

# A DATA ANALYSIS PROJECT

on

# TELANGANA state GOVT.

## ECONOMIC GROWTH



**Created By : KASI**



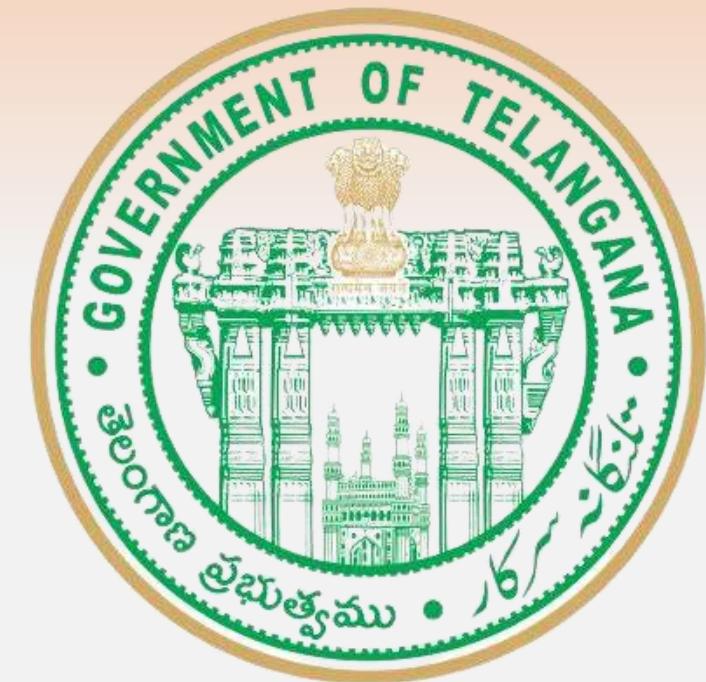
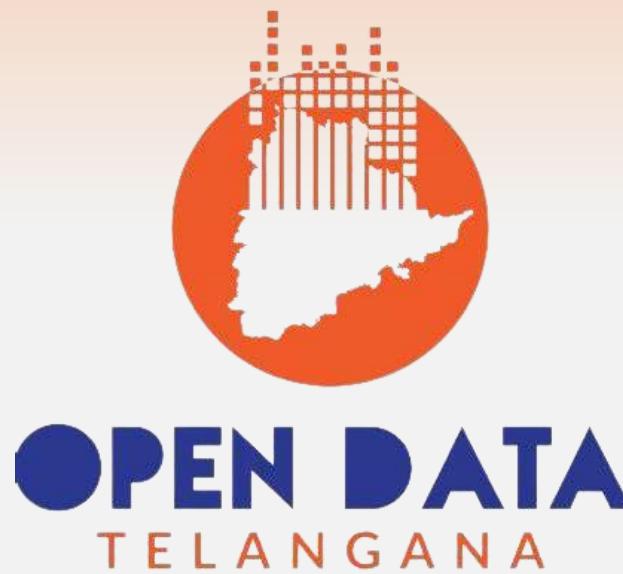
MSK

# A QUANTITATIVE ANALYSIS – TELANGANA's ECONOMIC GROWTH

MSK



CODE BASICS CHALLENGE - PROJECT



MSK

TOOLS USED:



MSK



OPEN DATA  
TELANGANA

MSK

## A QUANTITATIVE ANALYSIS -- TELANGANA ECONOMIC GROWTH

(2019-2023)

MSK



### Introduction

#### Telangana: A land of rich history, culture, and innovation

Telangana is a state in India's southern Deccan Plateau. It was formed in 2014 by the bifurcation of the erstwhile state of Andhra Pradesh. Telangana is home to a diverse population of over 35 million people, speaking over 100 languages and dialects. The state is known for its rich history and culture. The ancient city of Hyderabad, the capital of Telangana, was founded in the 16th century by the Qutub Shahi dynasty. The city is home to many historical monuments, including the Charminar, the Golconda Fort, and the Qutub Shahi Tombs. Telangana is also a land of innovation. The state is home to several major IT and manufacturing hubs, including Hyderabad, Cyberabad, and Warangal. Telangana is also a major producer of rice, cotton, and sugarcane.

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#### The Telangana government's open data initiative

The Telangana government has been a pioneer in open data initiatives. In 2016, the government launched the Telangana Open Data Policy, which makes government data freely available to the public. The policy has been praised by civil society organizations and experts for its transparency and accountability measures.

The open data initiative has had a number of benefits for the state. It has helped to improve public participation in governance, led to the development of new applications and services, and boosted economic growth.

#### Thank you, Telangana government.

I would like to thank the Telangana government for its commitment to open data. The open data initiative is a valuable resource for citizens, businesses, and researchers. It has helped to make Telangana a more transparent and accountable state, and has contributed to its economic growth.



Source : [Telangana Government Open Data](#)

Design : [KASI](#)

**Introduction****Agenda****Agenda:**

- Now we will explore the growth of Telangana through data.
- Brief overview of the datasets that will be explored:
  - Stamp Registration,
  - Transportation, and
  - TS-IPASS. (**Telangana State Industrial Project Approval and Self Certification System**)

**Exploring the datasets****MSK**

- Deep dive into each dataset, understanding the attributes, categories, and time period.
- Identify trends and patterns within each dataset.
- Look for growth opportunities and areas needing attention.

**Conclusion**

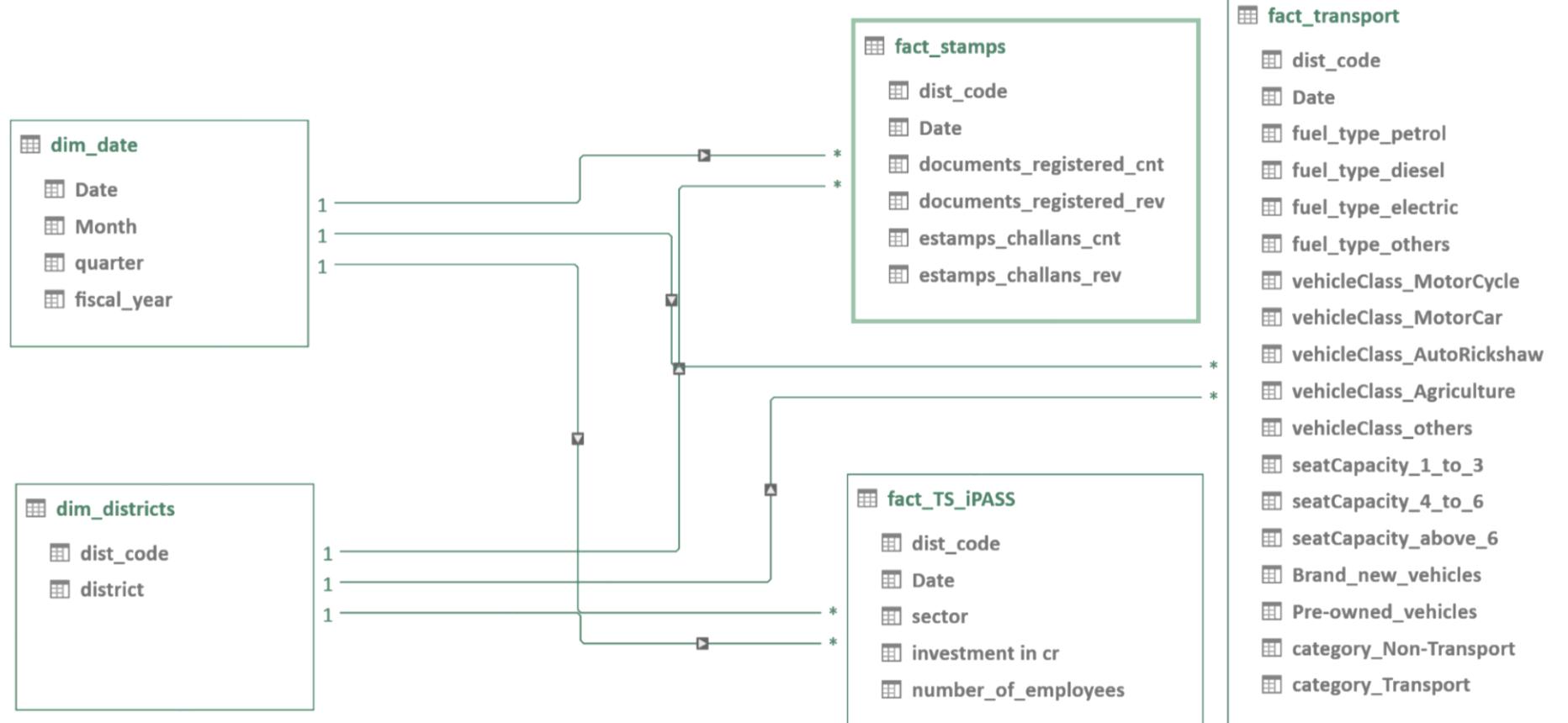
- Summarize the key findings of the analysis.
- Finding correlations among the datasets.
- Implications, suggestions and Recommendation of the findings for the future of Telangana.

