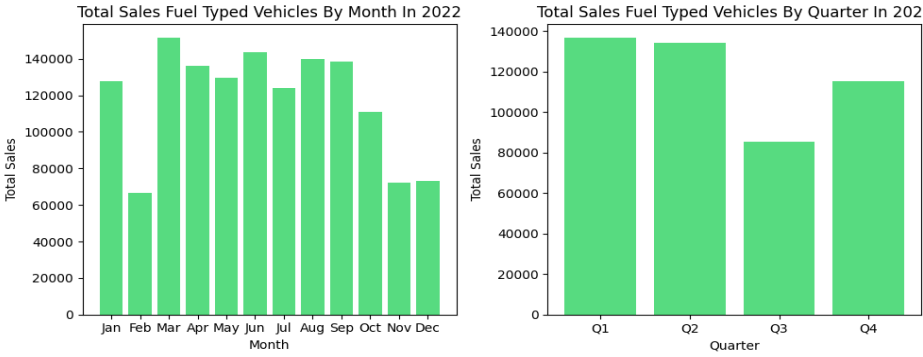
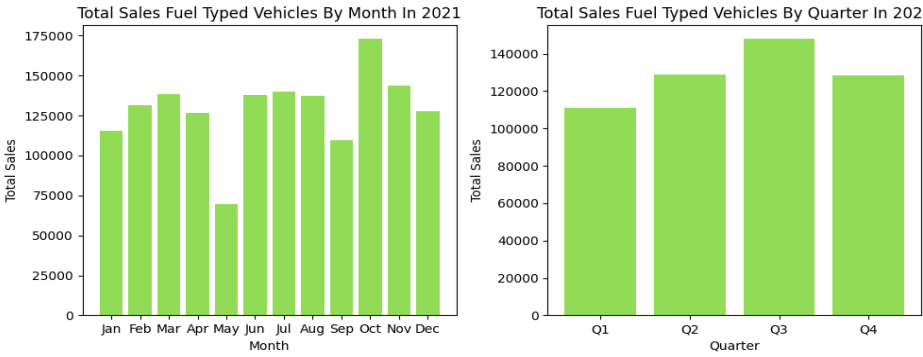
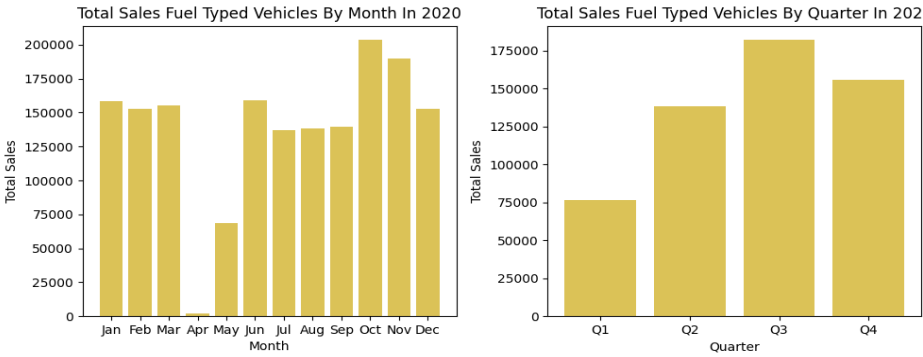
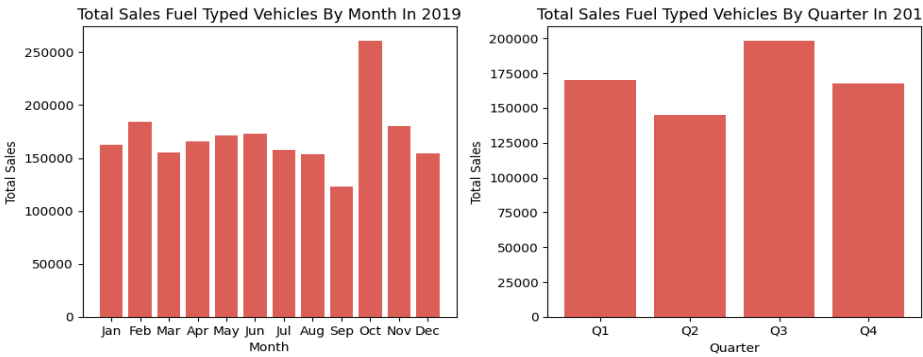
5. Investigate whether there is any correlation between vehicle sales and specific months or seasons in different districts. Are there any months or seasons that consistently show higher or lower sales rate, and if yes, what could be the driving factors? (Consider Fuel-Type category only)

Monthly Sales:

- **In 2019**, the highest sales were observed in October (261,064) and the lowest in September (123,221).
- **In 2020**, the highest sales were observed in October (203,828) and the lowest in April (1,994).
- **In 2021**, the highest sales were observed in October (173,020) and the lowest in May (69,465).
- **In 2022**, the highest sales were observed in March (151,416) and the lowest in February (66,431).

Quarterly Sales:

- In all years from 2019 to 2022, the first quarter (Q1: Jan-Mar) and third quarter (Q3: Jul-Sep) generally had higher sales compared to the second quarter (Q2: Apr-Jun) and fourth quarter (Q4: Oct-Dec).



TRANSPORTATION

5. Investigate whether there is any correlation between vehicle sales and specific months or seasons in different districts. Are there any months or seasons that consistently show higher or lower sales rate, and if yes, what could be the driving factors? (Consider Fuel-Type category only)

Yearly Sales:

