



CODEBASICS

TELANGANA GROWTH ANALYSIS

ABOUT THE PROJECT



Telangana is one of the fastest-growing states in India and one of the states with an open data policy.



Analysing Telangana's growth among different sectors quantitatively and providing useful Insights to the Telangana government that would help them to make data-informed decisions that would further support the growth of the state.



I extensively utilized Python, along with the Pandas library, to answer various questions outlined in the "research questions and recommendations" document.



METHODOLOGY

01

Data Collection and Preparation

- Gather data related to district-wise investments, vehicle sales, and stamp revenue.
- Clean and preprocess the data by handling missing values, converting data types, and ensuring consistency.

02

Data Analysis

- Explore the data to understand its distribution, trends, and patterns.
- Calculate metrics such as total investments, sales growth, and revenue growth for each district and sector.

03

Correlation Analysis

- Analyze the relationship between district investments, vehicle sales, and stamp revenue within the same district.
- Calculate correlation coefficients to identify any significant relationships.

04

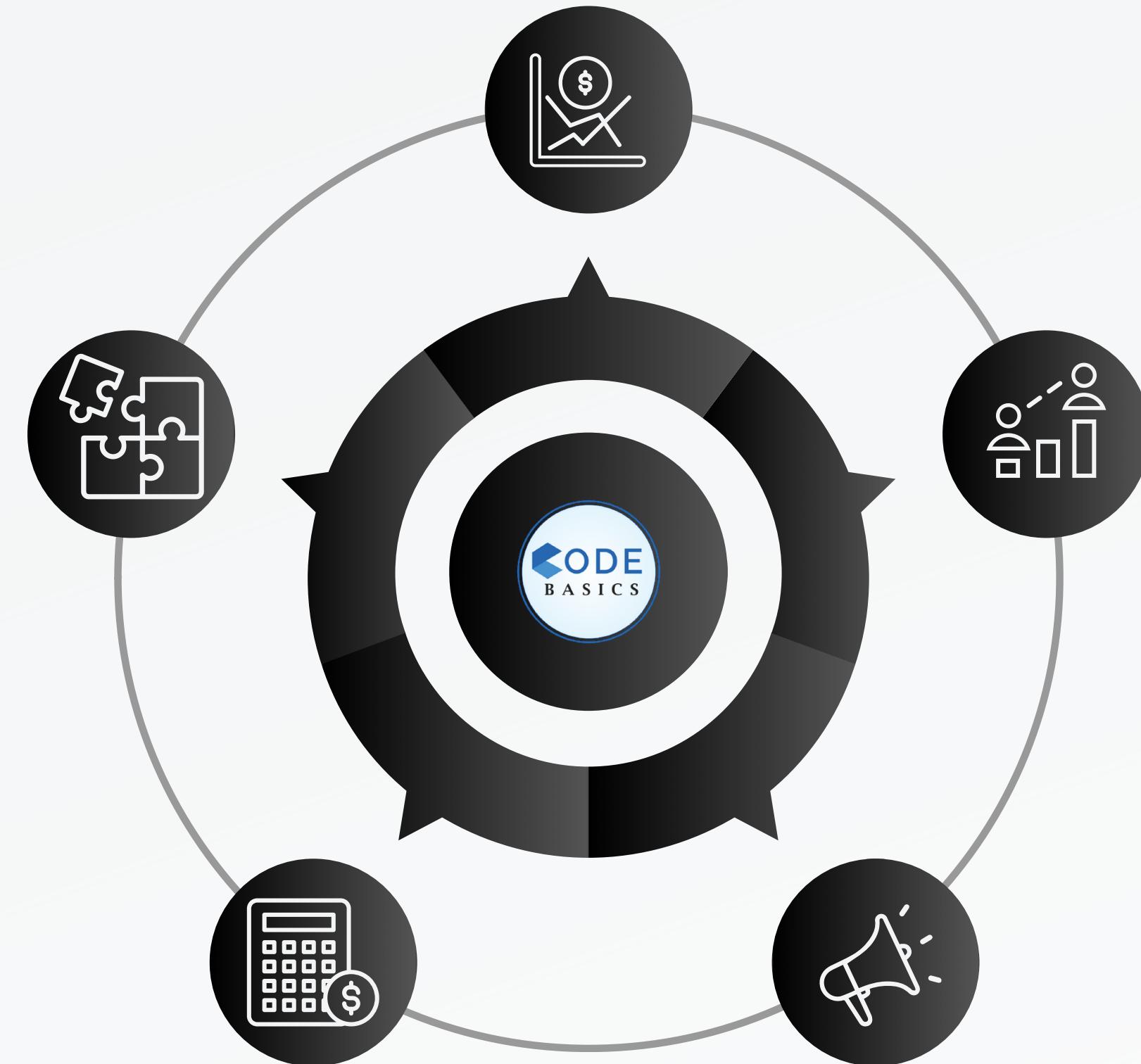
Sector Analysis

- Group data by sector and fiscal year to calculate total investments for each sector.
- Identify sectors with substantial investments in multiple districts between FY 2021 and 2022.

05

Seasonality Analysis

- Explore investment trends for specific sectors on a monthly basis.
- Visualize the seasonal patterns and cyclicity in investment trends using line charts.



DATASETS

Datasets provided consisted of
2 Dimension Tables (Districts and Date)
and **3** Fact Tables

Fact Table 1 **fact_stamps**

The table provides data on the revenue generated from document registrations and estamp challan payments aggregated at the district and monthly level.

Fact Table 2 **fact_transport**

The table provides information about the individual vehicle sales data from the Regional Transport Authority of the state of Telangana aggregated at the district and monthly level.

Fact Table 3 **fact_TS_iPASS**

TS-iPASS dataset in Telangana comprises data concerning units or businesses established within the state under the "Industrial Project Approval and Self-Certification System" (iPASS).

OBJECTIVE

Exploring Stamp Registration, Transportation and Ts-Ipass Datasets. Understand their attributes, categories and time period.



Analysing trends and patterns within each department and 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.

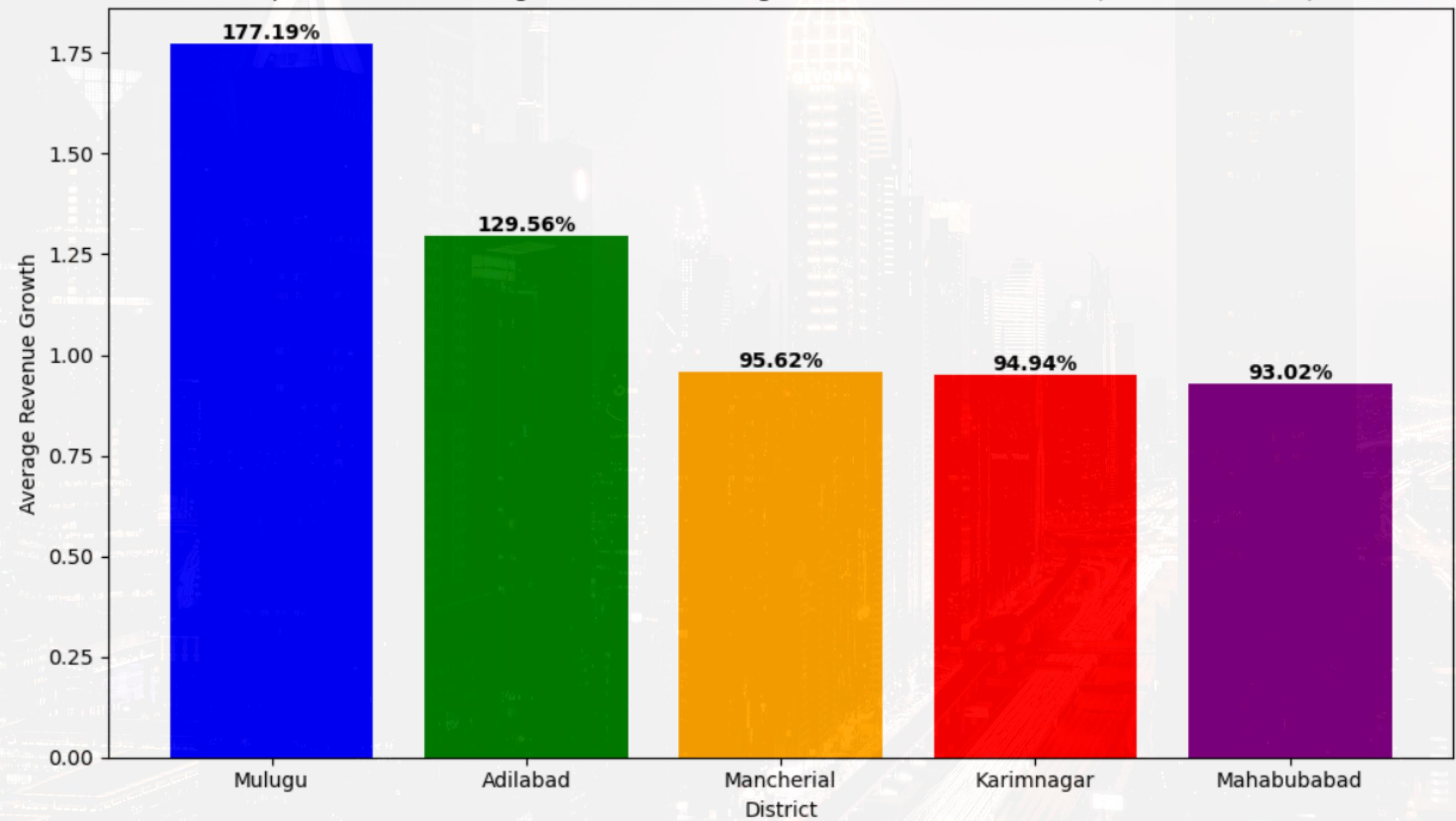


STAMP REGISTRATION

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.