Introduction

Agenda

Relationship

## Power Pivot : ER- Model



Introduction   Agenda   Relationship

## Tableau :- Noodle Relationship

Tableau Public - Ts

File Data Window Help

Connections Add

fact\_stamps Text file

Files

- Use Data Interpreter  
Data Interpreter might be able to clean your Text file workbook.
- dim\_date.csv
- dim\_districts.csv
- fact\_stamps.csv
- fact\_transport.csv
- fact\_TS\_iPASS.csv

New Union

New Table Extension

fact\_stamps+ fact\_stamps.csv

```

graph LR
    fact_stamps[fact_stamps.csv] --> dim_date1[dim_date.csv]
    fact_stamps --> dim_districts[dim_districts.csv]
    dim_date1 --> fact_transport[fact_transport.csv]
    dim_date1 --> fact_TS_ipass[fact_TS_iPASS.csv]
    dim_districts --> fact_TS_ipass
    fact_transport --> dim_date2[dim_date.csv1]
    fact_TS_ipass --> dim_date3[dim_date.csv2]
  
```

fact\_stamps.csv 7 fields 1504 rows

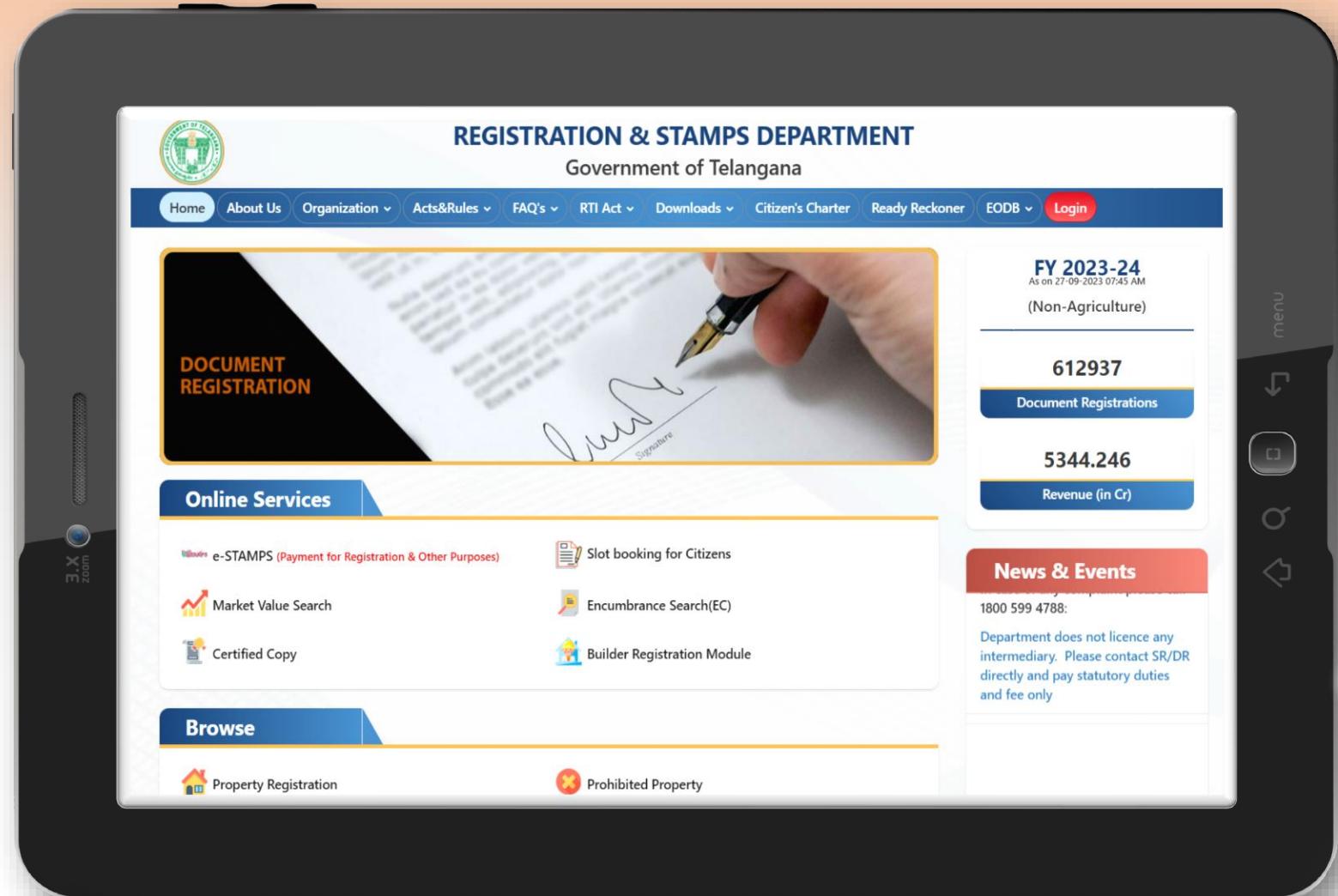
Name	fact_stamps.csv		
Fields			
Type	Field Name	Physical...	Rem...
Abc	Dist Code	fact_stamps.csv	dist_c...
	Date	fact_stamps.csv	Date

Abc	fact_stamps.csv	fact_stamps.csv	fact_stamps.csv	fact_stamps.csv	fact_stamps.csv
Dist Code	Date	Documents Registered ...	Documents Registered ...	Estamps Challans Cnt	Est...
14_1	01-04-2019	4,533	59,236,363	0	
17_3	01-04-2019	4,151	41,508,762	0	
20_3	01-04-2019	2,116	23,674,170	0	
21_5	01-04-2019	1,089	15,915,285	0	
23_1	01-04-2019	6,133	82,593,256	0	

100 → rows

[Introduction](#) [Agenda](#) [Relationship Model](#)[Exploration](#)

## Registration & Stamps Department



The image shows a smartphone displaying the official website of the Registration & Stamps Department of the Government of Telangana. The website features a dark blue header with the department's logo and name, along with various navigation links. The main content area includes sections for 'DOCUMENT REGISTRATION' (with a photo of a hand signing a document), 'Online Services' (listing e-STAMPS, Market Value Search, Certified Copy, Slot booking for Citizens, Encumbrance Search(EC), and Builder Registration Module), and 'Browse' (listing Property Registration and Prohibited Property). To the right of the phone, there is a blurred background showing a stamp, a document, and the Government of Telangana seal.

**REGISTRATION & STAMPS DEPARTMENT**  
Government of Telangana

**FY 2023-24**  
As on 27-09-2023 07:45 AM  
(Non-Agriculture)

**612937**  
Document Registrations

**5344.246**  
Revenue (in Cr)

**News & Events**  
1800 599 4788:  
Department does not licence any intermediary. Please contact SR/DR directly and pay statutory duties and fee only

**Online Services**

- e-STAMPS (Payment for Registration & Other Purposes)
- Slot booking for Citizens
- Market Value Search
- Encumbrance Search(EC)
- Certified Copy
- Builder Registration Module

**Browse**

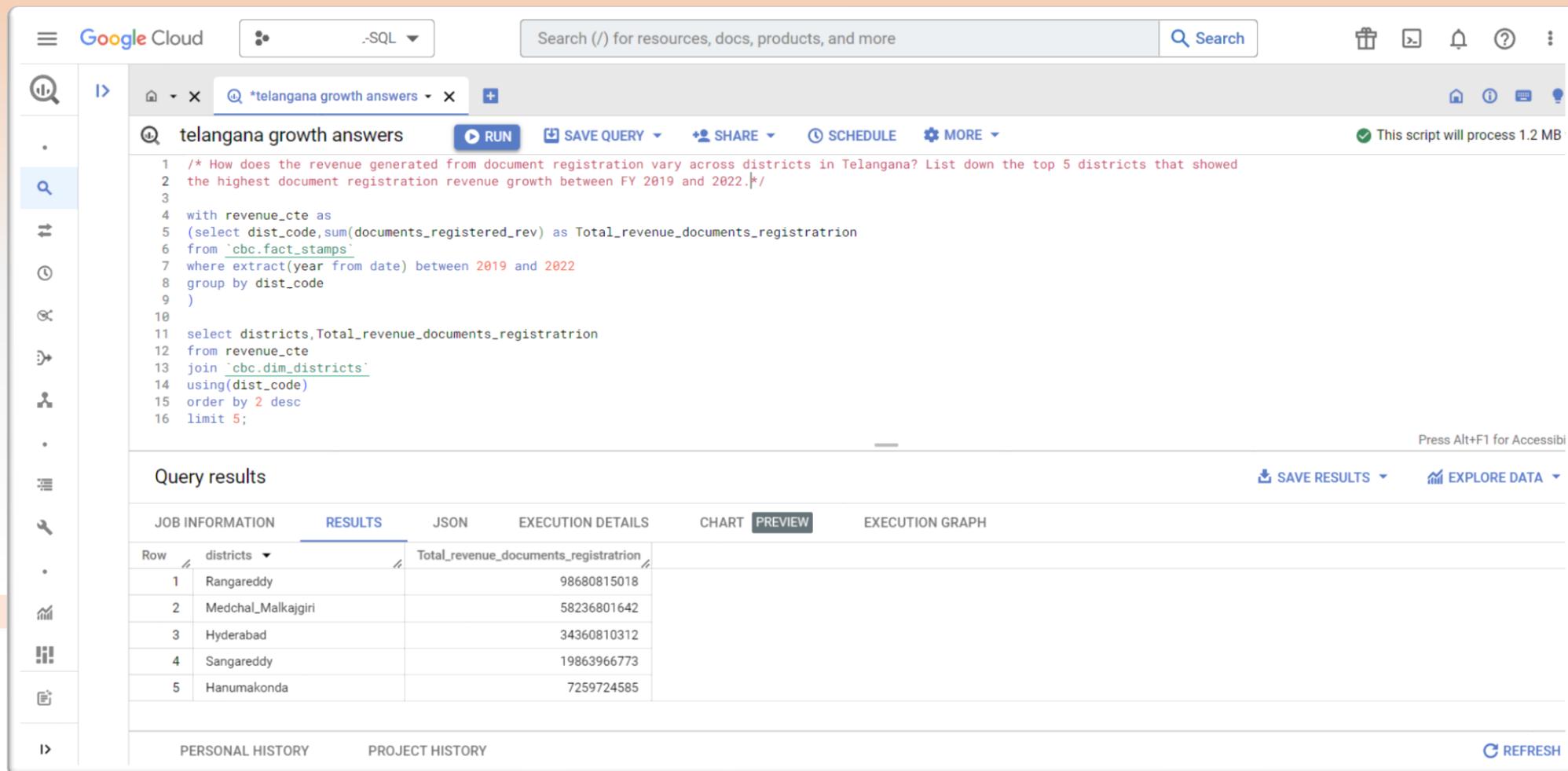
- Property Registration
- Prohibited Property