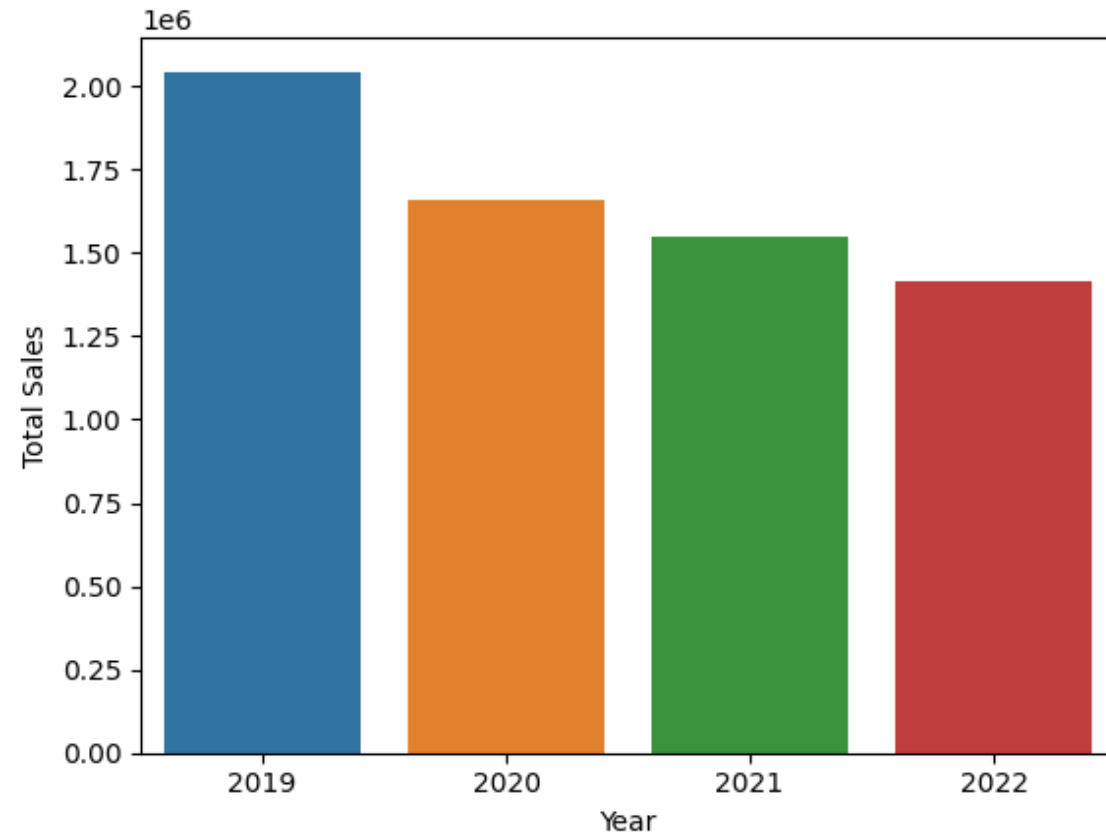
The total sales of fuel-typed vehicles decreased each year from 2019 to 2022.

From these observations, it can be inferred that vehicle sales tend to be higher at the beginning and middle of the year. The drop in sales during April 2020 could be attributed to the global pandemic situation.

As for the driving factors behind these trends:

- 1. Seasonal Factors:** Vehicle sales often increase during festive seasons or when new models are launched.
- 2. Economic Factors:** The state of the economy can greatly influence vehicle sales. For instance, a strong economy will encourage consumers to purchase new vehicles.
- 3. Policy Changes:** Government policies such as changes in tax rates or introduction of new regulations can also impact vehicle sales.

To increase vehicle sales, it would be beneficial for the government to introduce incentives during low-sales periods. Additionally, promoting fuel-efficient vehicles could attract environmentally conscious consumers.



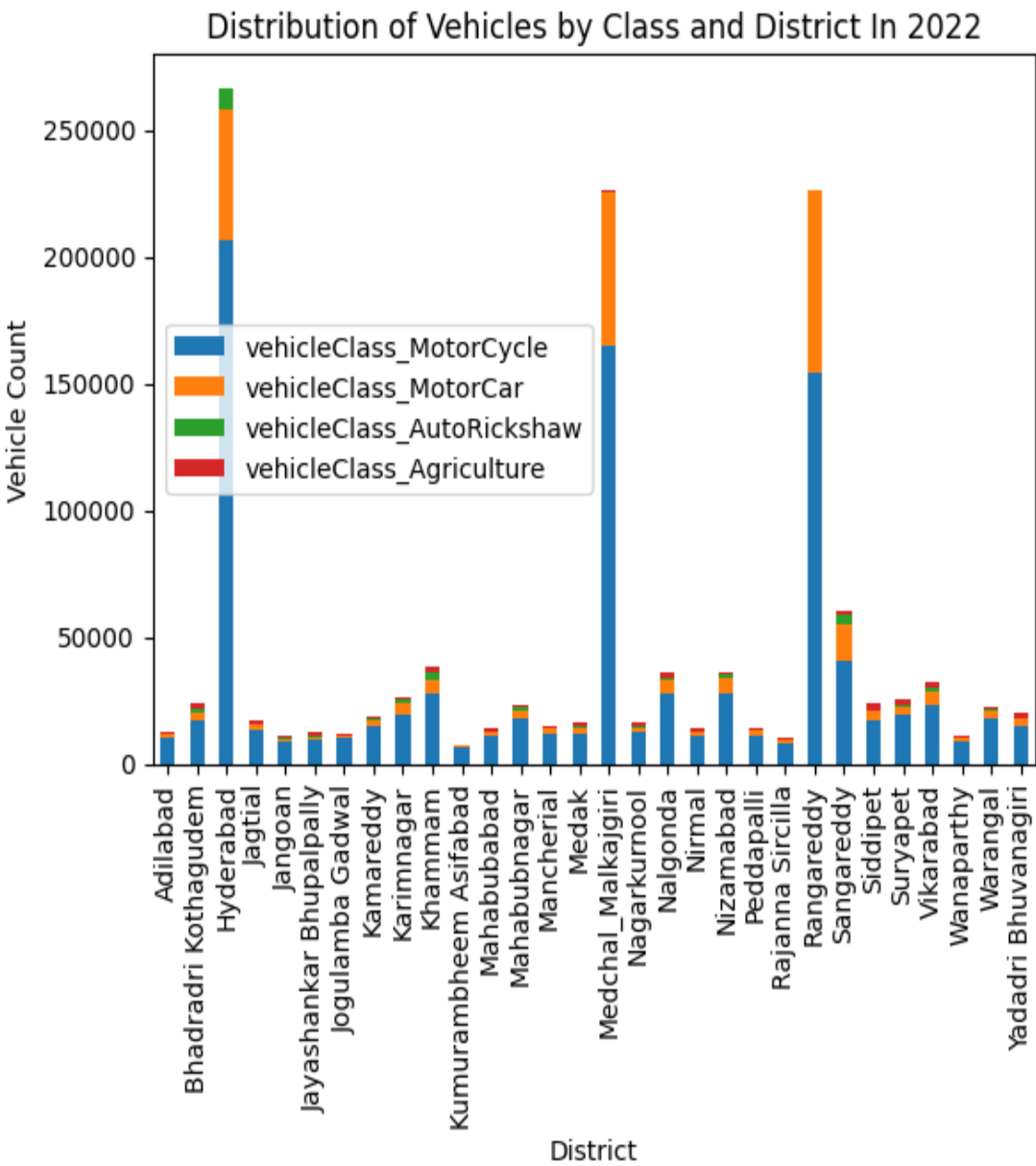
TRANSPORTATION

6 . How does the distribution of vehicles vary by vehicle class (MotorCycle, MotorCar, AutoRickshaw, Agriculture) across different districts? Are there any districts with a predominant preference for a specific vehicle class? Consider FY 2022 for analysis.