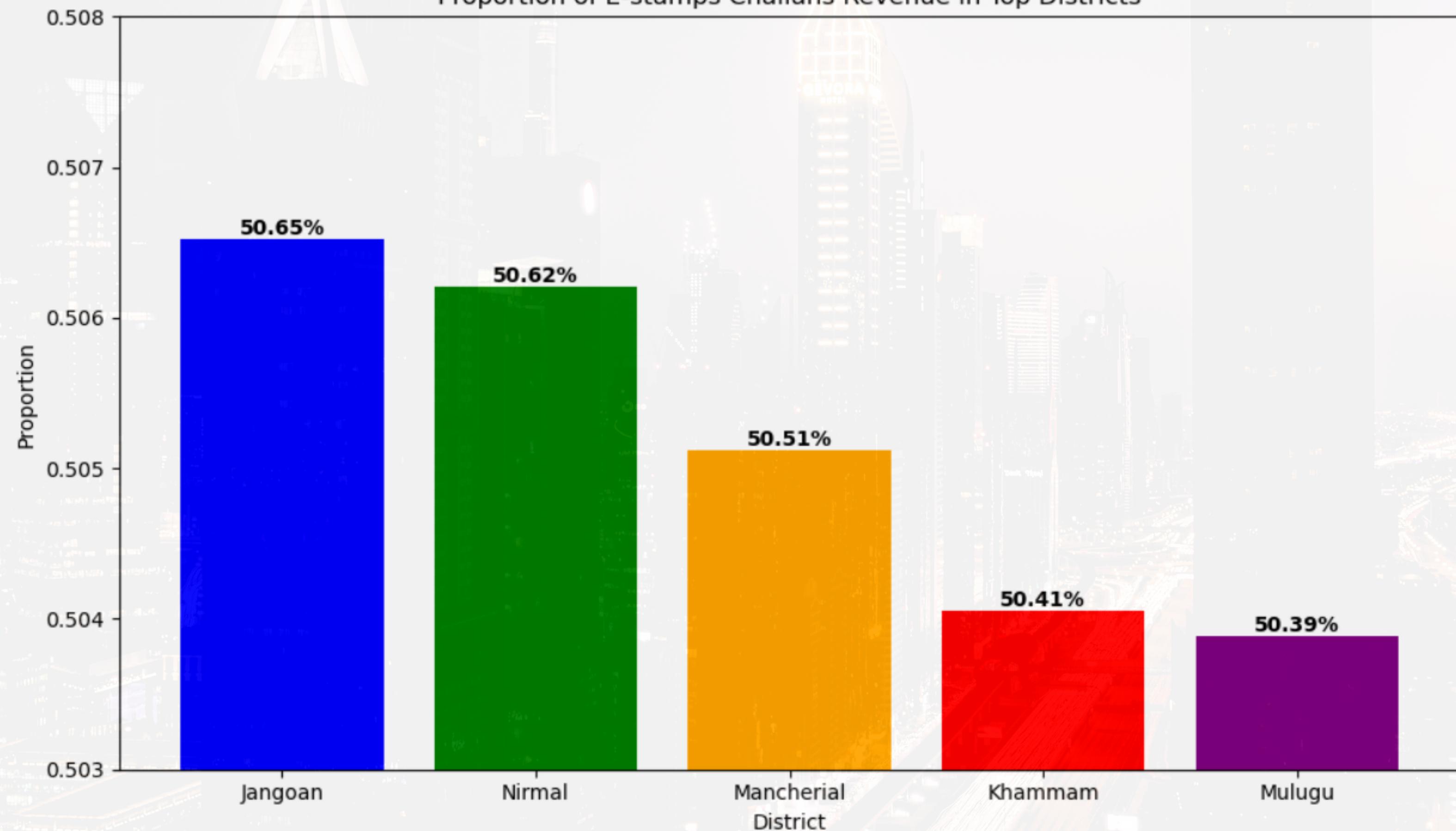
Top 5 Districts with Highest Document Registration Revenue Growth (FY 2019 to 2022)



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?

Proportion of E-stamps Challans Revenue in Top Districts



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?

There does seem to be an alteration in the pattern since the implementation of e-Stamp challan. The counts have shown an increasing trend over the years:

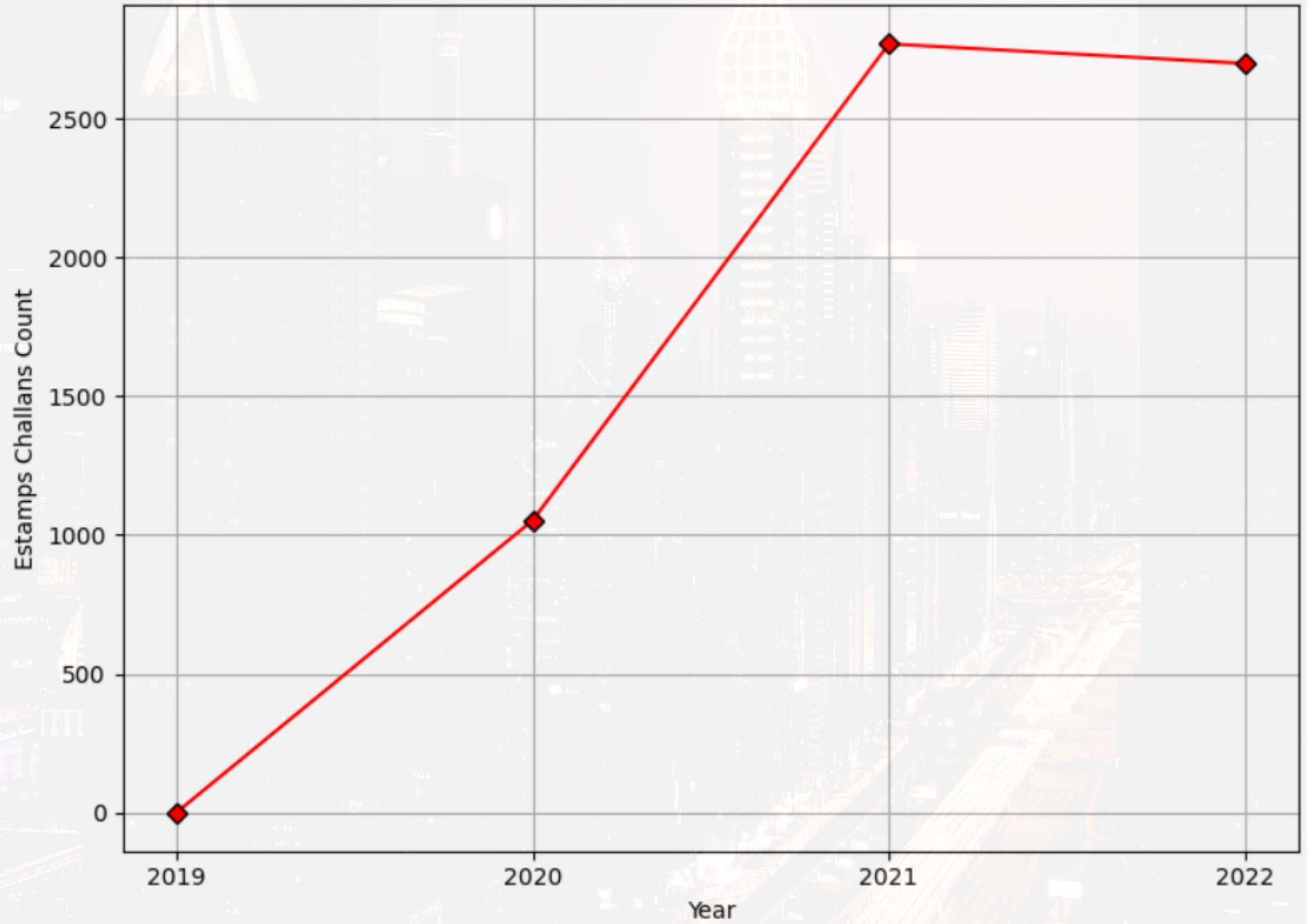
- In 2019, the e-Stamp challan count was 0
- In 2020, the e-Stamp challan count increased to 1052
- In 2021, the e-Stamp challan count further increased to 2768
- In 2022, the e-Stamp challan count slightly decreased to 2698

The increase in e-Stamp challan counts could indicate a growing acceptance and utilization of the e-Stamp system for document registration. This shift suggests a positive response from both users and government agencies.

SUGGESTIONS:

- **AWARENESS CAMPAIGNS:** CONTINUE AWARENESS CAMPAIGNS TO EDUCATE CITIZENS, BUSINESSES, AND GOVERNMENT ENTITIES ABOUT THE BENEFITS AND EASE OF USING E-STAMP CHALLANS. THIS COULD HELP INCREASE ADOPTION RATES.
- **USER-FRIENDLY INTERFACE:** ENSURE THAT THE E-STAMP SYSTEM HAS A USER-FRIENDLY INTERFACE AND IS ACCESSIBLE TO A WIDE RANGE OF USERS, INCLUDING THOSE WITH VARYING DEGREES OF TECHNICAL PROFICIENCY.
- **ONLINE SUPPORT:** PROVIDE ONLINE SUPPORT AND RESOURCES TO GUIDE USERS THROUGH THE PROCESS OF GENERATING AND USING E-STAMP CHALLANS. ADDRESS FREQUENTLY ASKED QUESTIONS AND COMMON ISSUES.
- **INTEGRATION:** EXPLORE OPPORTUNITIES TO INTEGRATE THE E-STAMP SYSTEM WITH OTHER GOVERNMENT PLATFORMS AND SERVICES TO STREAMLINE PROCESSES FURTHER.
- **FEEDBACK MECHANISM:** ESTABLISH A FEEDBACK MECHANISM FOR USERS TO REPORT ANY ISSUES OR SUGGESTIONS FOR IMPROVEMENT. THIS CAN HELP IN CONTINUOUSLY ENHANCING THE SYSTEM BASED ON USER EXPERIENCES.

Trend of Estamps Challans Count Over Years

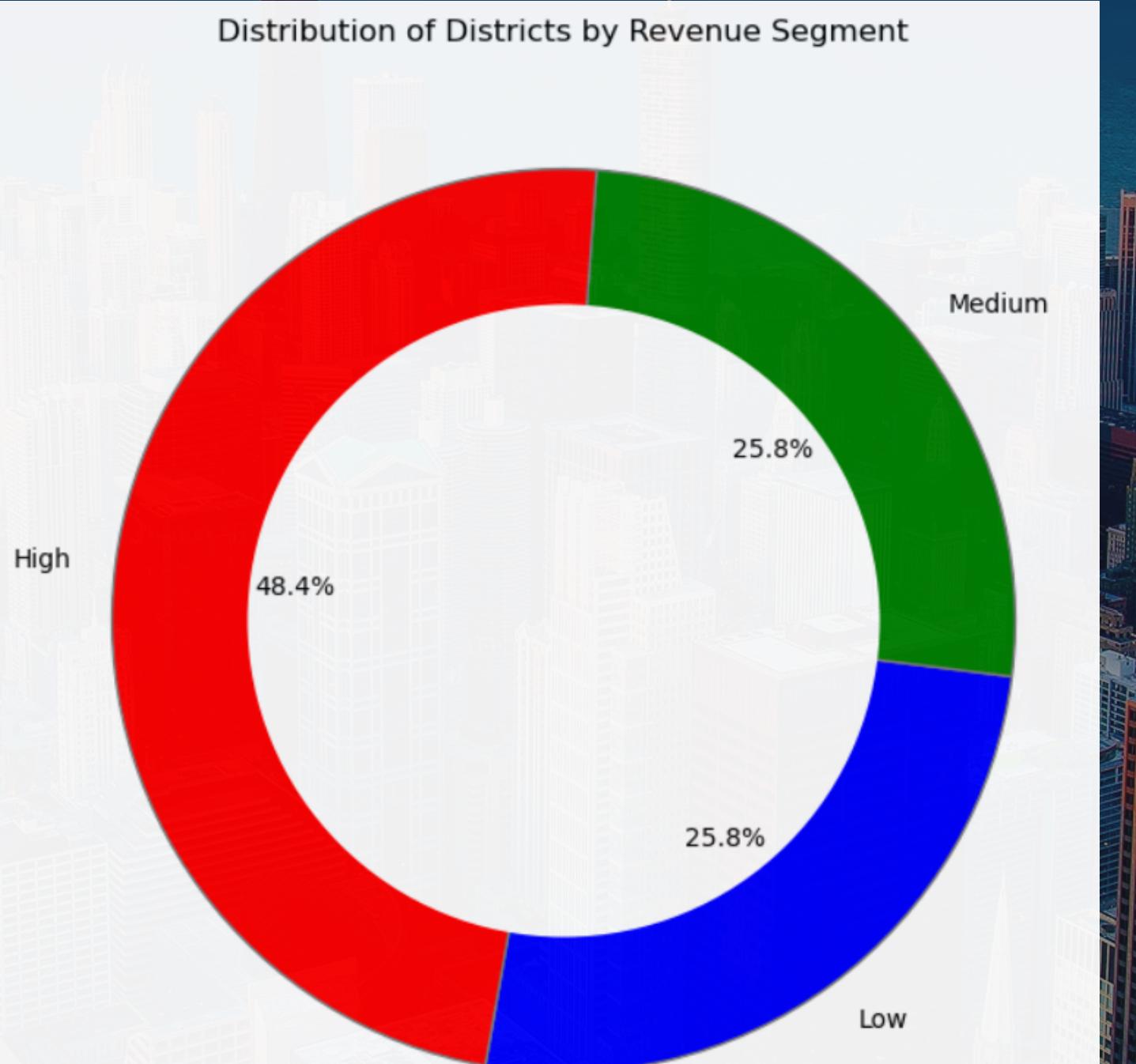


4.