Introduction Agenda Model

Exploring Departments

## Registration & Stamps Department

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



The screenshot shows the Google Cloud BigQuery interface. The top navigation bar includes 'Google Cloud' and a search bar. The main query editor window has a title 'telangana growth answers' and a script body containing the following SQL code:

```

1 /* How does the revenue generated from document registration vary across districts in Telangana? List down the top 5 districts that showed
2 the highest document registration revenue growth between 2019 and 2022. */
3
4 with revenue_cte as
5 (select dist_code,sum(documents_registered_rev) as Total_revenue_documents_registration
6 from `cbc.fact_stamps`
7 where extract(year from date) between 2019 and 2022
8 group by dist_code
9 )
10
11 select districts,Total_revenue_documents_registration
12 from revenue_cte
13 join `cbc.dim_districts`
14 using(dist_code)
15 order by 2 desc
16 limit 5;

```

The 'RESULTS' tab is selected, showing the query results table:

Row	districts	Total_revenue_documents_registration
1	Rangareddy	98680815018
2	Medchal_Malkajgiri	58236801642
3	Hyderabad	34360810312
4	Sangareddy	19863966773
5	Hanumakonda	7259724585

At the bottom, there are links for 'PERSONAL HISTORY' and 'PROJECT HISTORY'.

## Registration & Stamps Department

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

	2019	2020	2021	2022	2023
Rangareddy	17,60,90,22,518	12,50,00,51,758	29,10,62,13,404	39,46,55,27,338	9,51,78,67,791
Medchal_Malkajgiri	9,60,73,57,469	6,97,71,09,828	17,38,76,42,103	24,26,46,92,242	5,83,45,81,197
Hyderabad	6,26,29,56,531	4,37,16,85,396	9,86,57,31,047	13,86,04,37,338	4,03,59,33,671
Sangareddy	3,52,32,32,998	2,25,07,14,749	5,81,08,12,834	8,27,92,06,192	2,16,05,35,998
Hanumakonda	1,28,10,15,815	1,07,28,95,992	2,01,47,98,550	2,89,10,14,228	66,77,69,515
Yadadri Bhuvanagiri	1,12,37,54,134	71,43,05,376	1,39,35,80,693	2,15,50,57,915	58,70,46,384
Khammam	82,89,47,580	69,12,51,068	1,57,03,28,893	2,05,05,46,017	46,50,68,028
Nalgonda	81,88,86,147	75,59,60,693	1,17,57,40,762	1,43,12,40,894	33,98,05,871
Nizamabad	59,02,28,412	48,28,47,967	1,14,86,78,323	1,45,06,90,033	37,44,92,626
Karimnagar	60,33,01,802	49,57,74,118	99,88,28,061	1,52,87,32,748	39,78,38,325
Mahabubnagar	59,09,09,131	41,39,30,579	78,29,19,016	1,15,84,73,523	24,04,99,301
Suryapet	47,71,60,001	38,22,74,457	73,30,97,750	1,04,91,80,140	26,06,46,418
Siddipet	44,05,92,659	28,57,91,316	61,16,17,765	1,02,06,68,059	26,64,02,778
Medak	34,02,51,596	19,84,44,354	36,55,74,656	69,17,43,187	16,97,38,942
Peddapalli	25,78,16,748	23,67,55,007	45,53,06,824	63,95,51,303	15,12,14,575
Mancherial	25,30,56,964	20,46,28,313	38,04,49,070	67,00,67,700	15,98,90,621
Jagtial	26,75,81,083	21,46,55,919	38,59,01,940	62,45,04,719	17,34,37,646
Kamareddy	24,59,68,838	19,67,92,211	35,59,09,105	46,87,10,318	12,88,15,795
Vikarabad	25,29,67,648	15,99,37,862	31,51,86,556	53,08,41,812	12,22,55,724
Nagarkurnool	23,01,55,697	16,15,86,638	32,90,20,629	51,86,01,474	11,88,98,306
Jangoan	33,02,78,367	18,05,34,418	22,82,52,206	47,06,69,601	12,01,64,266
Rajanna Sircilla	20,63,41,366	14,61,64,599	24,62,07,250	44,49,96,389	12,53,20,825
Wanaparthy	17,56,75,114	13,21,62,798	25,41,89,078	44,15,97,617	12,31,94,933
Adilabad	13,01,57,844	12,83,82,521	30,37,56,075	38,22,70,709	12,24,04,342
Mahabubabad	16,39,63,275	13,20,36,499	26,09,08,942	40,61,09,986	9,56,06,069
Nirmal	16,52,03,872	12,77,94,845	23,94,68,474	36,10,76,604	9,51,64,819
Jogulamba Gadwal	15,96,58,713	11,99,10,108	26,81,95,229	34,55,33,466	8,54,82,166
Bhadradri Kothagudem	11,54,74,680	11,46,01,946	21,70,43,749	30,95,98,977	6,79,93,314
Warangal	13,92,92,151	12,18,26,414	15,76,17,983	25,77,07,803	6,18,97,292
Narayanpet	12,05,45,695	9,26,94,855	19,11,57,930	22,23,69,632	9,55,05,202
Mulugu	6,17,37,447	5,28,76,441	12,56,38,912	22,33,59,598	5,19,15,723
Kumurambheem Asifabad	4,51,82,907	3,45,99,675	4,76,21,120	8,02,14,380	1,98,44,501