The distribution of vehicles by vehicle class across different districts in FY 2022 is as follows:

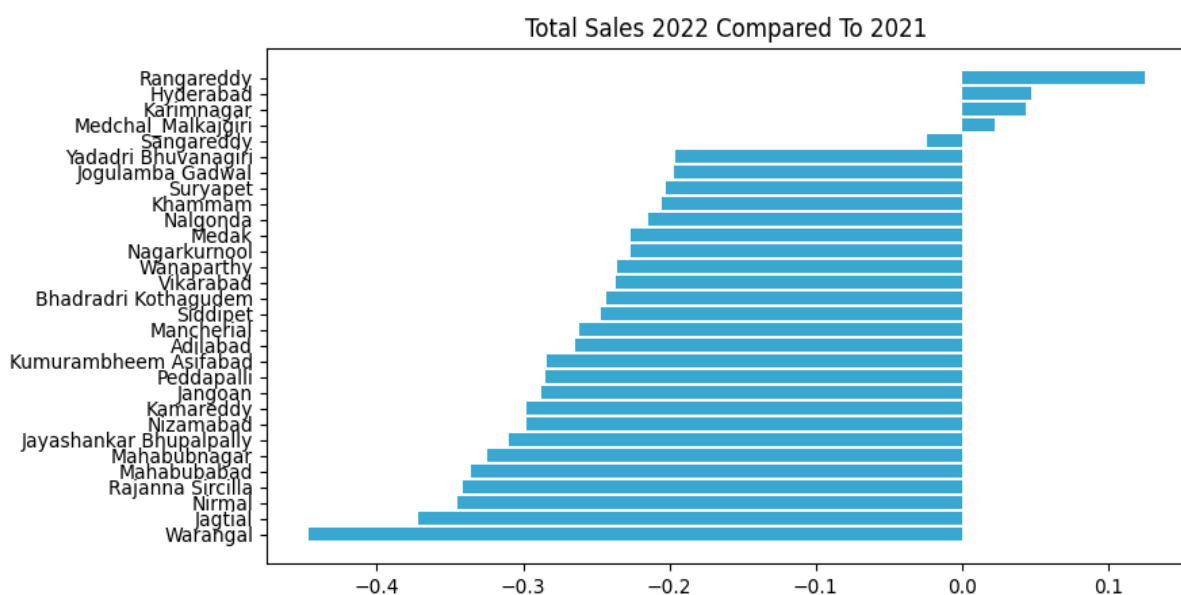
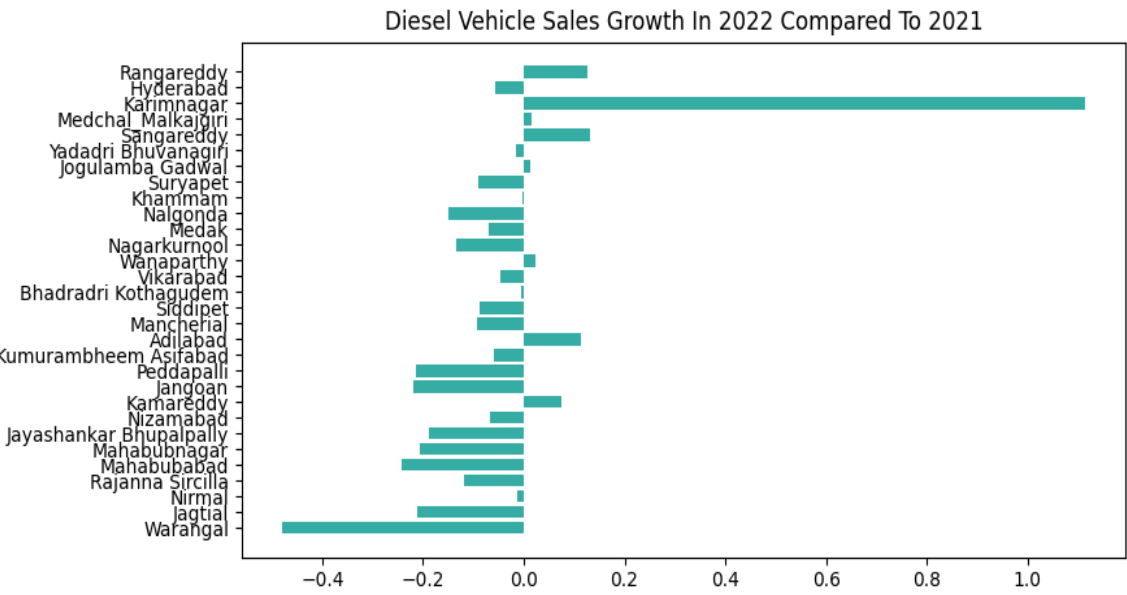
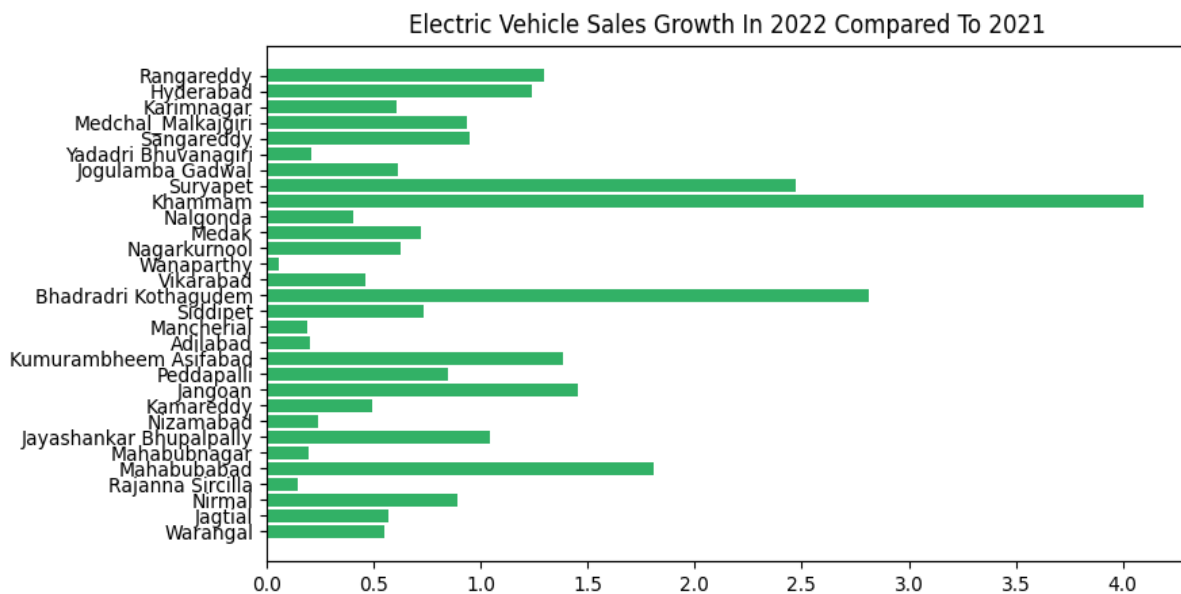
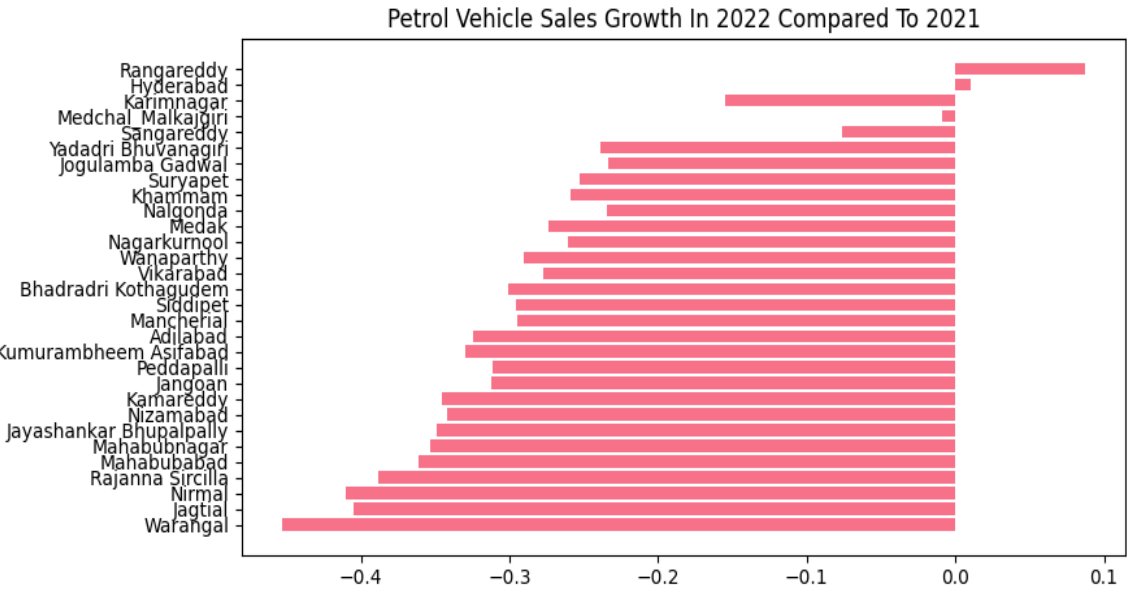
- **MotorCycle:** This class of vehicles is the most predominant across all districts. The districts with the highest number of motorcycles are Hyderabad **(206,819)**, Medchal_Malkajgiri **(164,626)**, and Rangareddy **(154,186)**.
- **MotorCar:** This class of vehicles is also popular but not as much as motorcycles. The districts with the highest number of motorcars are Hyderabad **(51,447)**, Medchal_Malkajgiri **(61,071)**, and Rangareddy **(71,832)**.
- **AutoRickshaw:** This class of vehicles is less common compared to motorcycles and motorcars. The districts with the highest number of auto rickshaws are Hyderabad **(8,397)**, Sangareddy **(3,381)**, and Khammam **(2,690)**.
- **Agriculture:** This class of vehicles is least common among the four classes. The districts with the highest number of agriculture vehicles are Bhadradri Kothagudem **(2,013)**, Nalgonda **(2,599)**, and Siddipet **(2,437)**.