CATEGORIZE DISTRICTS INTO THREE SEGMENTS BASED ON THEIR STAMP REGISTRATION REVENUE GENERATION DURING THE FISCAL YEAR 2021 TO 2022.

Districts in High segment:

Hanumakonda
Hyderabad
Jagtial
Jangoan
Karimnagar
Kumurambheem Asifabad
Mahabubabad
Mancherial
Medak
Mulugu
Nagarkurnool
Narayanpet
Rajanna Sircilla
Vikarabad
Wanaparthy



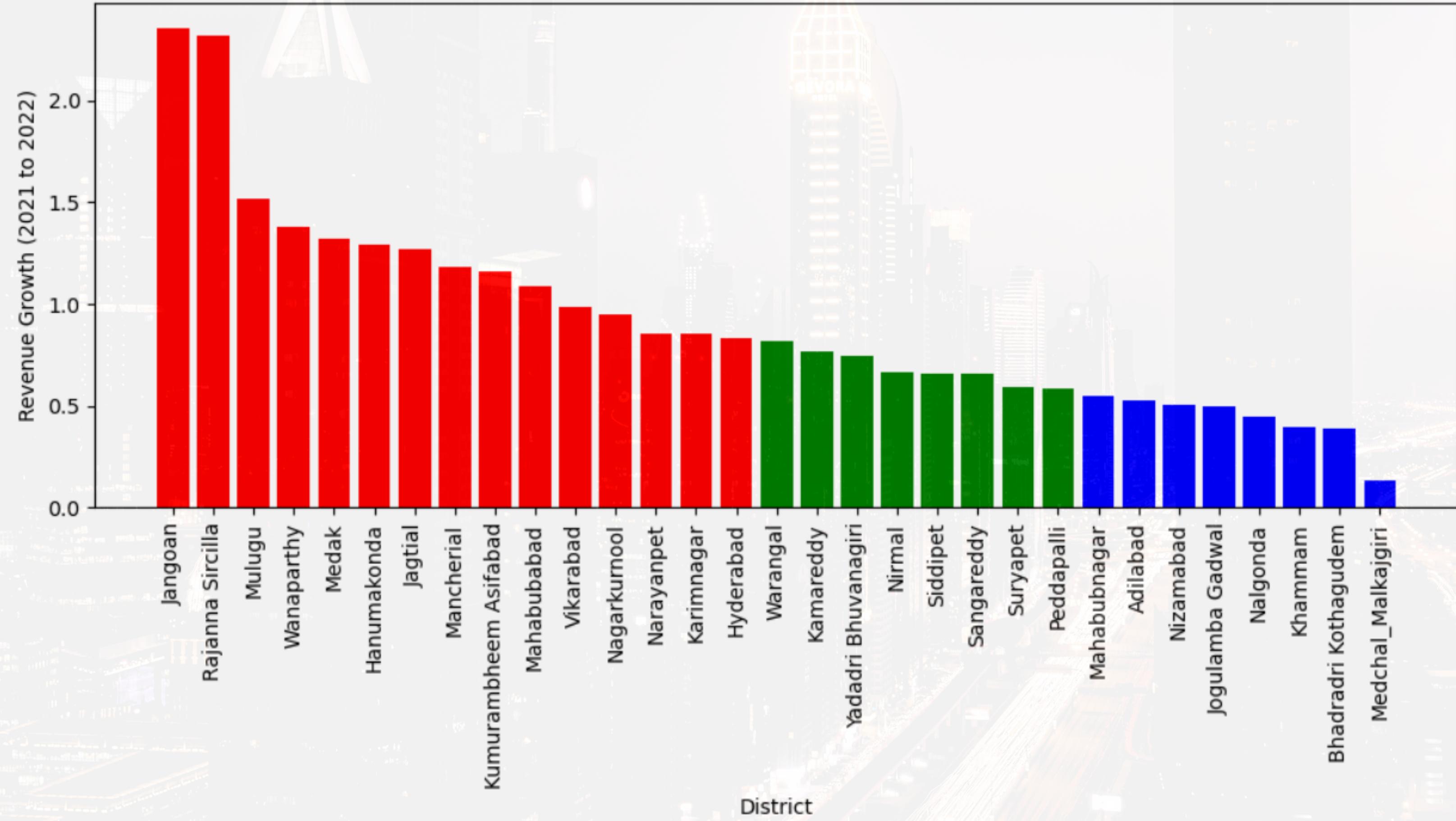
Districts in Medium segment:

Kamareddy
Nirmal
Peddapalli
Sangareddy
Siddipet
Suryapet
Warangal
Yadadri Bhuvanagiri

Districts in Low segment:

Adilabad
Bhadradri Kothagudem
Jogulamba Gadwal
Khammam
Mahabubnagar
Medchal_Malkajgiri
Nalgonda
Nizamabad

Revenue Growth by District and Segment

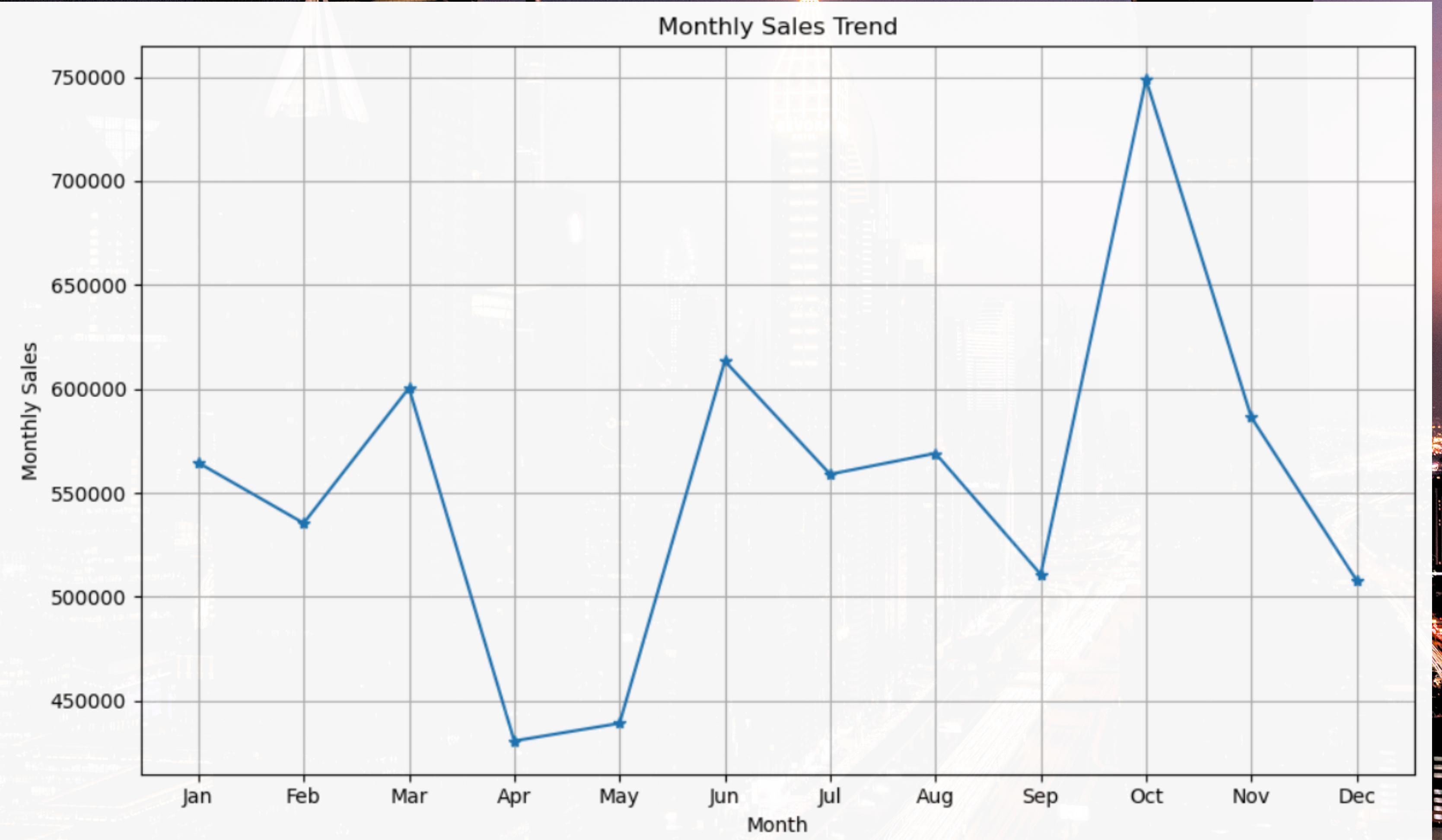


An aerial photograph of a dense urban skyline at sunset or sunrise. The sky is filled with scattered clouds with warm orange and pink hues. In the foreground, numerous skyscrapers of various heights are visible, some with lights on in their windows. A large, solid white rectangular box is overlaid across the middle of the image. Inside this box, the word "TRANSPORTATION" is written in a bold, dark blue, sans-serif font.