Hover on any of these data to have a Detailed view



### Registration & Stamps Department

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

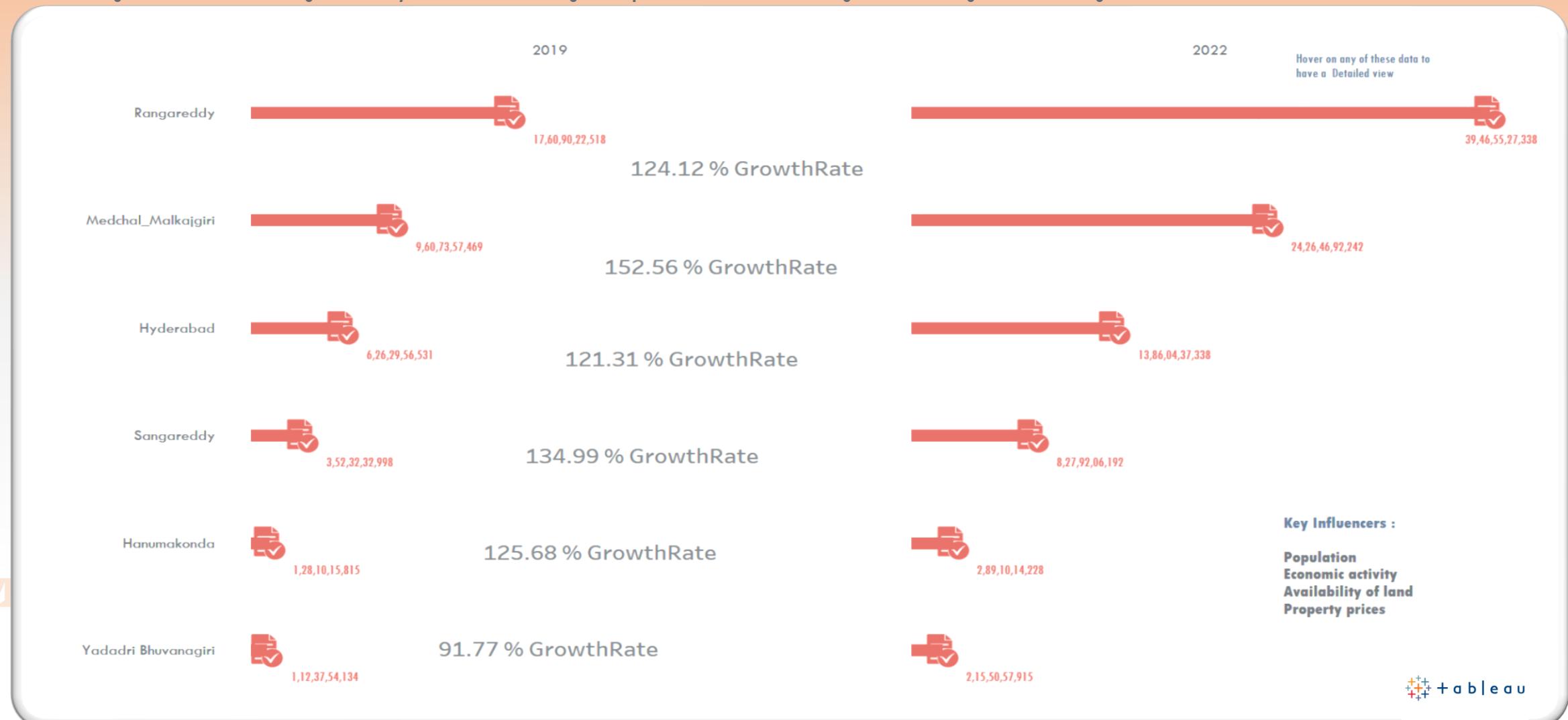


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Exploring Departments

**Registration & Stamps Department**

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

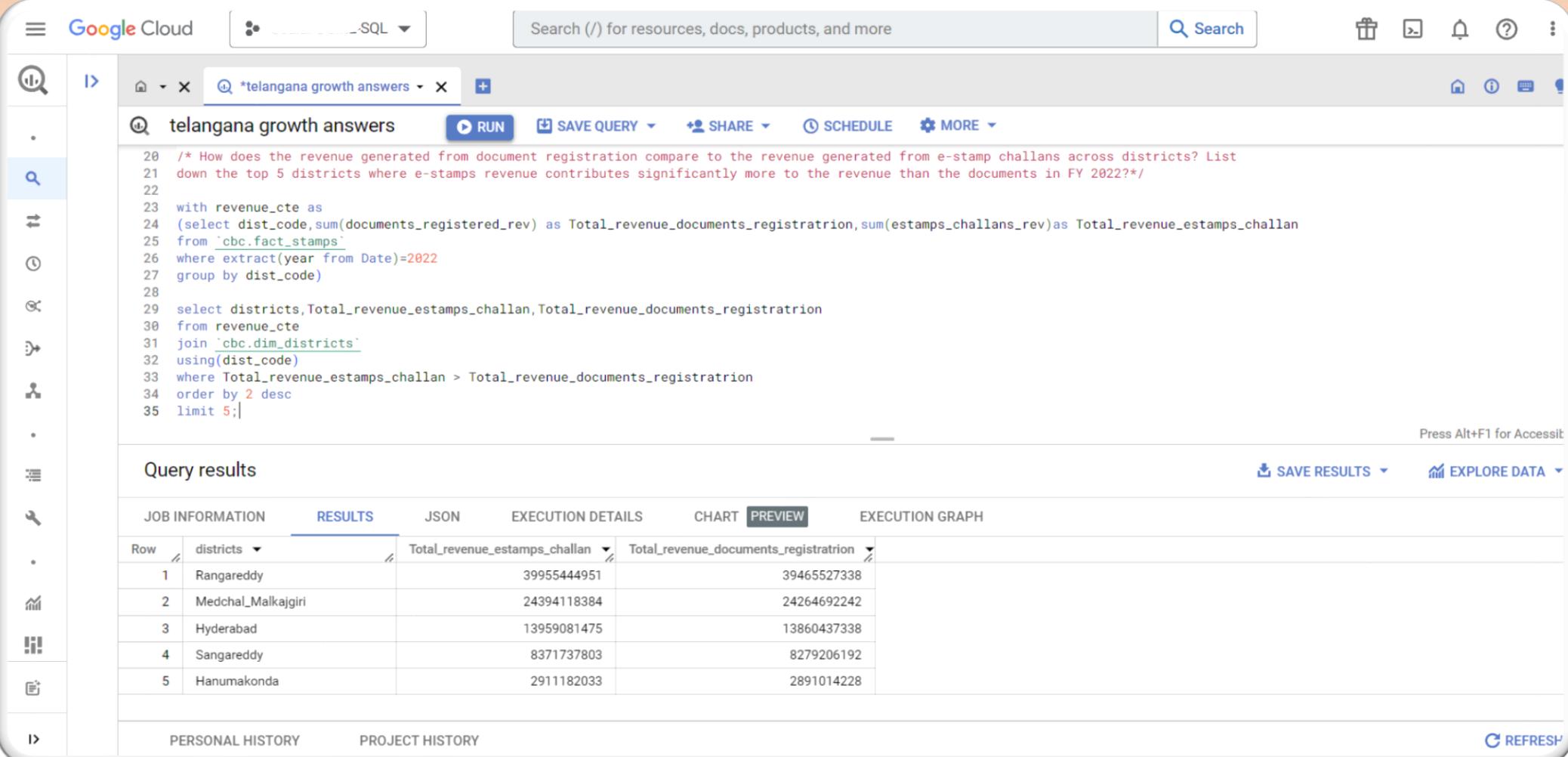


Introduction Agenda Model

Exploring Departments

## Registration & Stamps Department

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 screenshot shows the Google Cloud BigQuery interface. The left sidebar has a vertical list of icons. The main area shows a query titled "telangana growth answers". The query code is as follows:

```

20 /* How does the revenue generated from document registration compare to the revenue generated from e-stamp challans across districts? List
21 down the top 5 districts where e-stamps revenue contributes significantly more to the revenue than the documents in FY 2022?*/
22
23 with revenue_cte as
24 (select dist_code,sum(documents_registered_rev) as Total_revenue_documents_registration,sum(estamps_challans_rev)as Total_revenue_estamps_challan
25 from `cbc.fact_stamps`
26 where extract(year from Date)=2022
27 group by dist_code)
28
29 select districts,Total_revenue_estamps_challan,Total_revenue_documents_registration
30 from revenue_cte
31 join `cbc.dim_districts`
32 using(dist_code)
33 where Total_revenue_estamps_challan > Total_revenue_documents_registration
34 order by 2 desc
35 limit 5;

```

The "Query results" section displays the top 5 districts with their respective total revenues:

Row	districts	Total_revenue_estamps_challan	Total_revenue_documents_registration
1	Rangareddy	39955444951	39465527338
2	Medchal_Malkajgiri	24394118384	24264692242
3	Hyderabad	13959081475	13860437338
4	Sangareddy	8371737803	8279206192
5	Hanumakonda	2911182033	2891014228

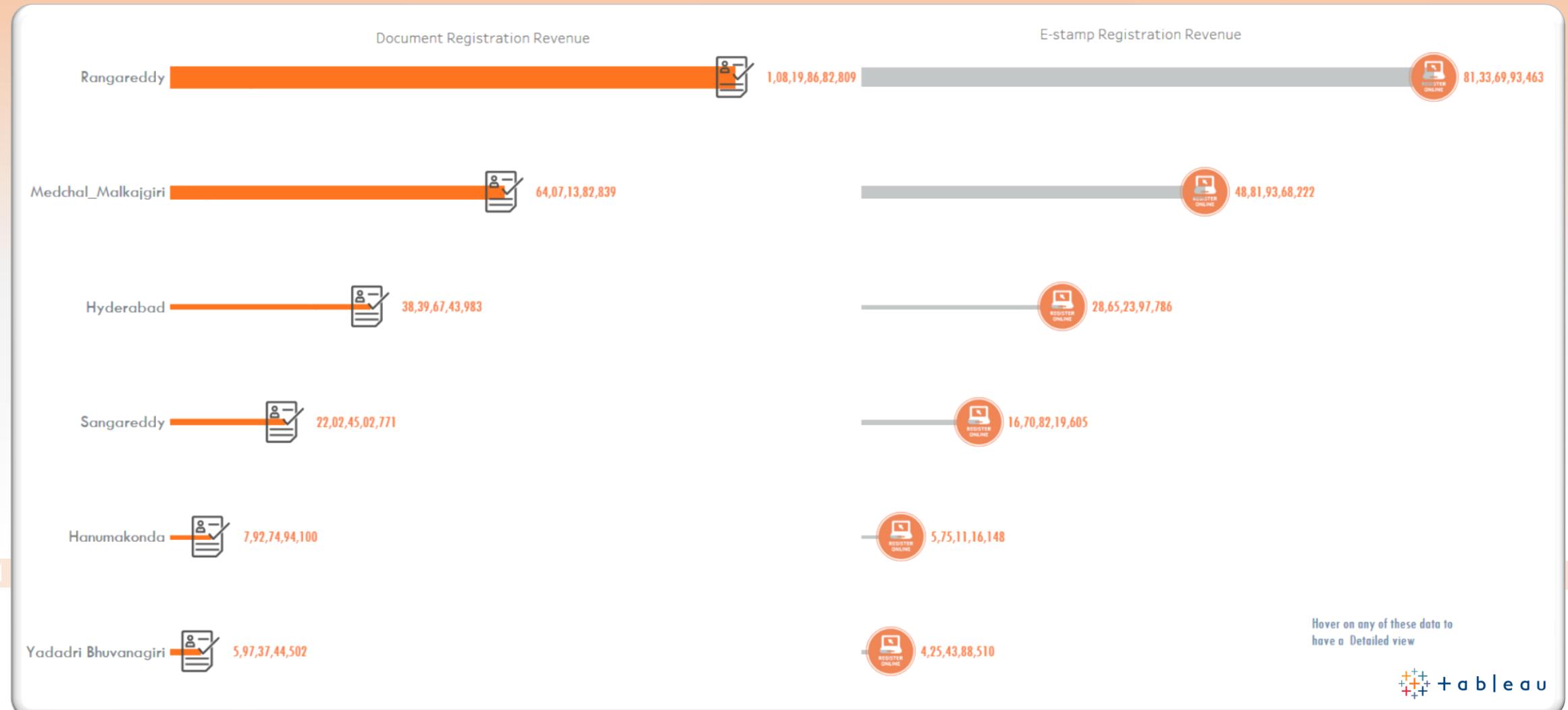
At the bottom, there are links for "PERSONAL HISTORY" and "PROJECT HISTORY". On the right, there are "REFRESH" and "Google Big Query" buttons.

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## Exploring Departments

### Registration & Stamps Department

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?