From this analysis, it's clear that the MotorCycle class is the most preferred vehicle class across all districts. However, the preference for other vehicle classes like MotorCar, AutoRickshaw, and Agriculture varies from district to district. Factors influencing these preferences could include the district's economic status, road infrastructure, and local needs or customs.



TRANSPORTATION

7. List down the top 3 and bottom 3 districts that have shown the highest and lowest vehicle sales growth during FY 2022 compared to FY 2021? (Consider and compare categories: Petrol, Diesel and Electric)



TRANSPORTATION

7. List down the top 3 and bottom 3 districts that have shown the highest and lowest vehicle sales growth during FY 2022 compared to FY 2021? (Consider and compare categories: Petrol, Diesel and Electric)

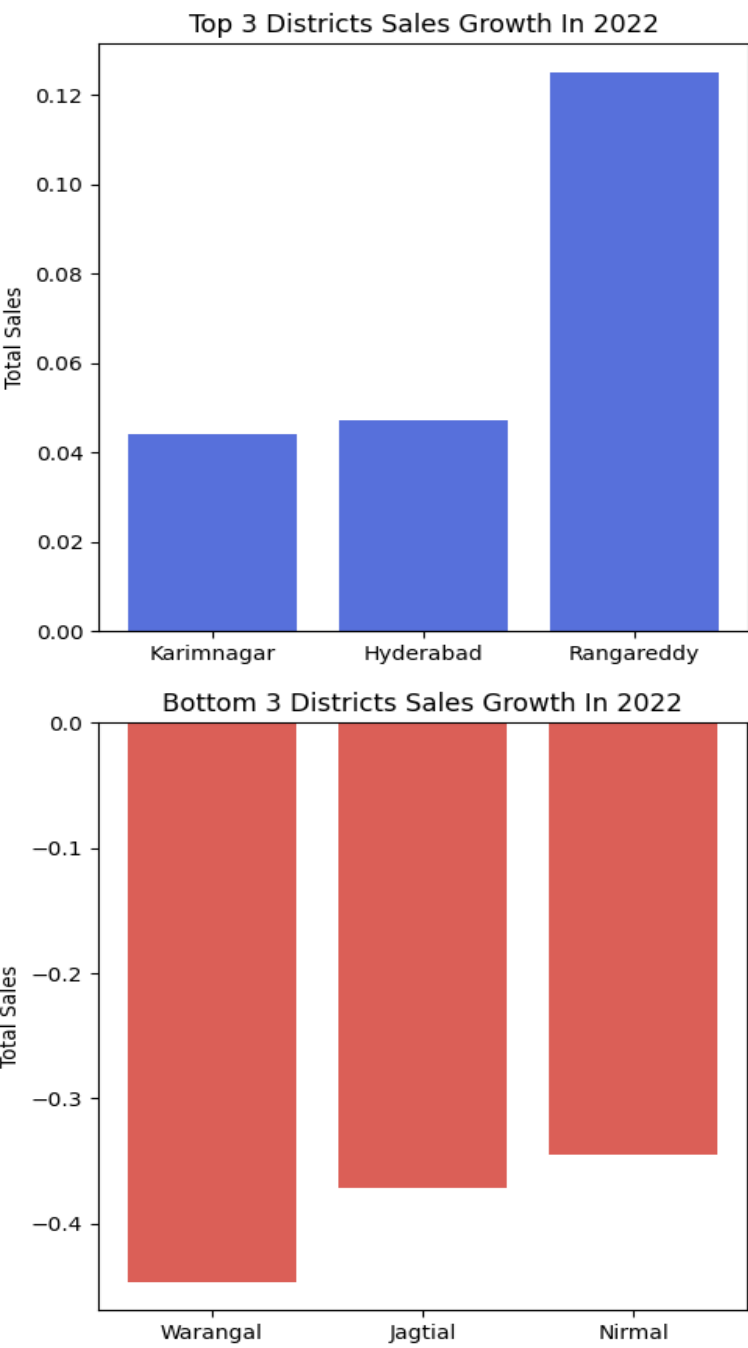
Top 3 Districts (Highest Growth)

- 1. **Rangareddy:** The total sales growth was approximately **12.52%**. The growth in petrol, diesel, and electric vehicles was about **8.73%**, **12.67%**, and **129.91%** respectively.
- 2. **Hyderabad:** The total sales growth was approximately **4.74%**. The growth in petrol, diesel, and electric vehicles was about **1.03%**, **-5.55%**, and **124.28%** respectively.
- 3. **Karimnagar:** The total sales growth was approximately **2.22%**. The growth in petrol, diesel, and electric vehicles was about **-0.90%**, **1.62%**, and **93.56%** respectively.

Bottom 3 Districts (Lowest Growth)

- 1. **Warangal:** The total sales growth was approximately **-44.69%**. The growth in petrol, diesel, and electric vehicles was about **-45.32%**, **-48.03%**, and **54.89%** respectively.
- 2. **Jagtial:** The total sales growth was approximately **-37.15%**. The growth in petrol, diesel, and electric vehicles was about **-40.53%**, **-21.27%**, and **56.97%** respectively.
- 3. **Nirmal:** The total sales growth was approximately **-34.45%**. The growth in petrol, diesel, and electric vehicles was about **-41.05%**, **-1.42%**, and **89.30%** respectively.

These figures indicate that while some districts have seen significant growth in vehicle sales, others have experienced a decline during FY 2022 compared to FY 2021.





Ts-Ipass (Telangana State Industrial Project Approval and Self Certification System)

8. List down the top 5 sectors that have witnessed the most significant investments in FY 2022.
9. List down the top 3 districts that have attracted the most significant sector investments during FY 2019 to 2022? What factors could have led to the substantial investments in these particular districts?
10. Is there any relationship between district investments, vehicles sales and stamps revenue within the same district between FY 2021 and 2022?
11. Are there any particular sectors that have shown substantial investment in multiple districts between FY 2021 and 2022?
12. Can we identify any seasonal patterns or cyclicity in the investment trends for specific sectors? Do certain sectors experience higher investments during particular months?