TRANSPORTATION

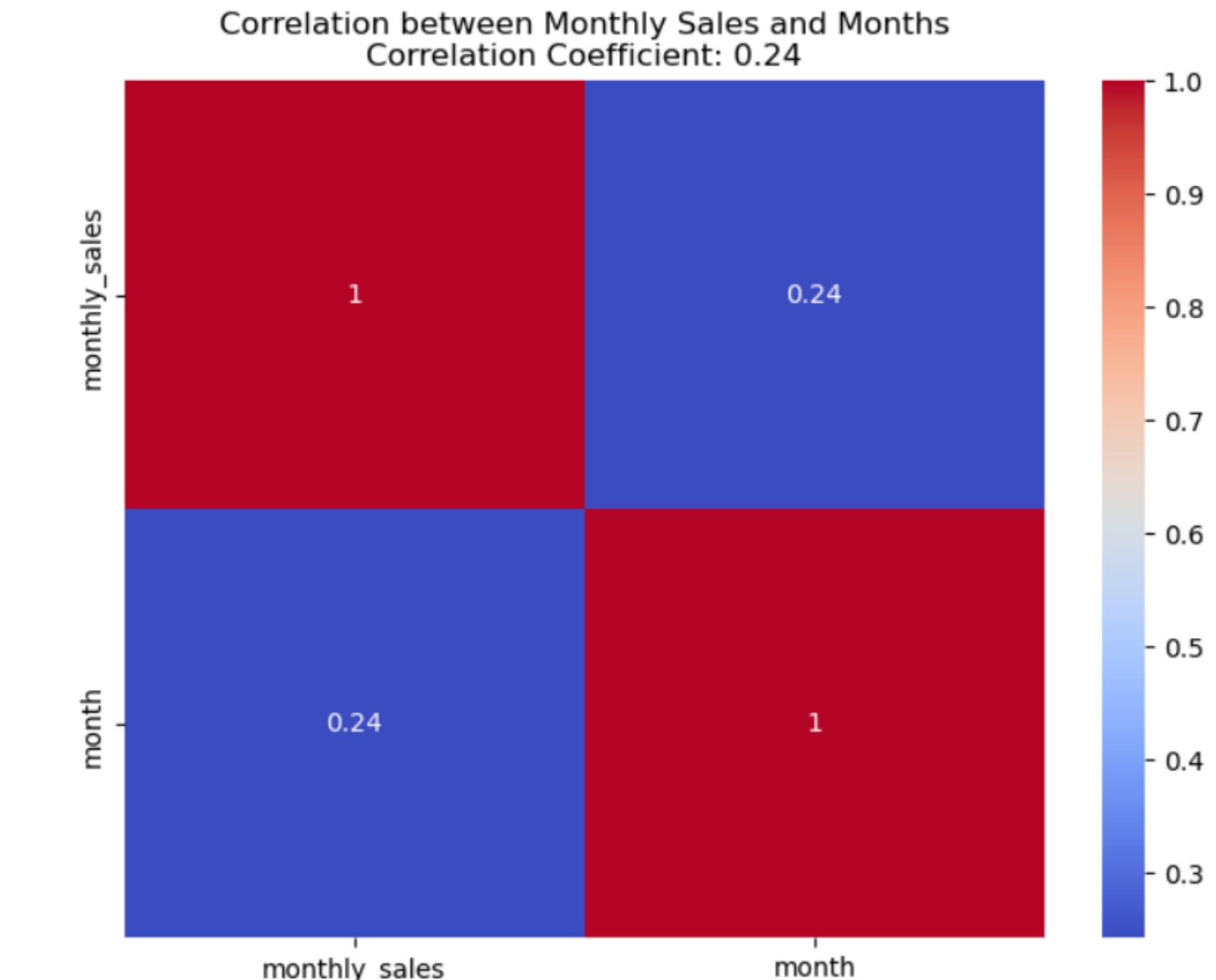
5.

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?



Correlation between monthly sales and months in different districts.

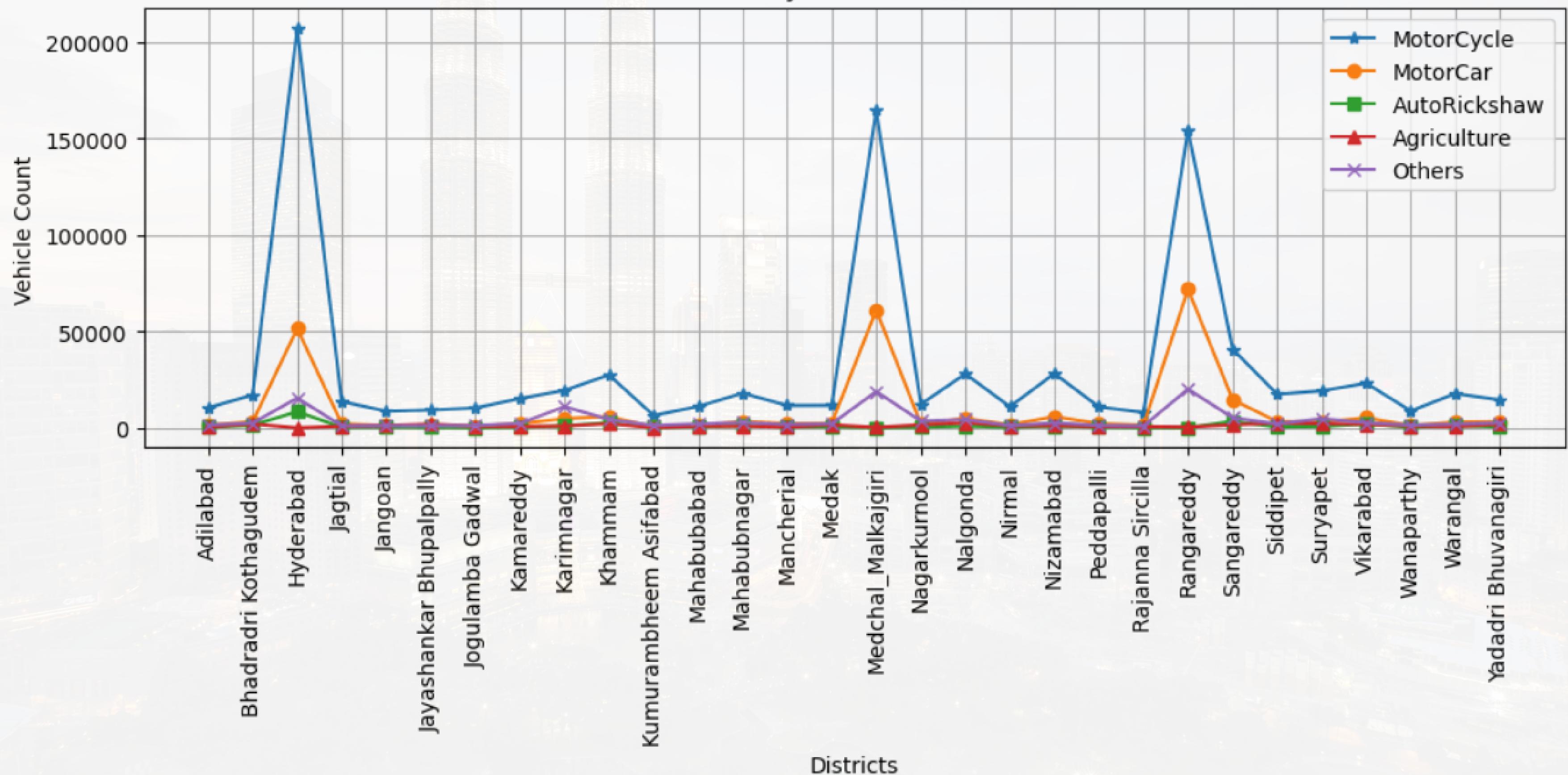
Since the correlation coefficient is 0.24, it falls within the range of weak positive correlation, suggesting a slight tendency for monthly sales to increase as the months progress. However, the correlation is not strong enough to make strong predictions about one variable based solely on the other. Other factors may be influencing the variation in monthly sales more significantly.

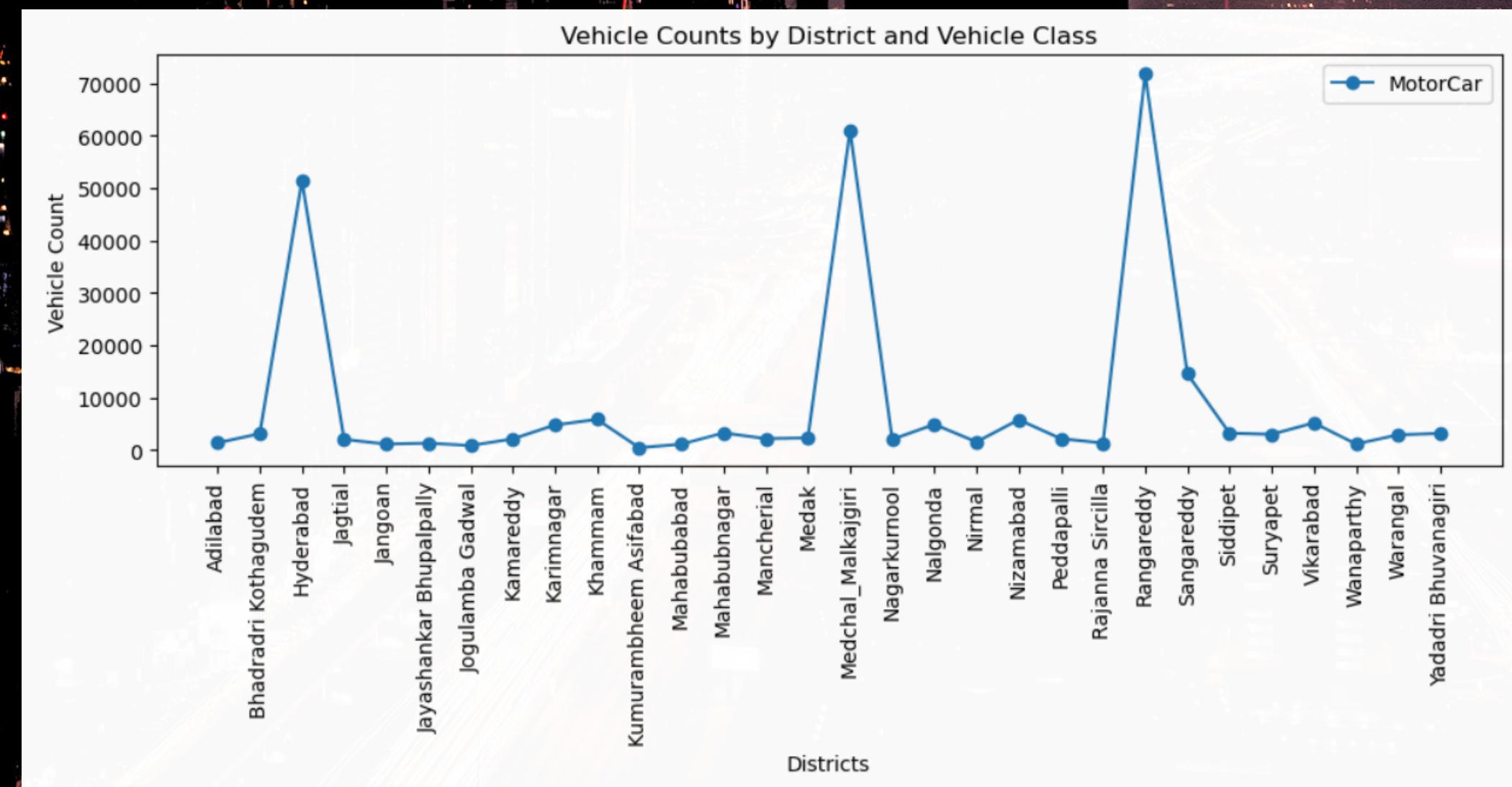
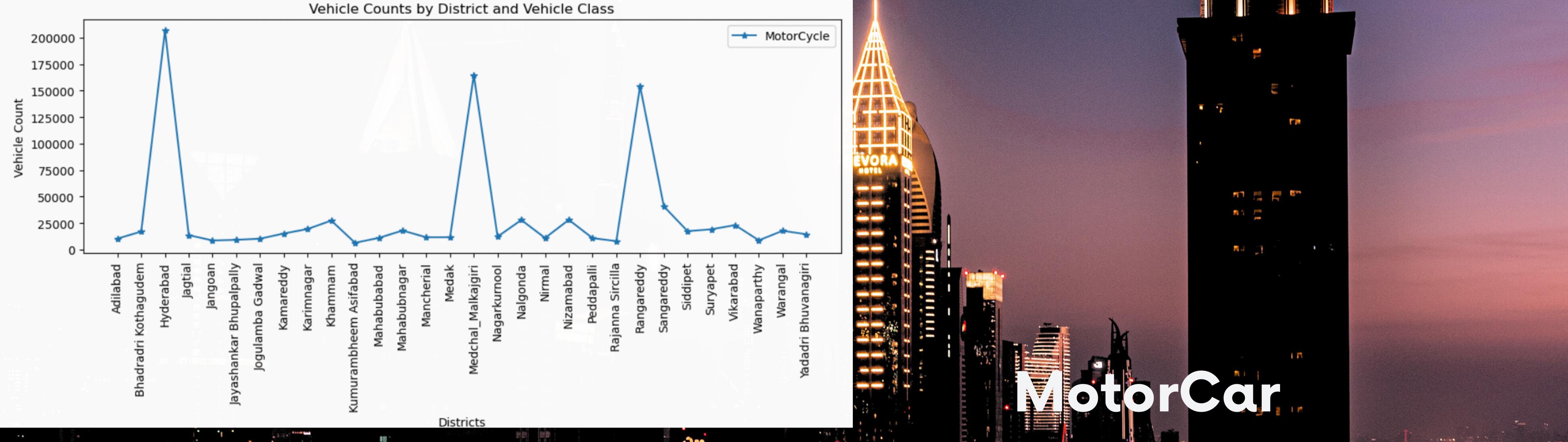