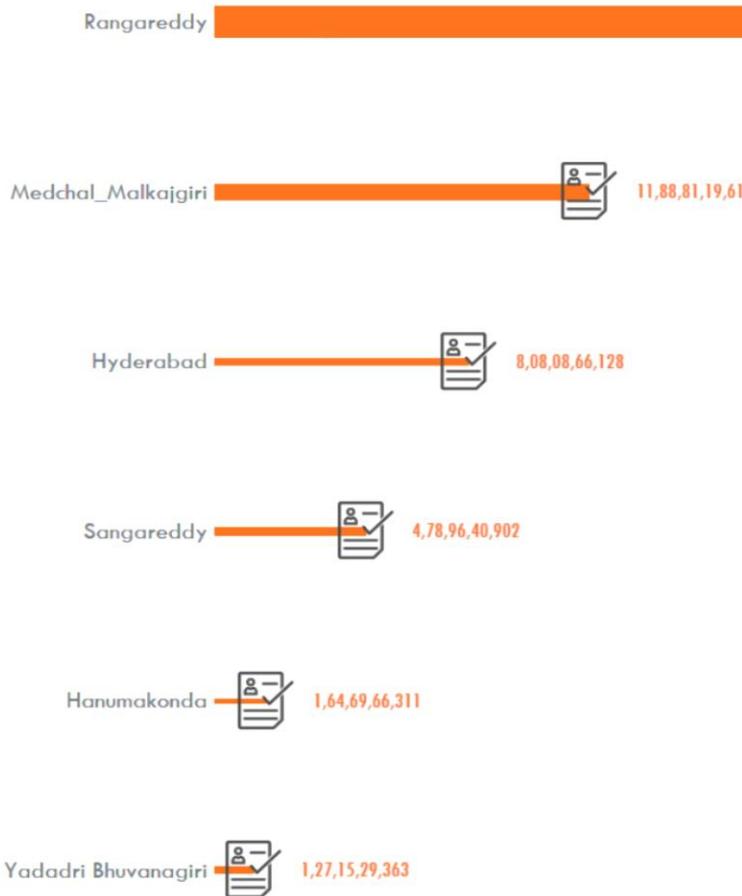
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Exploring Departments

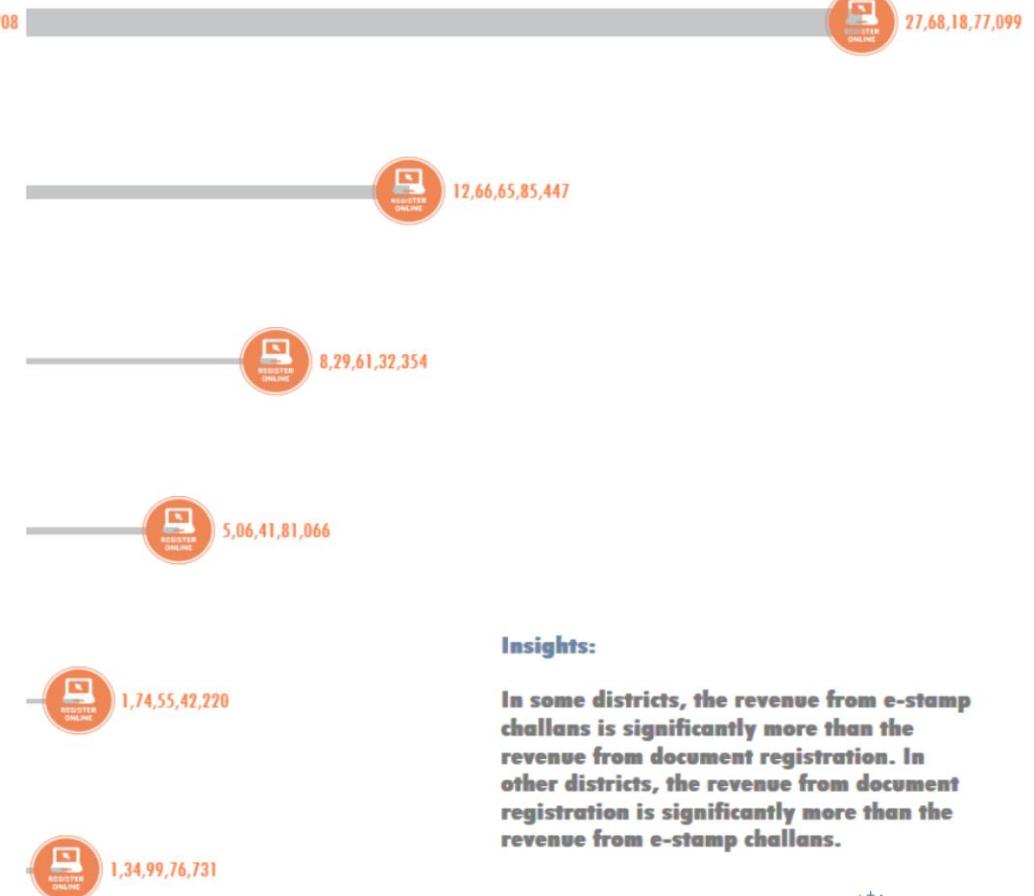
### Registration & Stamps Department

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?

Document Registration Revenue



E-stamp Registration Revenue



ESR > DRR

### Insights:

In some districts, the revenue from e-stamp challans is significantly more than the revenue from document registration. In other districts, the revenue from document registration is significantly more than the revenue from e-stamp challans.

Introduction Agenda Model

Exploring Departments

## Registration & Stamps Department

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?



The screenshot shows the Google Cloud BigQuery interface. On the left is a sidebar with various icons. The main area has a title bar with 'telangana growth answers'. Below the title bar is a toolbar with 'RUN', 'SAVE QUERY', 'SHARE', 'SCHEDULE', 'MORE', and a note that the script will process 1.2 MB. The main content area contains a SQL query script:

```
39 /*Is there any alteration of e-Stamp challan count and document registration count pattern since the implementation of e-Stamp
40 challan? If so, what suggestions would you propose to the government?*/
41
42 with compare_21 as(
43 select districts,extract(year from date)as year,
44 sum(documents_registered_cnt)as documents_count_21,sum(estamps_challans_cnt)as challans_count_21,
45 (sum(estamps_challans_cnt)-sum(documents_registered_cnt)) as diff_rev_2021
46 from `cbc.fact_stamps`
47 join `cbc.dim_districts`
48 using(dist_code)
49 where extract(year from date)=2021
50 group by 1,2
51 order by 5 desc
52 ),compare_22 as(
53 select districts,extract(year from date) as year,
54 sum(documents_registered_cnt)as documents_count_22,sum(estamps_challans_cnt)as challans_count_22,
55 (sum(estamps_challans_cnt)-sum(documents_registered_cnt)) as diff_rev_2022
56 from `cbc.fact_stamps`
57 join `cbc.dim_districts`
58 using(dist_code)
59 where extract(year from date)=2022
60 group by 1,2
61 order by 5 desc
62
63 select *, (diff_rev_2022-diff_rev_2021) as tot_diff
64 from compare_22 a
65 join compare_21 b
66 using(districts)
67 order by 10 desc
68 limit 10 .
```

At the bottom, there are buttons for 'SAVE RESULTS' and 'EXPLORE DATA'. A note at the bottom right says 'Press Alt+F1 for Accessibility'.

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Exploring Departments

## Registration & Stamps Department

**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?**

The screenshot shows the Google Cloud BigQuery interface. The top navigation bar includes 'Google Cloud' and a search bar. The main area displays a query titled 'telangana growth answers' with the following SQL code:

```

62
63 select *, (diff_rev_2022-diff_rev_2021) as tot_diff
64 from compare_22 a
65 join compare_21 b
66 using(districts)
67 order by 10 desc
68 limit 10 ;
69
70
    
```

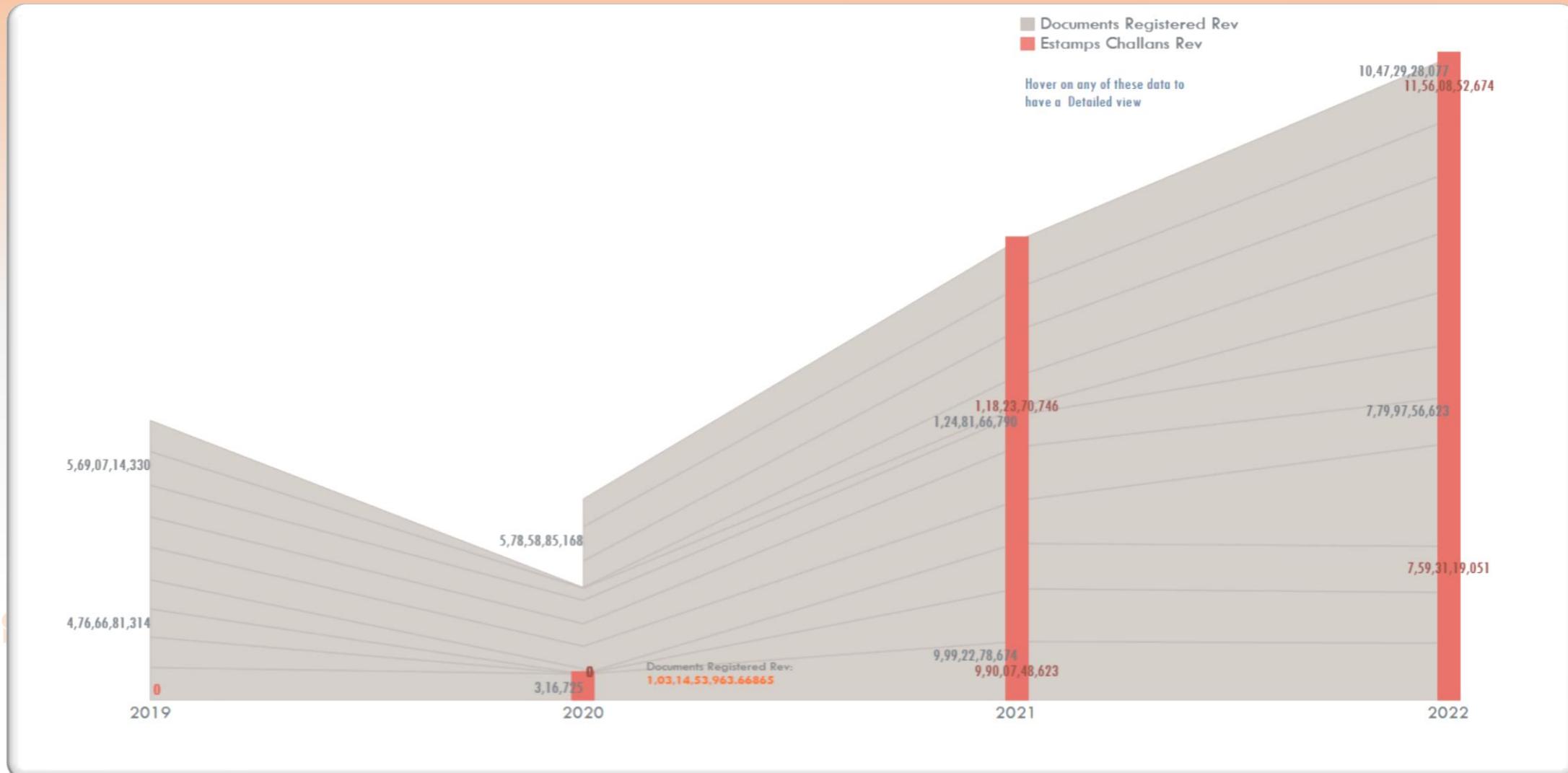
The 'Query results' section shows a table with 10 rows of data. The columns are: Row, districts, year, documents\_count\_22, challans\_count\_22, diff\_rev\_2022, year\_1, documents\_count\_21, challans\_count\_21, diff\_rev\_2021, and tot\_diff. The data is as follows:

Row	districts	year	documents_count_22	challans_count_22	diff_rev_2022	year_1	documents_count_21	challans_count_21	diff_rev_2021	tot_diff
1	Medchal_Malkajgiri	2022	166804	175891	9087	2021	161936	168902	6966	2121
2	Hyderabad	2022	64419	70207	5788	2021	56557	60920	4363	1425
3	Hanumakonda	2022	50695	54734	4039	2021	46734	50458	3724	315
4	Nagarkurnool	2022	26583	27553	970	2021	25100	25859	759	211
5	Jangoan	2022	18508	19201	693	2021	12297	12783	486	207
6	Yadadri Bhuvanagiri	2022	66079	68786	2707	2021	60911	63443	2532	175
7	Rajanna Sircilla	2022	19861	20146	285	2021	17247	17357	110	175
8	Medak	2022	12753	13430	677	2021	10368	10878	510	167
9	Khammam	2022	42768	45112	2344	2021	48496	50675	2179	165
10	Warangal	2022	9862	10276	414	2021	8139	8492	353	61

At the bottom, there are links for 'PERSONAL HISTORY' and 'PROJECT HISTORY'.

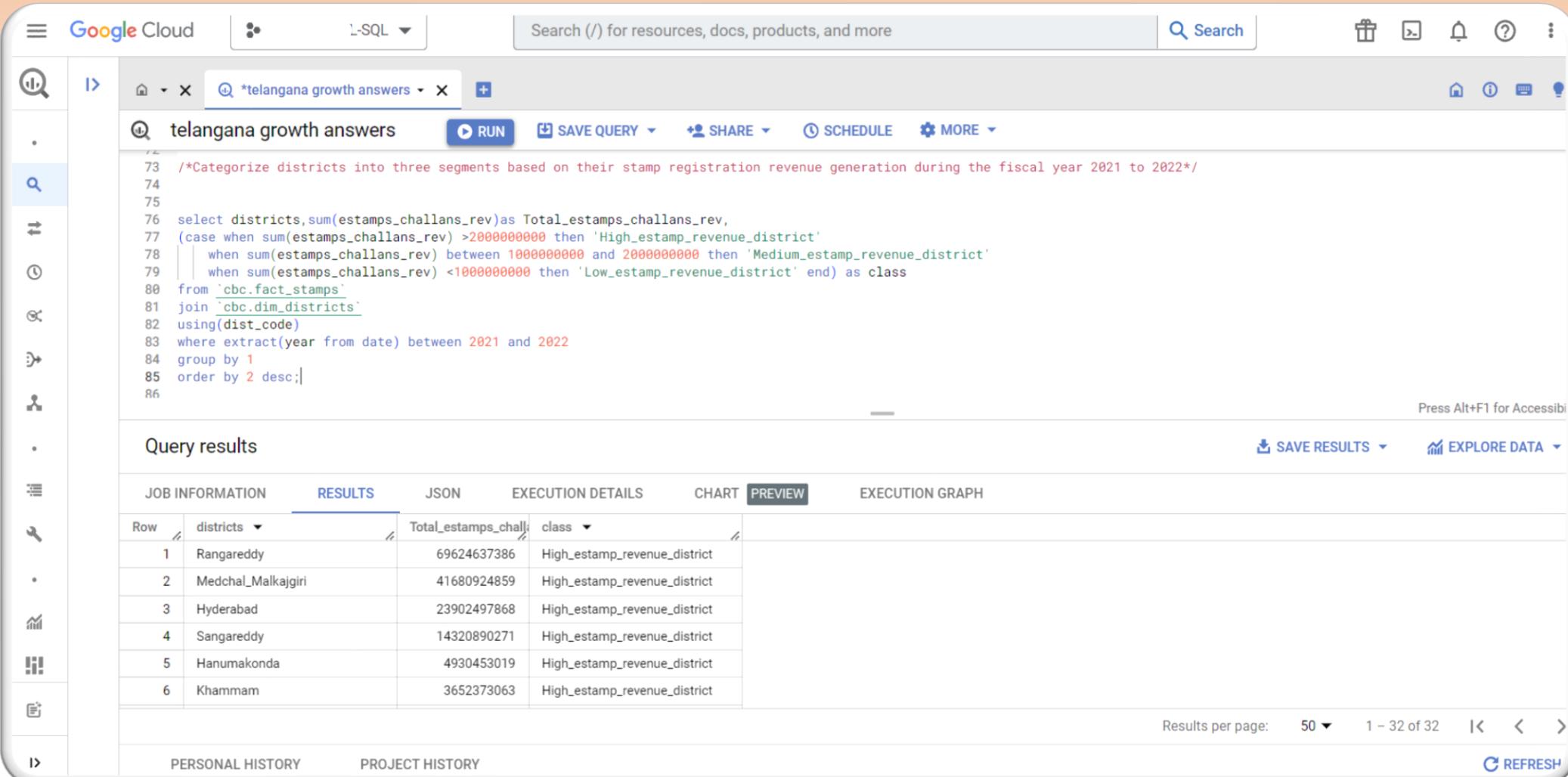
[Introduction](#) [Agenda](#) [Model](#)[Exploring Departments](#)**Registration & Stamps Department**

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?



## Registration & Stamps Department

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



The screenshot shows the Google Cloud BigQuery interface. The top navigation bar includes 'Google Cloud' and a search bar. The main area displays a query titled 'telangana growth answers'.

```

73 /*Categorize districts into three segments based on their stamp registration revenue generation during the fiscal year 2021 to 2022*/
74
75
76 select districts,sum(estamps_challans_rev)as Total_estamps_challans_rev,
77 (case when sum(estamps_challans_rev) >200000000 then 'High_estamp_revenue_district'
78 | when sum(estamps_challans_rev) between 100000000 and 200000000 then 'Medium_estamp_revenue_district'
79 | when sum(estamps_challans_rev) <100000000 then 'Low_estamp_revenue_district' end) as class
80 from `cbc_fact_stamps`
81 join `cbc.dim_districts`
82 using(dist_code)
83 where extract(year from date) between 2021 and 2022
84 group by 1
85 order by 2 desc;
86