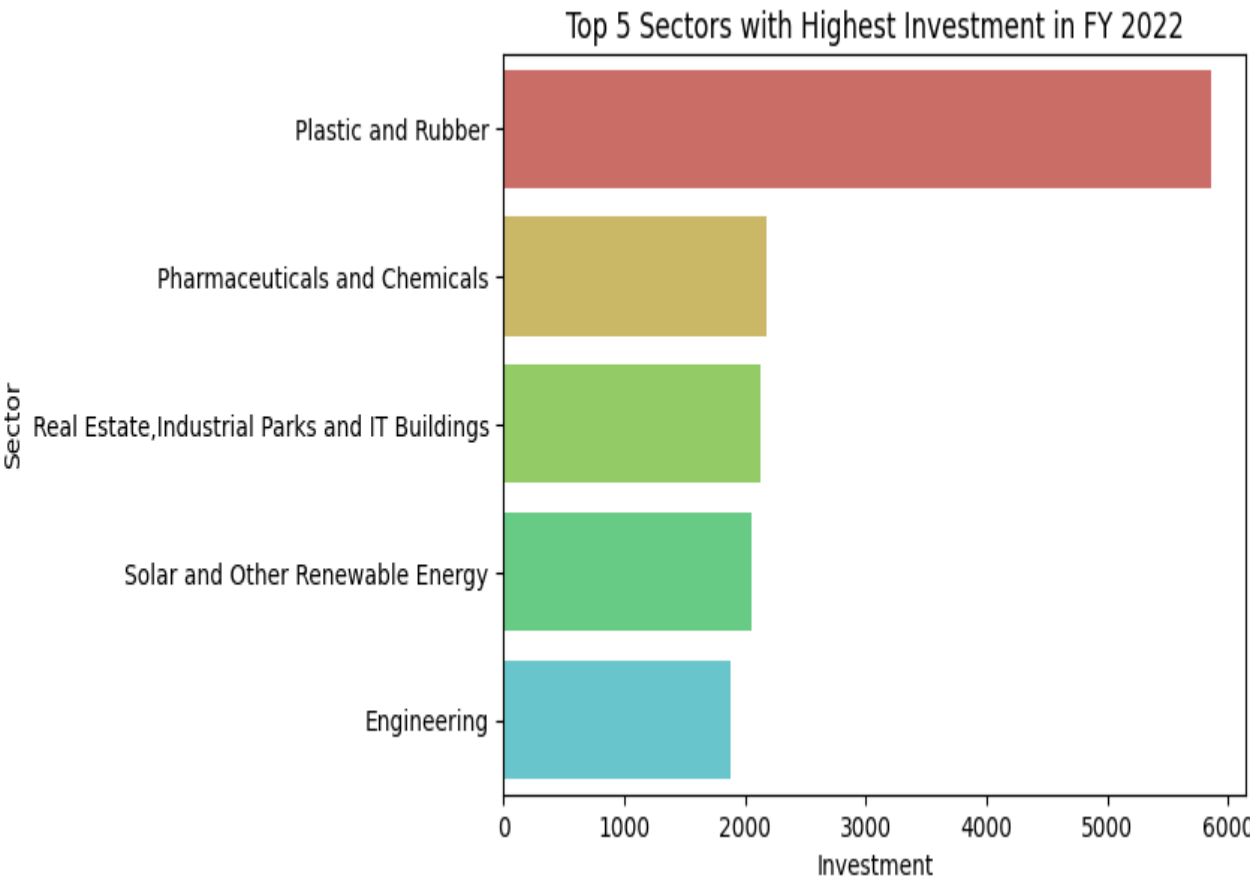
Ts - Ipass

8, List down the top 5 sectors that have witnessed the most significant investments in FY 2022.

The top 5 sectors that have witnessed the most significant investments in FY 2022 are:

- 1. **Plastic and Rubber:** 5855.6095 cr
- 2. **Pharmaceuticals and Chemicals:** 2181.6342 cr
- 3. **Real Estate, Industrial Parks and IT Buildings:** 2127.2963 cr
- 4. **Solar and Other Renewable Energy:** 2052.9850 cr
- 5. **Engineering:** 1877.4533 cr

These sectors have attracted the highest investments, indicating strong growth and development potential.

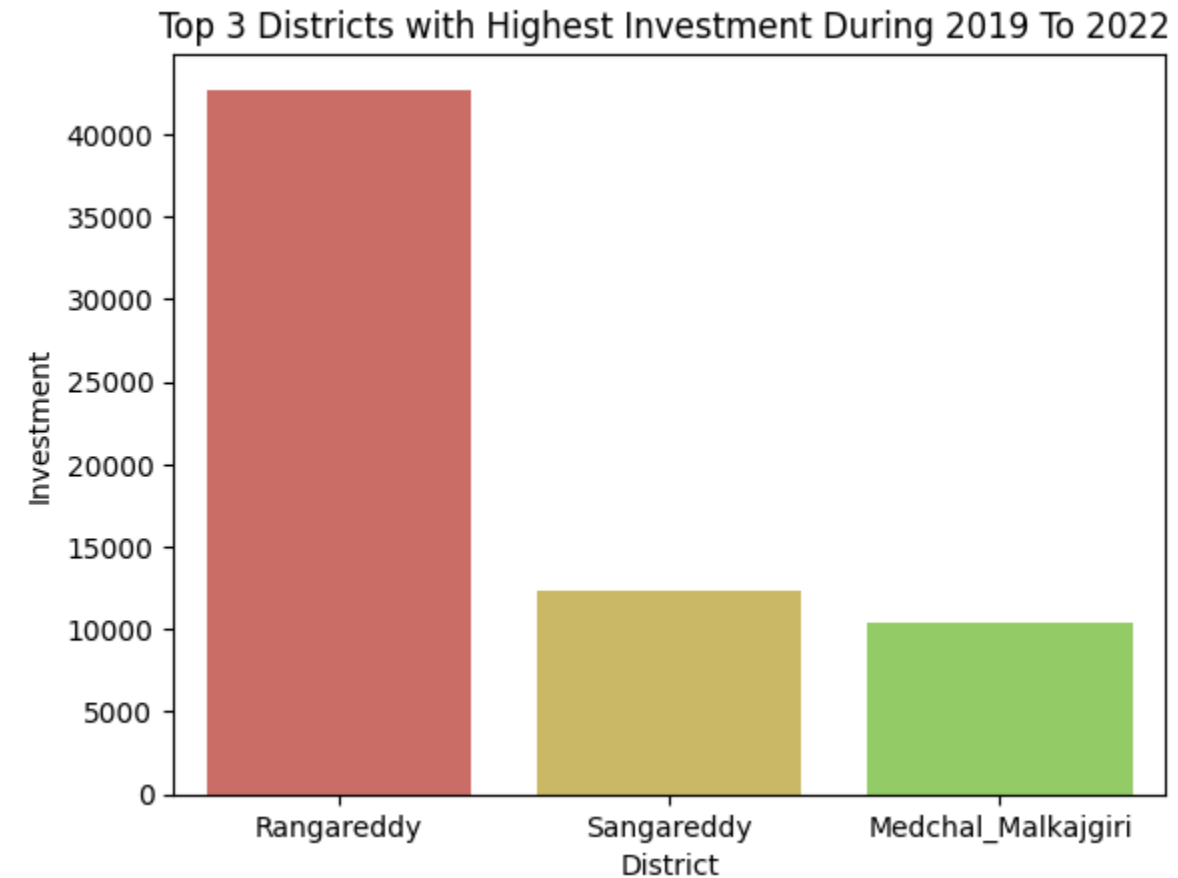


Ts - Ipass

9. List down the top 3 districts that have attracted the most significant sector investments during FY 2019 to 2022? What factors could have led to the substantial investments in these particular districts?

Factors could have led to substantial investments in these particular districts, it could be a variety of factors such as:

- **Infrastructure:** Districts with better infrastructure such as roads, ports, airports, and utilities often attract more investment.
- **Government Policies:** Favorable government policies such as tax incentives, subsidies, and ease of doing business can also attract investment.
- **Availability of Skilled Labor:** Districts with a large pool of skilled labor can attract industries that require such skills.
- **Market Access:** Districts that are close to major markets or have good connectivity to them can attract more investment.