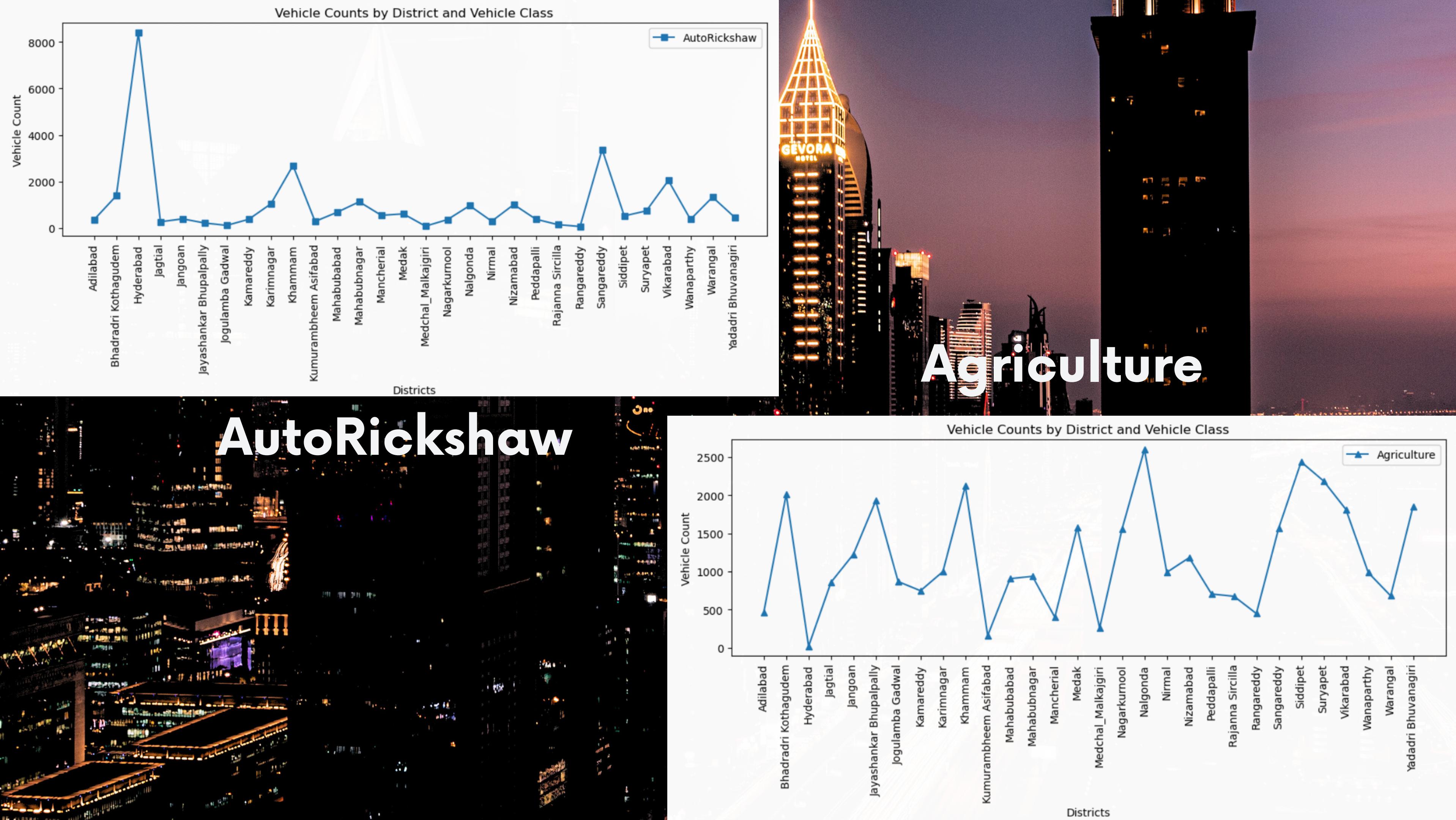
6.

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.