```

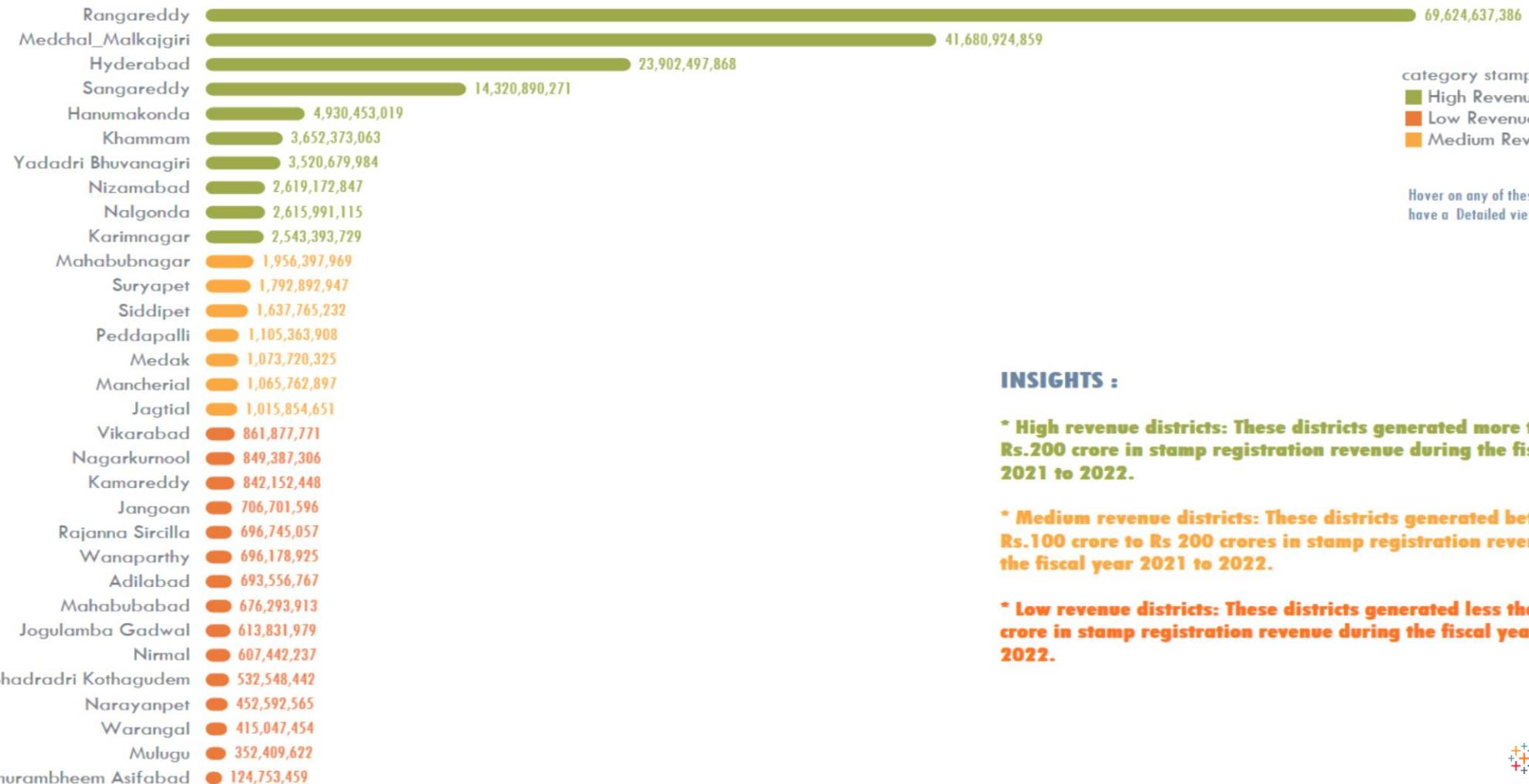
The 'RESULTS' tab is selected, showing the following data:

Row	districts	Total_estamps_challans_rev	class
1	Rangareddy	69624637386	High_estamp_revenue_district
2	Medchal_Malkajgiri	41680924859	High_estamp_revenue_district
3	Hyderabad	23902497868	High_estamp_revenue_district
4	Sangareddy	14320890271	High_estamp_revenue_district
5	Hanumakonda	4930453019	High_estamp_revenue_district
6	Khammam	3652373063	High_estamp_revenue_district

At the bottom, there are links for 'PERSONAL HISTORY' and 'PROJECT HISTORY'.

### Registration & Stamps Department

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



### INSIGHTS :

- \* **High revenue districts:** These districts generated more than Rs.200 crore in stamp registration revenue during the fiscal year 2021 to 2022.
- \* **Medium revenue districts:** These districts generated between than Rs.100 crore to Rs 200 crores in stamp registration revenue during the fiscal year 2021 to 2022.
- \* **Low revenue districts:** These districts generated less than Rs.100 crore in stamp registration revenue during the fiscal year 2021 to 2022.

## Document & Stamp Registration

→ Insights from the Data of the Stamp Documentation Registration.

### Key factors Influence :

- Population, Land availability and its prices, Economic activity of the district.
- The revenue generated from document registration and e-stamp challans varies across districts in Telangana. In some districts, the revenue from e-stamp challans is significantly more than the revenue from document registration. In other districts, the revenue from document registration is significantly more than the revenue from e-stamp challans.

The introduction of e-Stamp challans has revolutionized the way stamp duty is paid in Telangana. This makes the process much more convenient and efficient. As a result of the introduction of e-Stamp challans, there has been a significant increase in the number of e-Stamp challans issued. In fact, the number of e-Stamp challans issued in FY 2022 was more than double the number issued in FY 2021. However, there has also been a slight decrease in the number of document registrations. This is because many people are now using e-Stamp challans to pay stamp duty without actually registering their documents. This is a trend that the government is concerned about, as it could lead to a loss of revenue.



### To address this issue, the government has to propose measures like :

- Making the process of document registration more convenient and efficient.
- Reducing the fees for document registration.
- Promoting the use of e-Stamp challans through awareness campaigns.
- Providing incentives for people to use e-Stamp challans, such as discounts or cashbacks.

### Make the population understand:

- E-Stamp challans are more convenient and efficient than traditional stamp paper. They can be purchased and used online, which saves time and money.
- E-Stamp challans are more secure than traditional stamp paper, as they are tamper-proof.
- The use of e-Stamp challans can also help to improve transparency in the stamp duty system. This is because all e-Stamp challans are recorded in a central database, which makes it easier to track and monitor the flow of funds.
- Overall, the introduction of e-Stamp challans is a positive development for the state of Telangana. It has made the process of stamp duty payment more convenient, efficient, and secure. The government should continue to promote the use of e-Stamp challans to further improve the stamp duty system.

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## Transportation Department



The website features a header with portraits of Sri. K. Chandrasekhar Rao (Hon'ble Chief Minister) and Sri Puvvada Ajay Kumar (Hon'ble Transport Minister), along with the Government of Telangana Transport Department logo. It includes links for M-Wallet download and social media follow.

Below the header, there's a navigation bar with links like LICENCE, REGISTRATION, PERMITS, TAXES, FEES, USER CHARGES, PENALTIES, ROAD SAFETY, STATISTICS, RTI, and several specific sections like Pollution Control, Hazardous Materials, Acts & Rules, G.O's & Circulars, Road Signs, Forms, Proof of Documents Required, Gallery, and Ease of Doing Business.

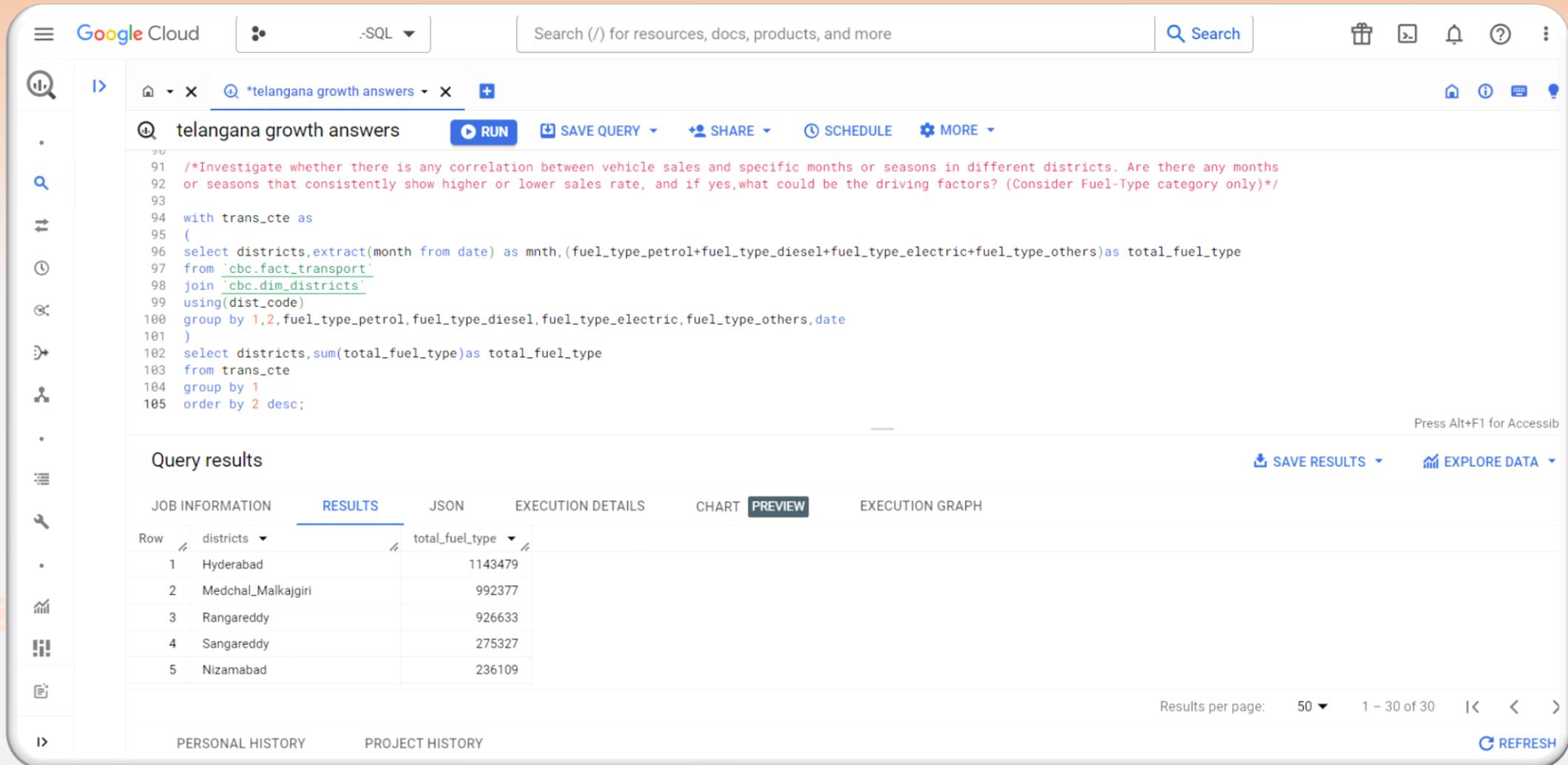
The main content area includes a "WELCOME TO TELANGANA TRANSPORT DEPARTMENT" section with a map of Telangana districts and a "NEWS AND EVENTS" section. Promotional banners encourage users to click for online services and payments, and user guides for anywhere anytime services.