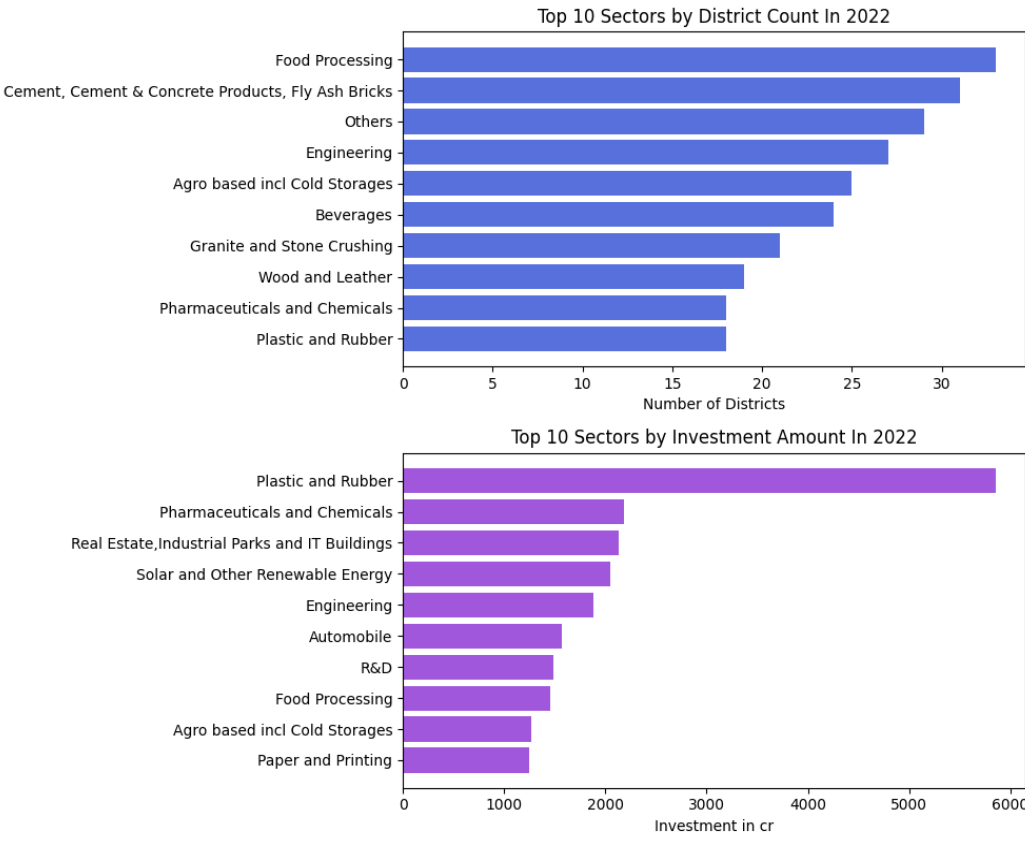
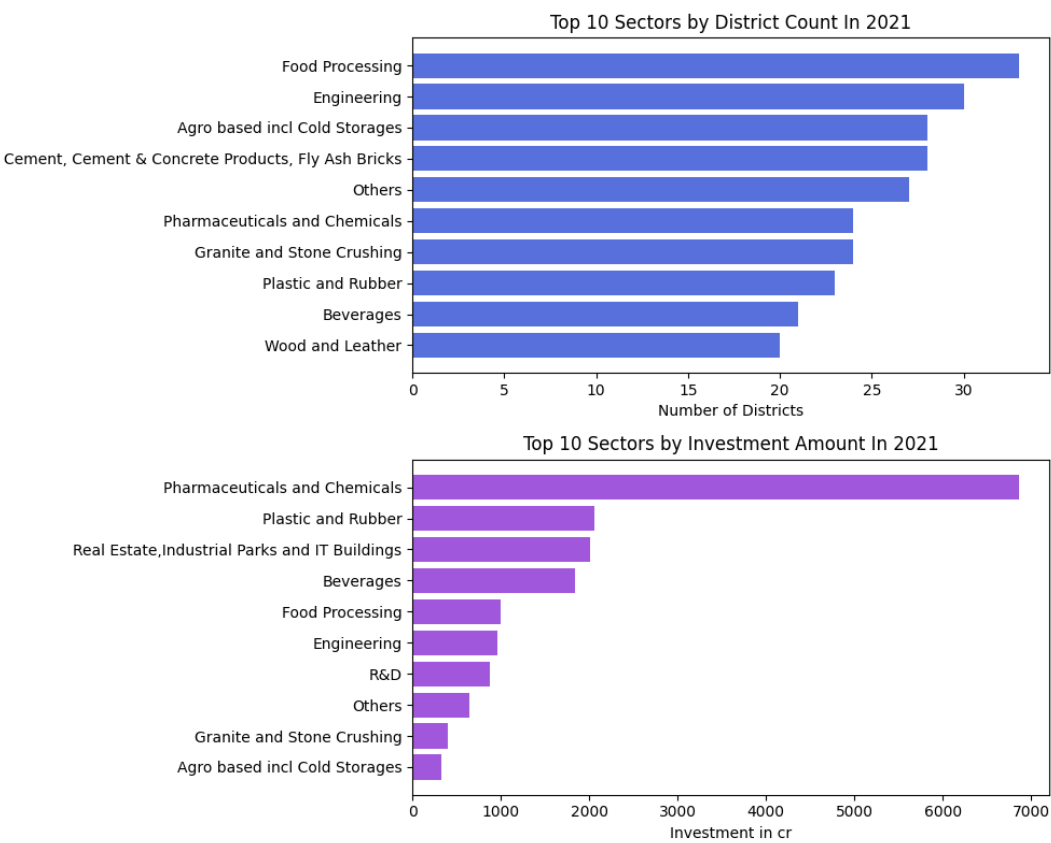
Ts - Ipass

10. Is there any relationship between district investments, vehicles sales and stamps revenue within the same district between FY 2021 and 2022?

- **Investment and Total Vehicle Sales:** The correlation coefficient is approximately 0.56, indicating a moderate positive relationship. This suggests that districts with higher investments tend to have higher vehicle sales.
- **Investment and Documents Registered Revenue:** The correlation coefficient is approximately 0.82, indicating a strong positive relationship. This suggests that districts with higher investments tend to have higher revenue from registered documents.
- **Investment and E-stamp Challans Revenue:** The correlation coefficient is approximately 0.82, indicating a strong positive relationship. This suggests that districts with higher investments tend to have higher revenue from e-stamp challans.
- **Total Vehicle Sales and Documents Registered Revenue:** The correlation coefficient is approximately 0.87, indicating a strong positive relationship. This suggests that districts with higher vehicle sales tend to have higher revenue from registered documents.
- **Total Vehicle Sales and E-stamp Challans Revenue:** The correlation coefficient is approximately 0.87, indicating a strong positive relationship. This suggests that districts with higher vehicle sales tend to have higher revenue from e-stamp challans.
- **Documents Registered Revenue and E-stamp Challans Revenue:** The correlation coefficient is approximately 1.00, indicating a very strong positive relationship. This suggests that districts with



11. Are there any particular sectors that have shown substantial investment in multiple districts between FY 2021 and 2022?