Vehicle Counts by District and Vehicle Class



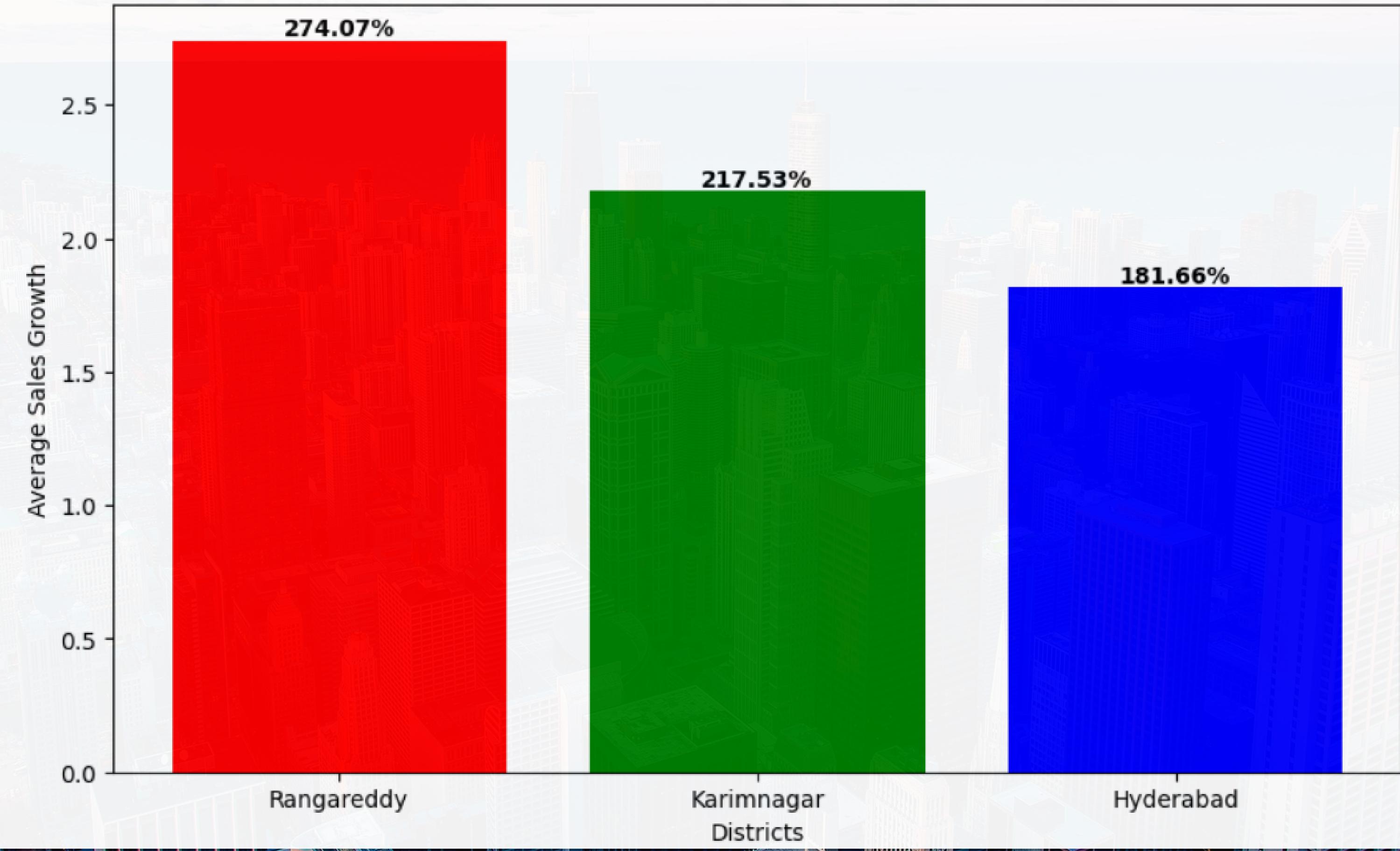




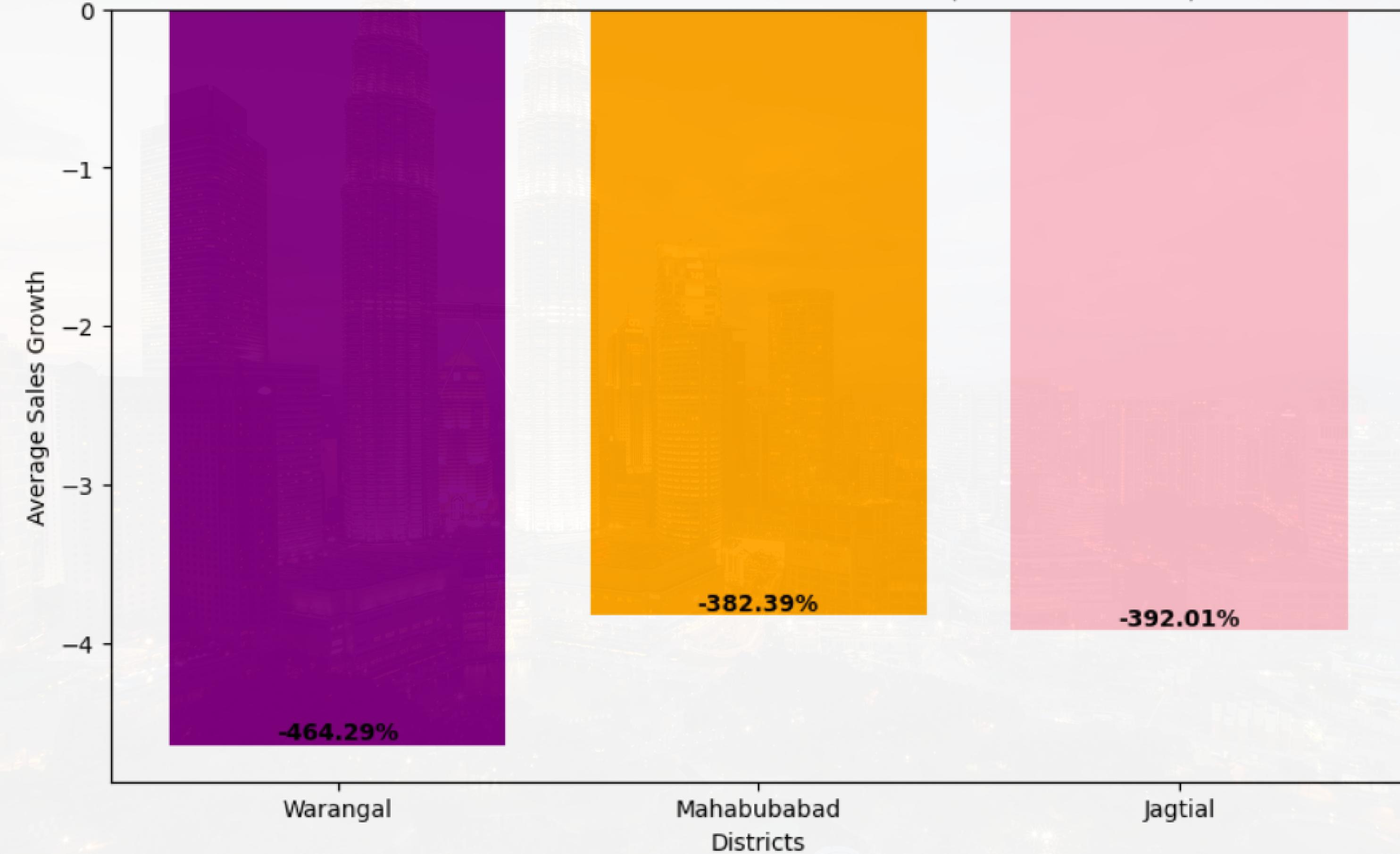
7.

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 with Highest Sales Growth (FY 2021 to 2022)



Bottom 3 Districts with Lowest Sales Growth (FY 2021 to 2022)

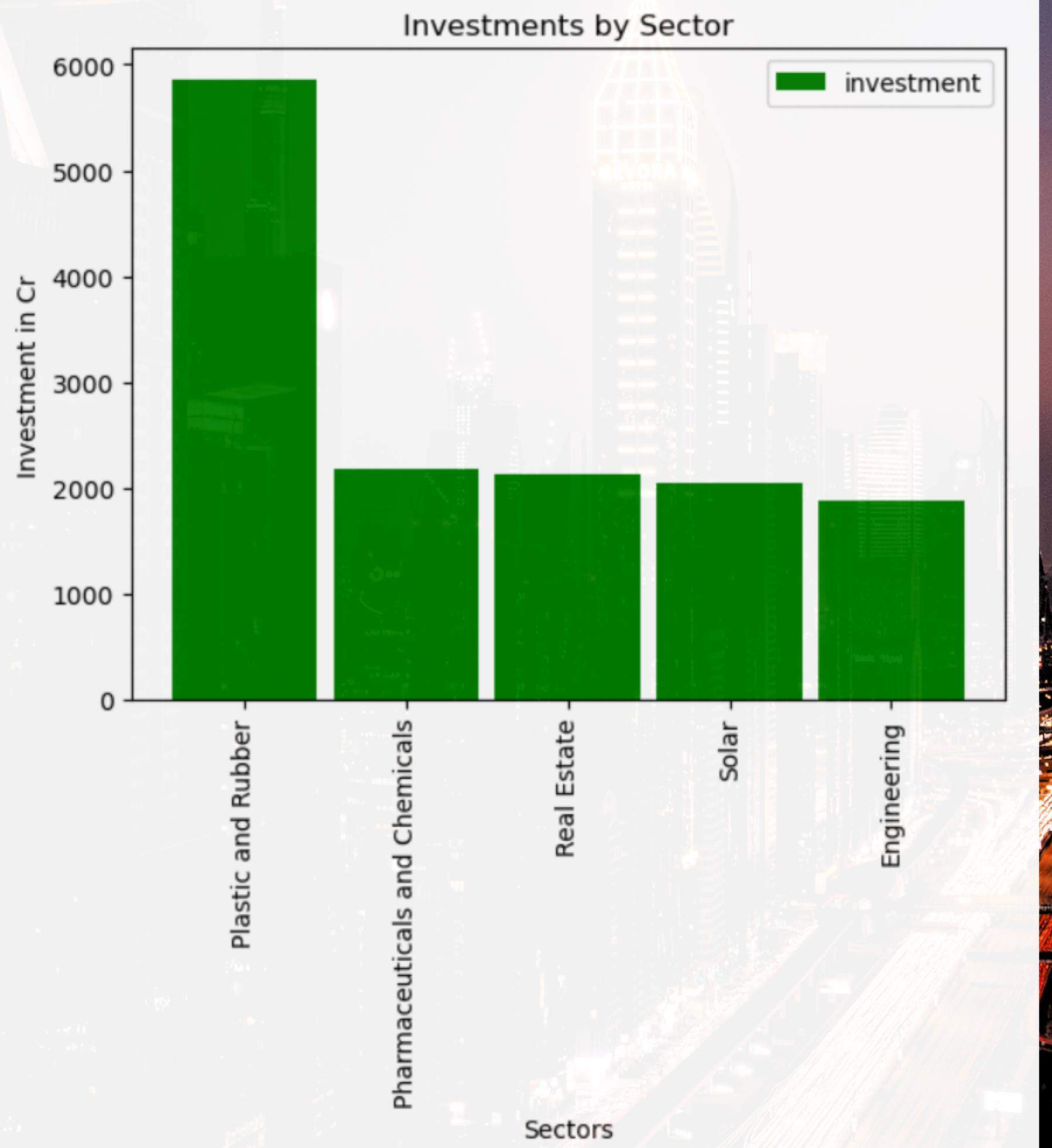


TS-IPASS

TELANGANA STATE INDUSTRIAL PROJECT APPROVAL AND SELF CERTIFICATION SYSTEM

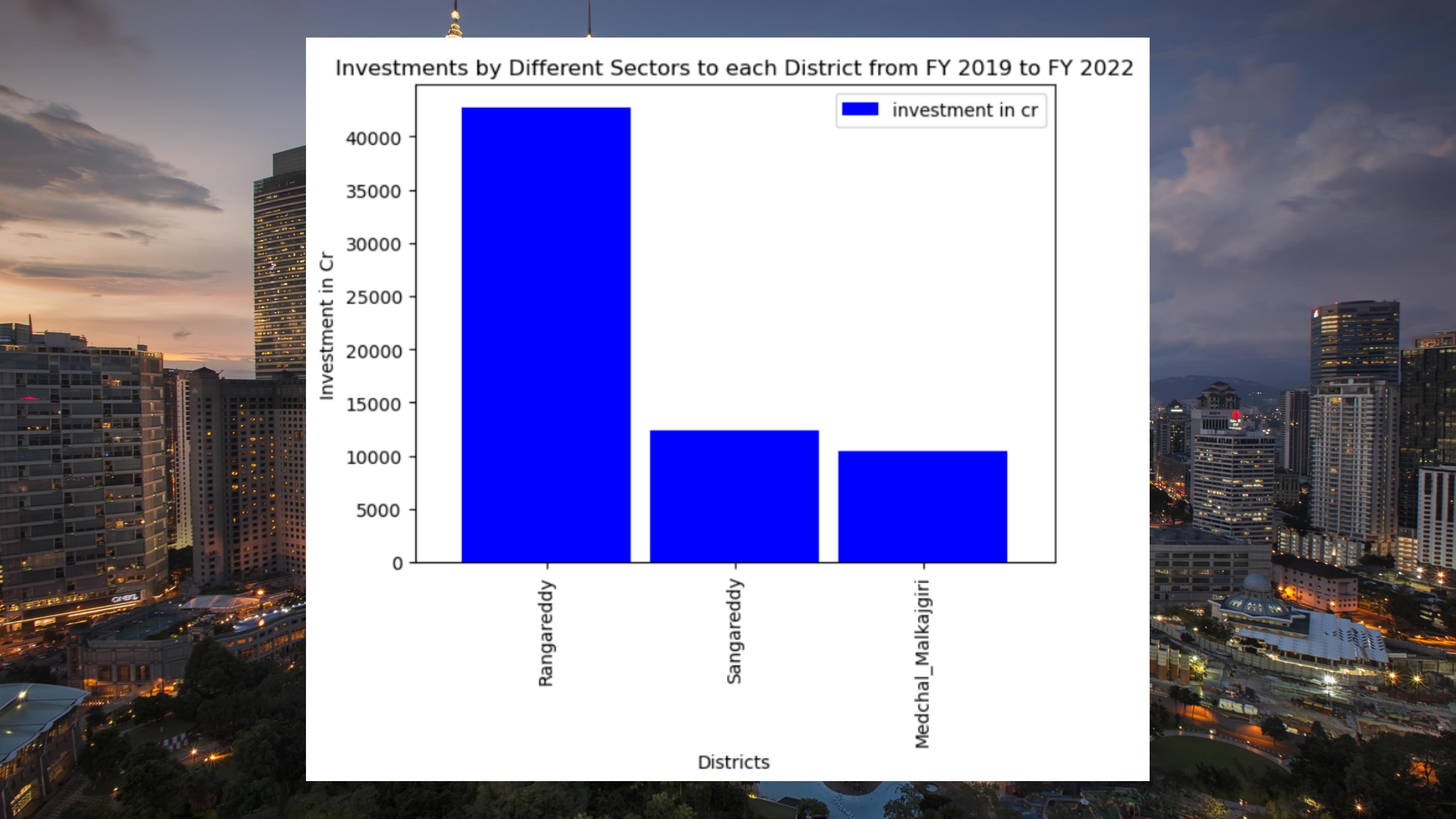
8.

**LIST DOWN THE TOP 5 SECTORS THAT HAVE WITNESSED THE
MOST SIGNIFICANT INVESTMENTS IN FY 2022.**



9.