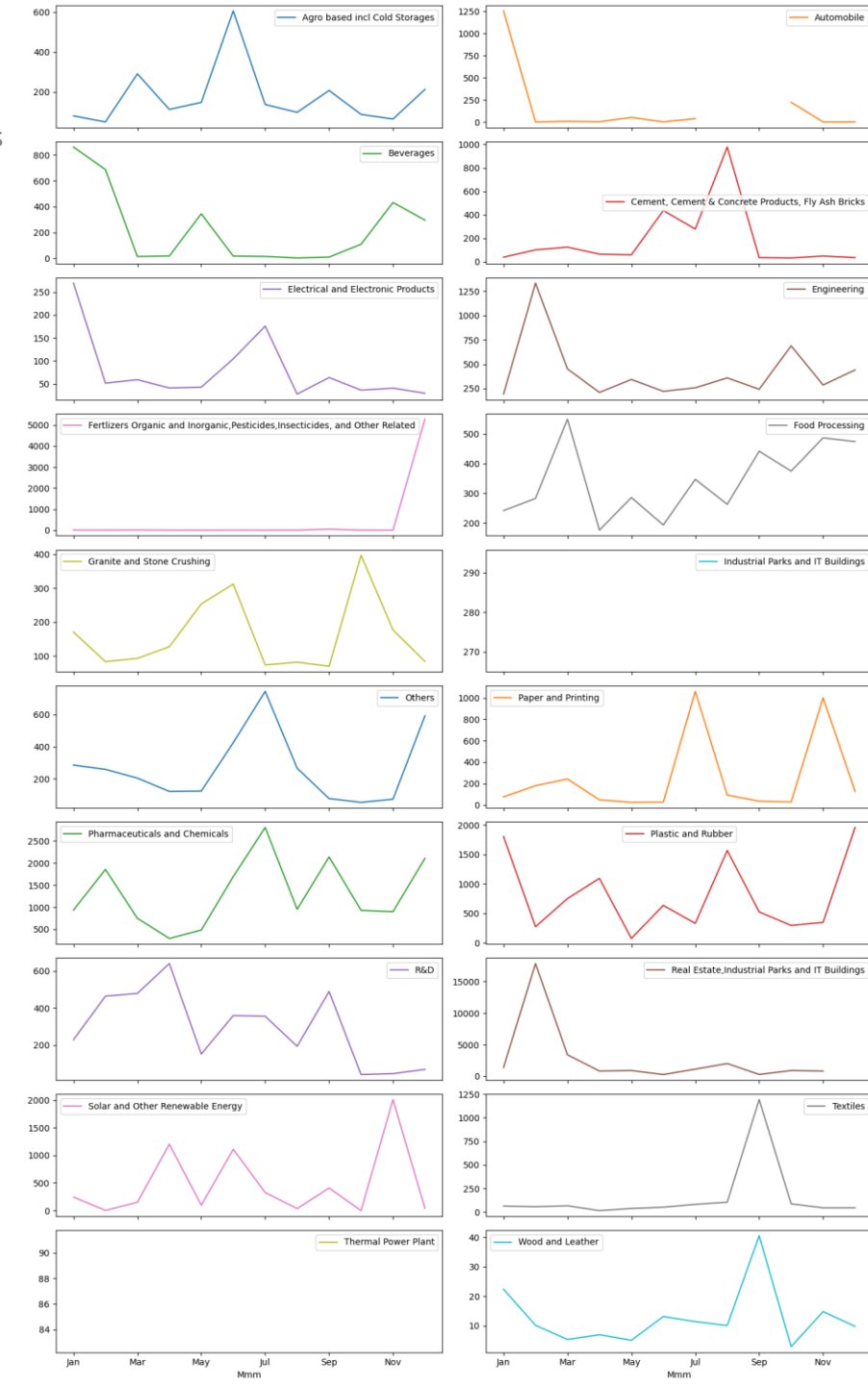
- **Pharmaceuticals and Chemicals** sector has consistently been a major player in terms of investment, with an investment of **6860.9321 cr** in 2021 and **2181.6342 cr** in 2022. However, there was a significant decrease in investment from 2021 to 2022.
- **The Plastic and Rubber** sector saw a significant increase in investment from **2059.6245 cr** in 2021 to **5855.6095 cr** in 2022, making it the sector with the highest investment in 2022.
- **The Food Processing** sector consistently had the highest number of districts involved, with **33 districts** in 2021 and the same number in 2022.
- **The Engineering** sector also saw a consistent presence across the years, with an investment of **967.5172 cr** across **30 districts** in 2021, and an increased investment of **1877.4533 cr** across **27 districts** in 2022.
- New sectors like **R&D, Automobile, and Solar and Other Renewable Energy** have emerged in the top 10 sectors by investment amount in 2022, which were not present in the top 10 list of 2021.
- Some sectors like **Beverages, and Granite and Stone Crushing** have seen a decrease in their investments from 2021 to 2022.

These trends indicate a dynamic shift in the sectors that are attracting investments year over year, with some sectors consistently performing well, while others are emerging as new areas of interest.

Ts - Ipass

12. Can we identify any seasonal patterns or cyclicity in the investment trends for specific sectors? Do certain sectors experience higher investments during particular months?

- The **Agro based incl Cold Storages** sector seems to have higher investments in the months of June and March.
- The **Automobile** sector shows a significant investment in January.
- The **Beverages** sector has high investments in January and February.
- The **Cement, Cement & Concrete Products, Fly Ash Bricks** sector shows a peak in August.
- The **Engineering** sector has higher investments in February and October.
- The **Fertilizers Organic and Inorganic,Pesticides,Insecticides**, and **Other Related** sector shows a significant peak in December.
- The **Food Processing** sector has relatively consistent investments throughout the year with slight peaks in March and September.
- The **Granite and Stone Crushing** sector shows a peak in October.
- The **Pharmaceuticals and Chemicals** sector shows high investments in December, September, and February.
- The **Plastic and Rubber** sector has a significant peak in April.





Thank you for watching

Author: Bao Thai
Sep 15th 2023