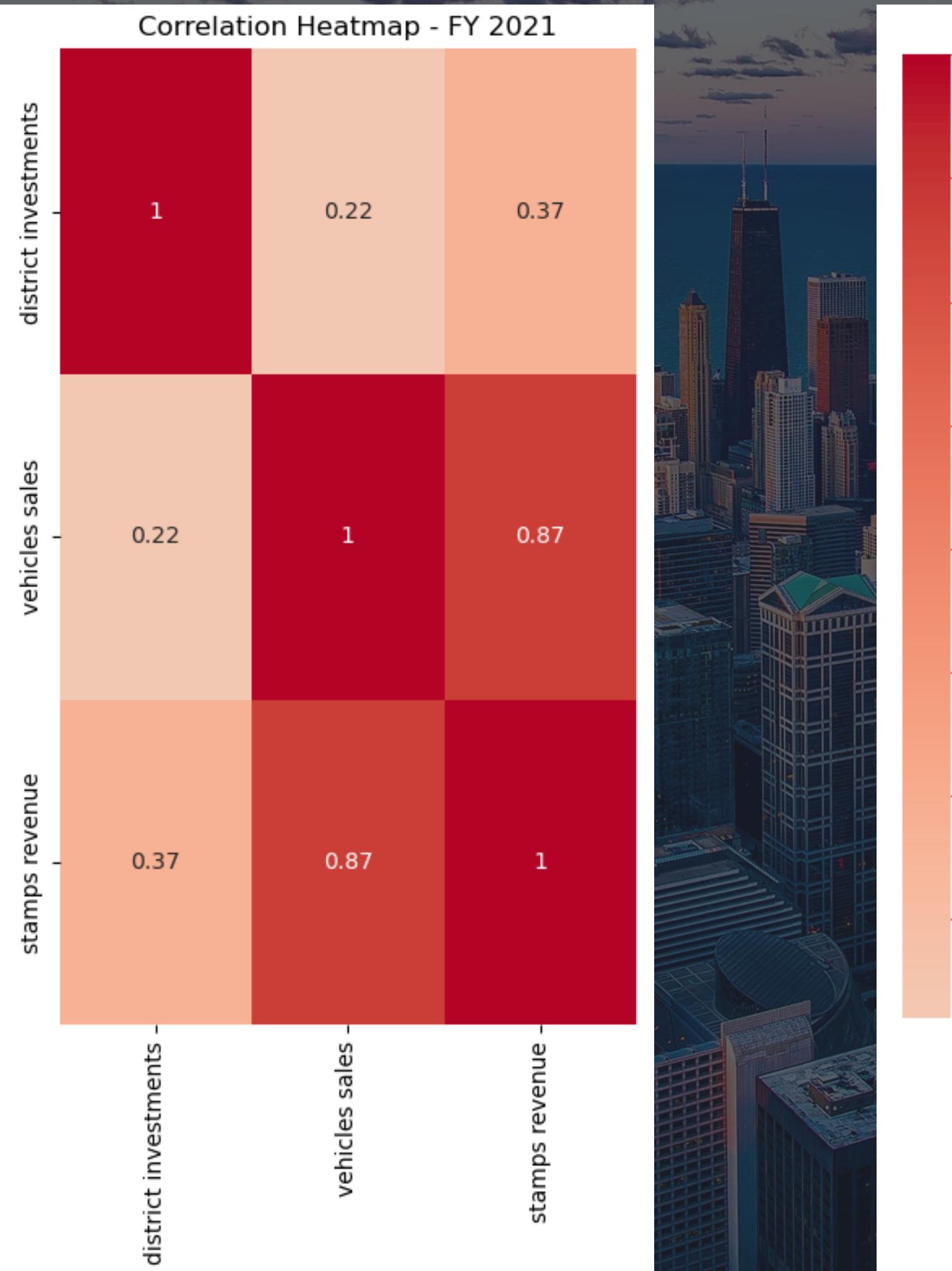
LIST DOWN THE TOP 3 DISTRICTS THAT HAVE ATTRACTED THE MOST SIGNIFICANT SECTOR INVESTMENTS DURING FY 2019 TO 2022? WHAT FACTORS COULD HAVE LED TO THE SUBSTANTIAL INVESTMENTS IN THESE PARTICULAR DISTRICTS?



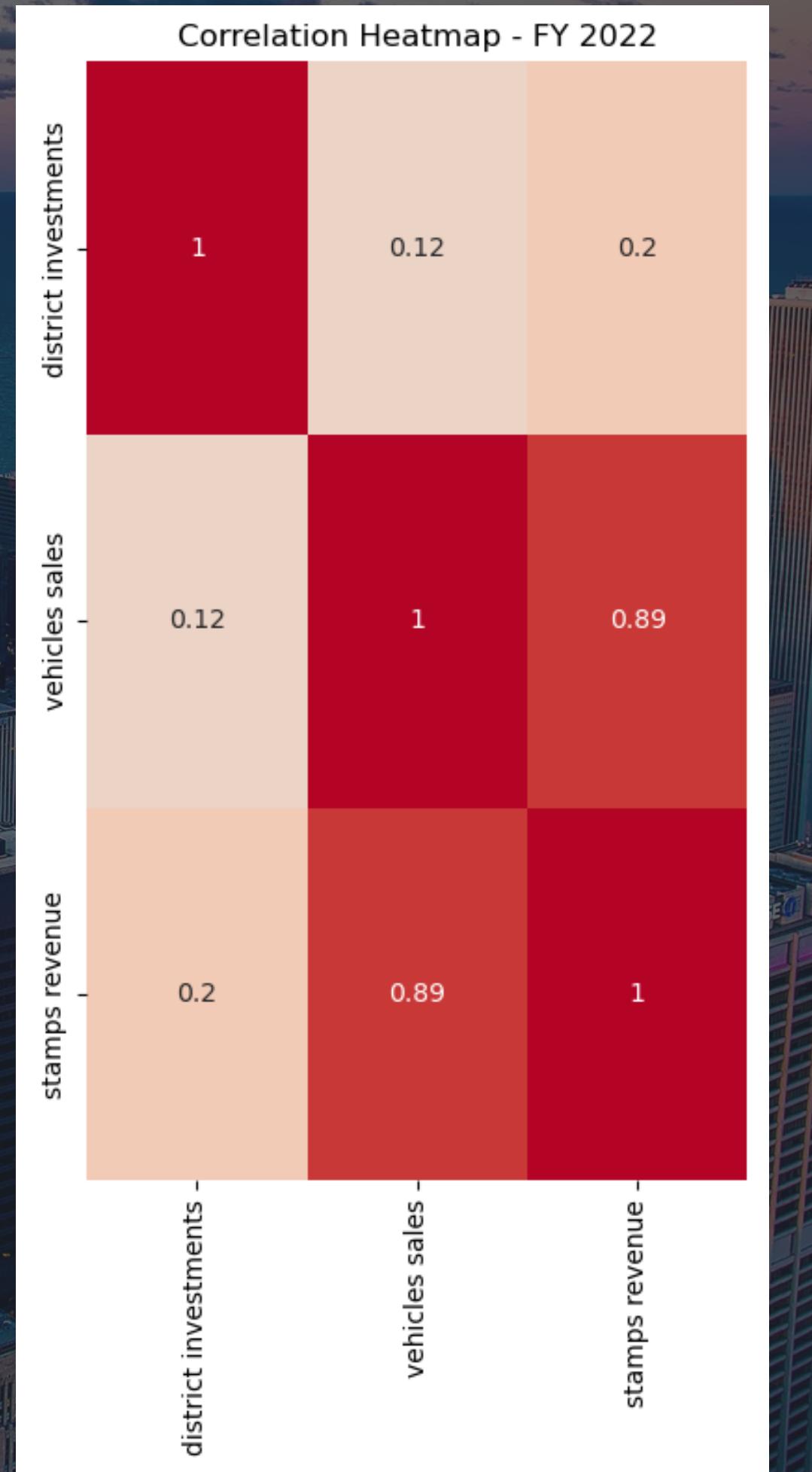
10.

IS THERE ANY RELATIONSHIP BETWEEN DISTRICT INVESTMENTS, VEHICLES SALES AND STAMPS REVENUE WITHIN THE SAME DISTRICT BETWEEN FY 2021 AND 2022?

Correlation Heatmap - FY 2021



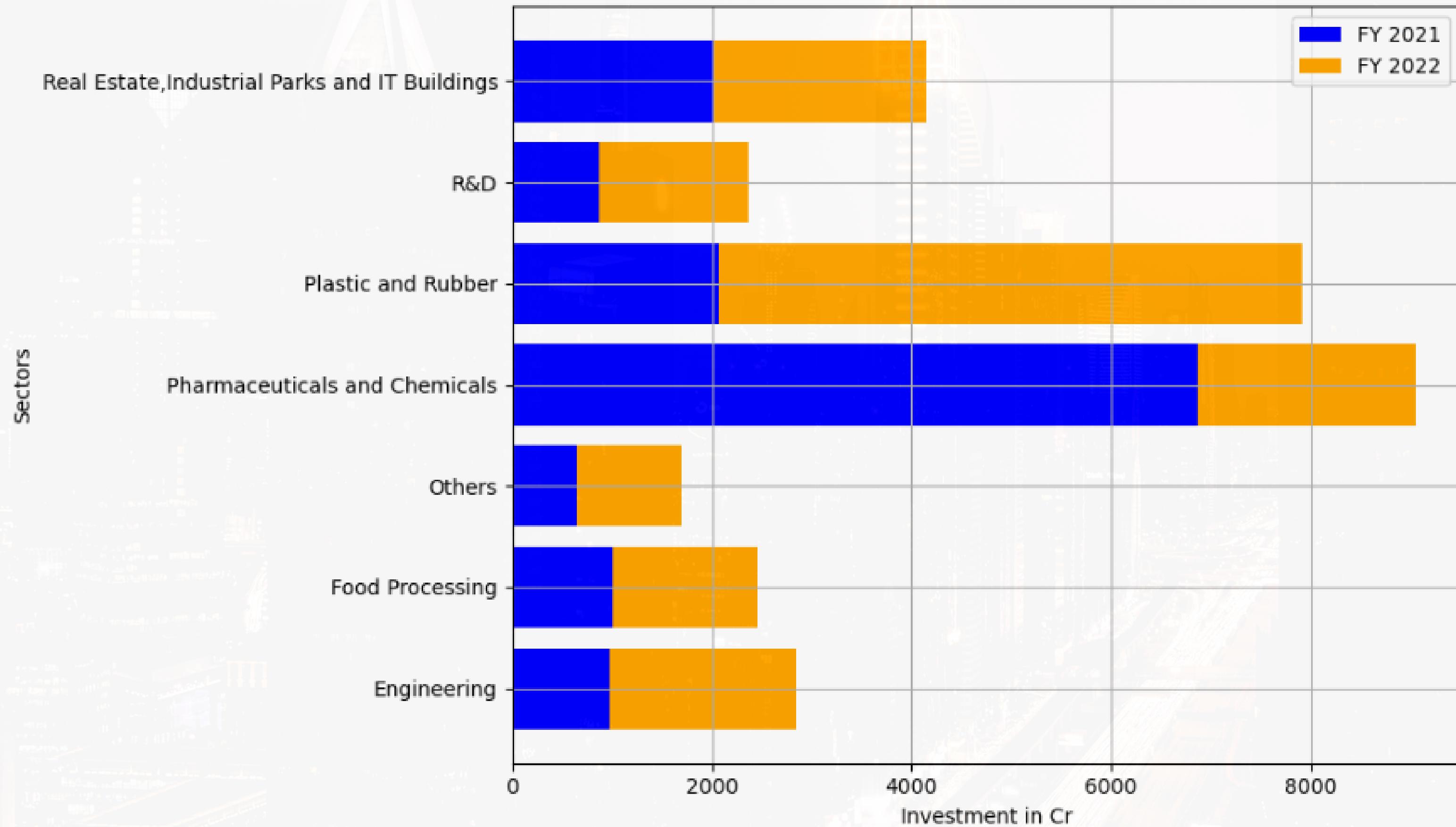
Correlation Heatmap - FY 2022



11.

ARE THERE ANY PARTICULAR SECTORS THAT HAVE SHOWN
SUBSTANTIAL INVESTMENT IN MULTIPLE DISTRICTS BETWEEN
FY 2021 AND 2022?

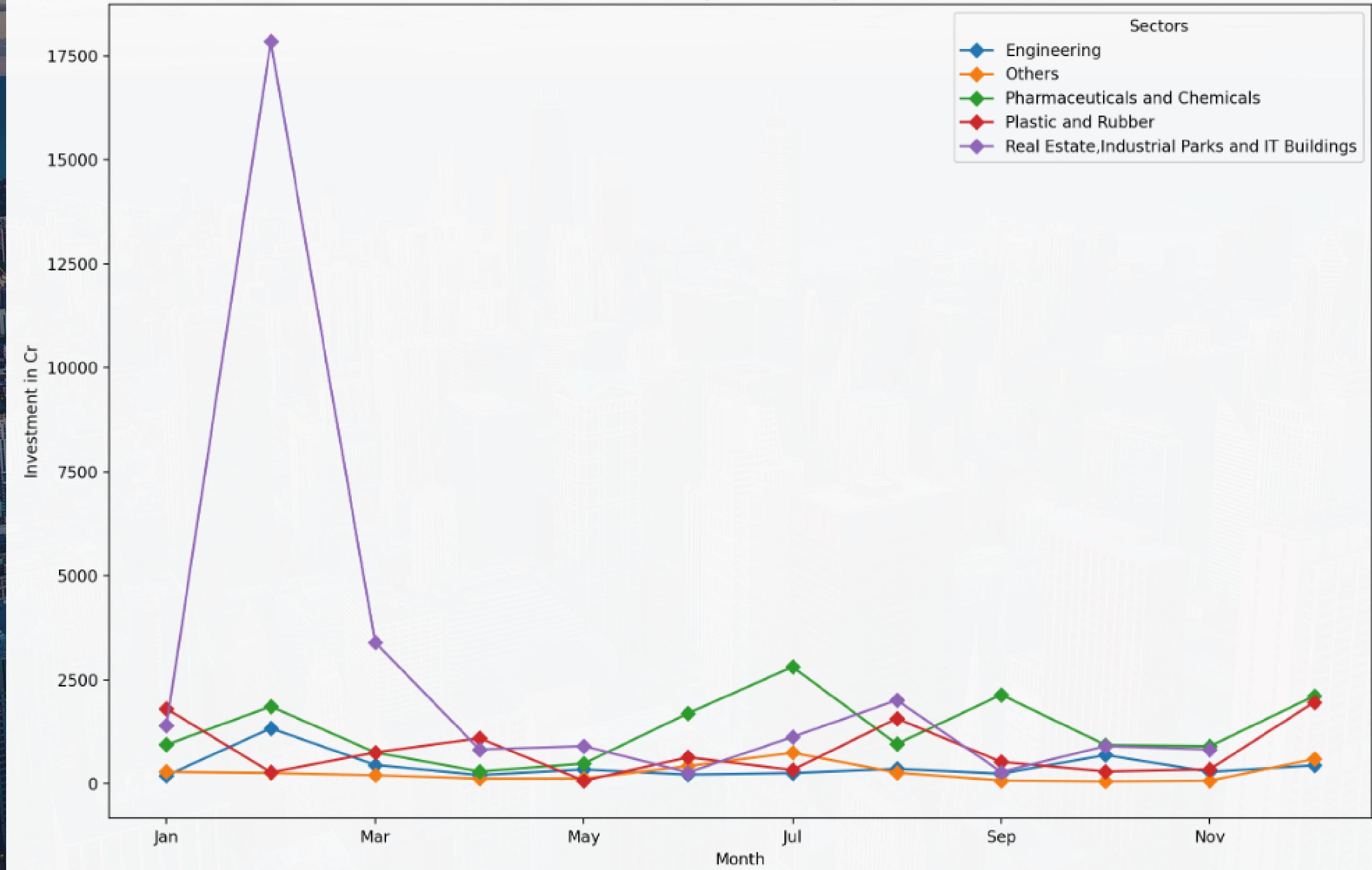
Substantial Investments in Common Sectors for FY 2021 and FY 2022 where Threshold Value set to 500cr

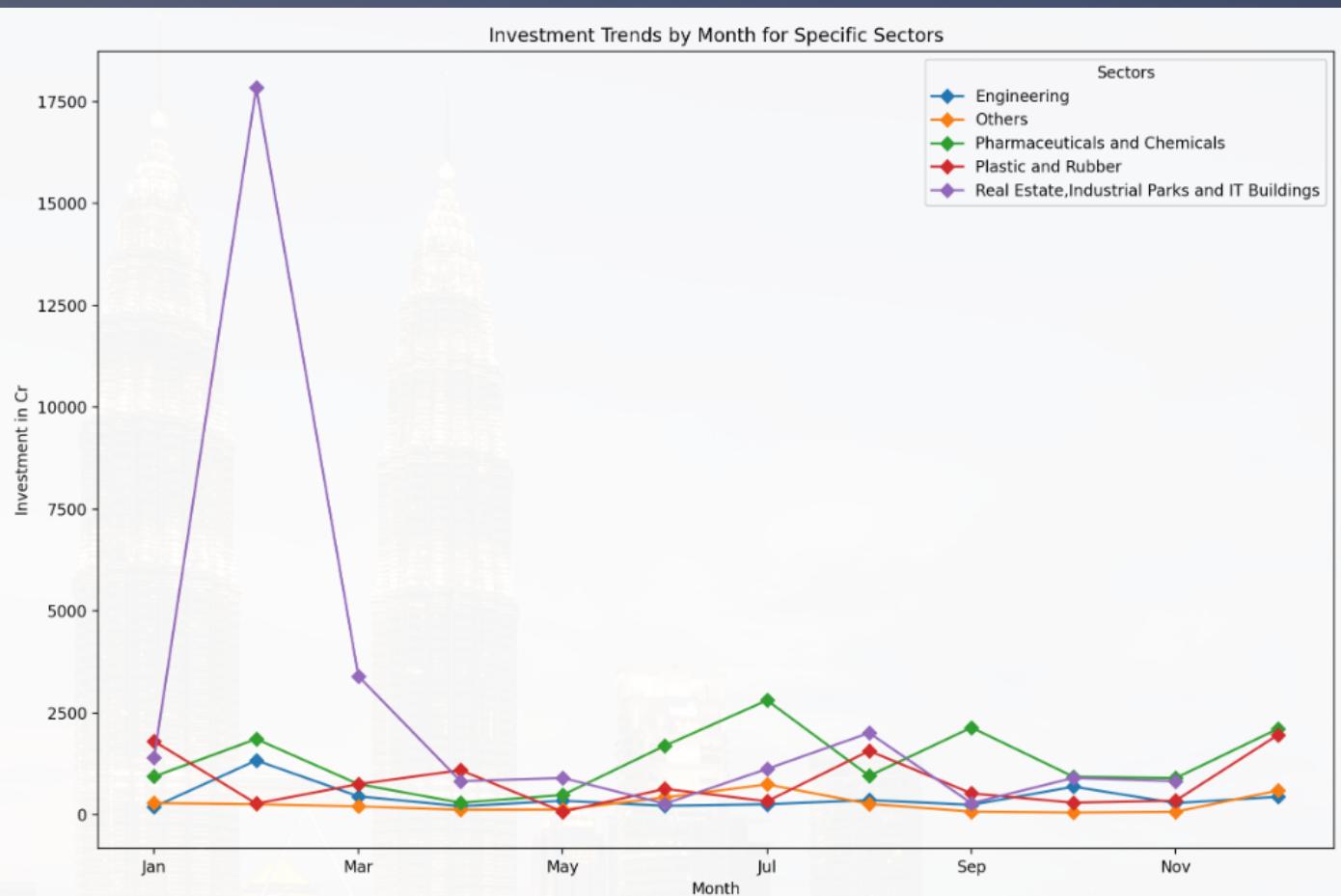


12.

CAN WE IDENTIFY ANY SEASONAL PATTERNS OR CYCLICALITY IN THE INVESTMENT TRENDS FOR SPECIFIC SECTORS? DO CERTAIN SECTORS EXPERIENCE HIGHER INVESTMENTS DURING PARTICULAR MONTHS?

Investment Trends by Month for Specific Sectors





UPON ANALYZING THE VISUALIZATIONS, WE CAN OBSERVE DISTINCT SEASONAL PATTERNS AND CYCLICALITY IN THE INVESTMENT TRENDS FOR SPECIFIC SECTORS. NOTABLY, TWO SECTORS STAND OUT WITH CONSISTENT INVESTMENT PATTERNS DURING CERTAIN MONTHS:

PHARMACEUTICALS AND CHEMICALS SECTOR DEMONSTRATES A RECURRING TREND OF ELEVATED INVESTMENTS DURING CERTAIN MONTHS, SPECIFICALLY FEBRUARY, JULY, AND DECEMBER. THIS CYCLICALITY SUGGESTS A POSSIBLE ALIGNMENT WITH INDUSTRY EVENTS, ECONOMIC SHIFTS, OR MARKET FACTORS THAT INFLUENCE INVESTMENT DECISIONS DURING THESE PERIODS.

PLASTIC AND RUBBER SECTOR, A SIMILAR CYCLICAL PATTERN IS OBSERVED WITH HIGHER INVESTMENTS CONCENTRATED IN JANUARY, FEBRUARY, AND JULY. THIS COULD BE ATTRIBUTED TO STRATEGIC PLANNING CYCLES, SEASONAL DEMAND FLUCTUATIONS, OR REGULATORY CONSIDERATIONS THAT IMPACT INVESTMENT ACTIVITIES DURING THESE MONTHS.

THE IDENTIFIED TRENDS UNDERSCORE THE POTENTIAL INFLUENCE OF SECTOR-SPECIFIC DYNAMICS ON INVESTMENT CYCLICALITY. TO GAIN DEEPER INSIGHTS, FURTHER EXPLORATION OF INDUSTRY-SPECIFIC EVENTS AND ECONOMIC INDICATORS DURING THESE MONTHS IS WARRANTED. SUCH ANALYSIS COULD PROVIDE VALUABLE UNDERSTANDING INTO THE DRIVERS BEHIND THESE RECURRING INVESTMENT PATTERNS.



Conclusion

In this project, I undertook a comprehensive analysis of various economic indicators, aiming to uncover insights into investment trends, vehicle sales, and revenue patterns across different districts and sectors. My analysis revealed significant findings that shed light on the intricate relationships within the data.

In conclusion, this project showcases the power of data-driven insights in understanding complex economic dynamics. The uncovered trends and patterns offer valuable guidance for decision-making and policy formulation, contributing to the advancement of local economies and regional development.