At the bottom, there's a link to the All India Tourist Permit System.



**Transportation Department**

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)



The screenshot shows the Google Cloud BigQuery interface. The top navigation bar includes 'Google Cloud' and a search bar. The main area displays a query titled 'telangana growth answers'.

```

91 /*Investigate whether there is any correlation between vehicle sales and specific months or seasons in different districts. Are there any months
92 or seasons that consistently show higher or lower sales rate, and if yes,what could be the driving factors? (Consider Fuel-Type category only)*/
93
94 with trans_cte as
95 (
96 select districts,extract(month from date) as mnth,(fuel_type_petrol+fuel_type_diesel+fuel_type_electric+fuel_type_others)as total_fuel_type
97 from `cbc.fact_transport`
98 join `cbc.dim_districts`
99 using(dist_code)
100 group by 1,2,fuel_type_petrol,fuel_type_diesel,fuel_type_electric,fuel_type_others,date
101 )
102 select districts,sum(total_fuel_type)as total_fuel_type
103 from trans_cte
104 group by 1
105 order by 2 desc;

```

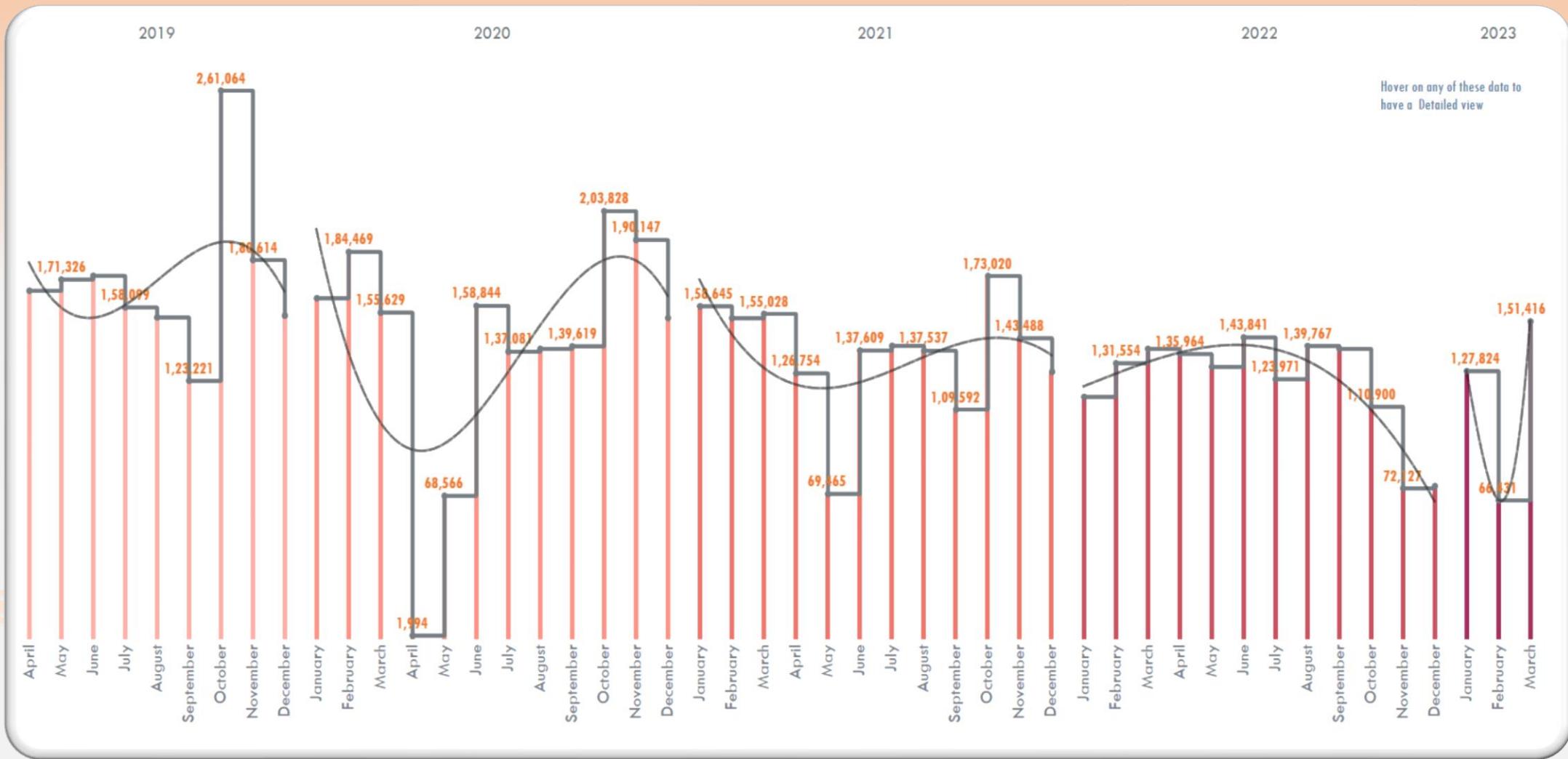
The 'RESULTS' tab is selected, showing the following data:

Job Information	RESULTS	JSON	Execution Details	Chart	Preview	Execution Graph
Row	districts	total_fuel_type				
1	Hyderabad	1143479				
2	Medchal_Malkajgiri	992377				
3	Rangareddy	926633				
4	Sangareddy	275327				
5	Nizamabad	236109				

At the bottom, there are links for 'PERSONAL HISTORY' and 'PROJECT HISTORY'. The bottom right corner features the Google BigQuery logo.

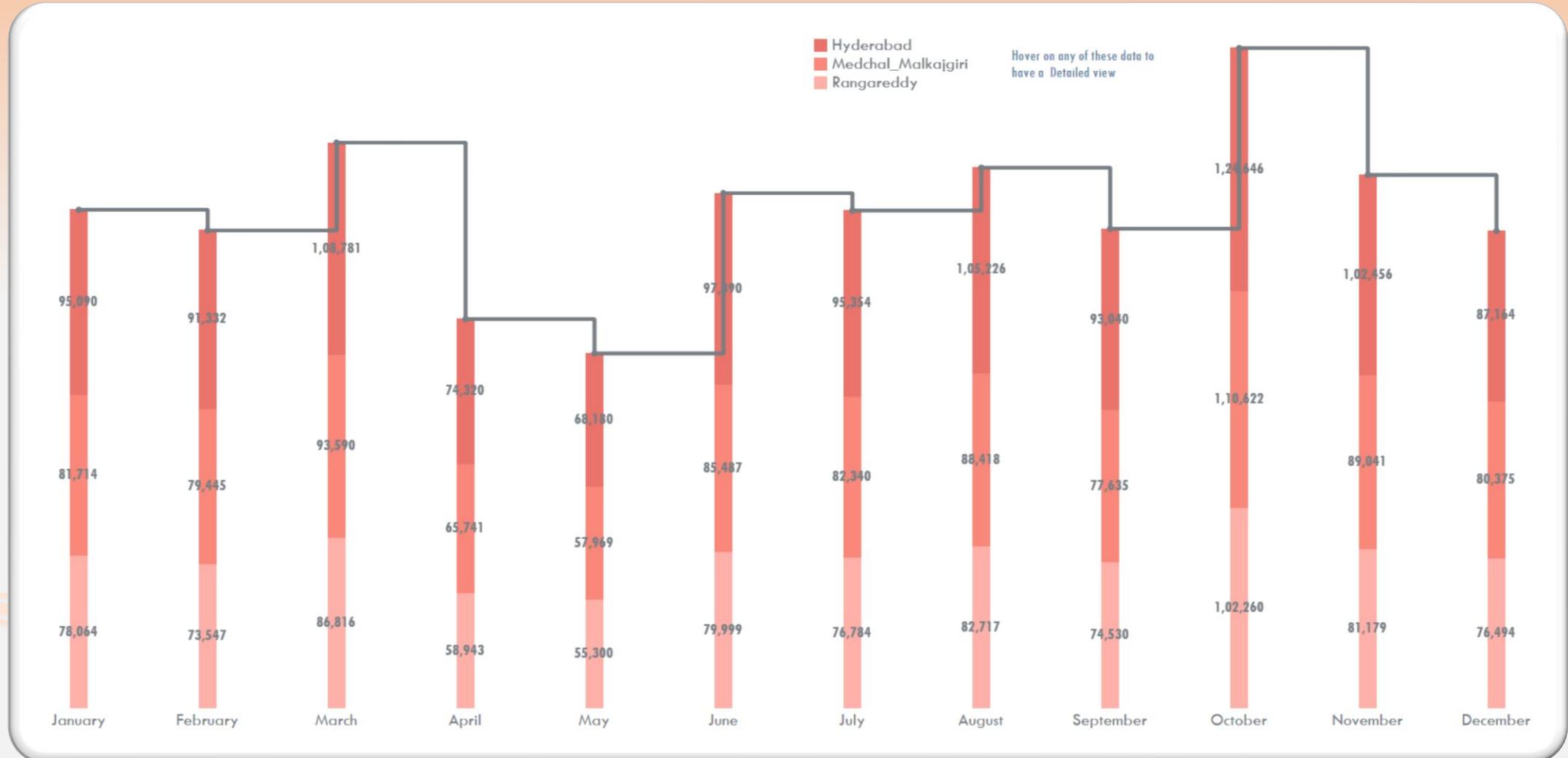
### Transportation Department

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)



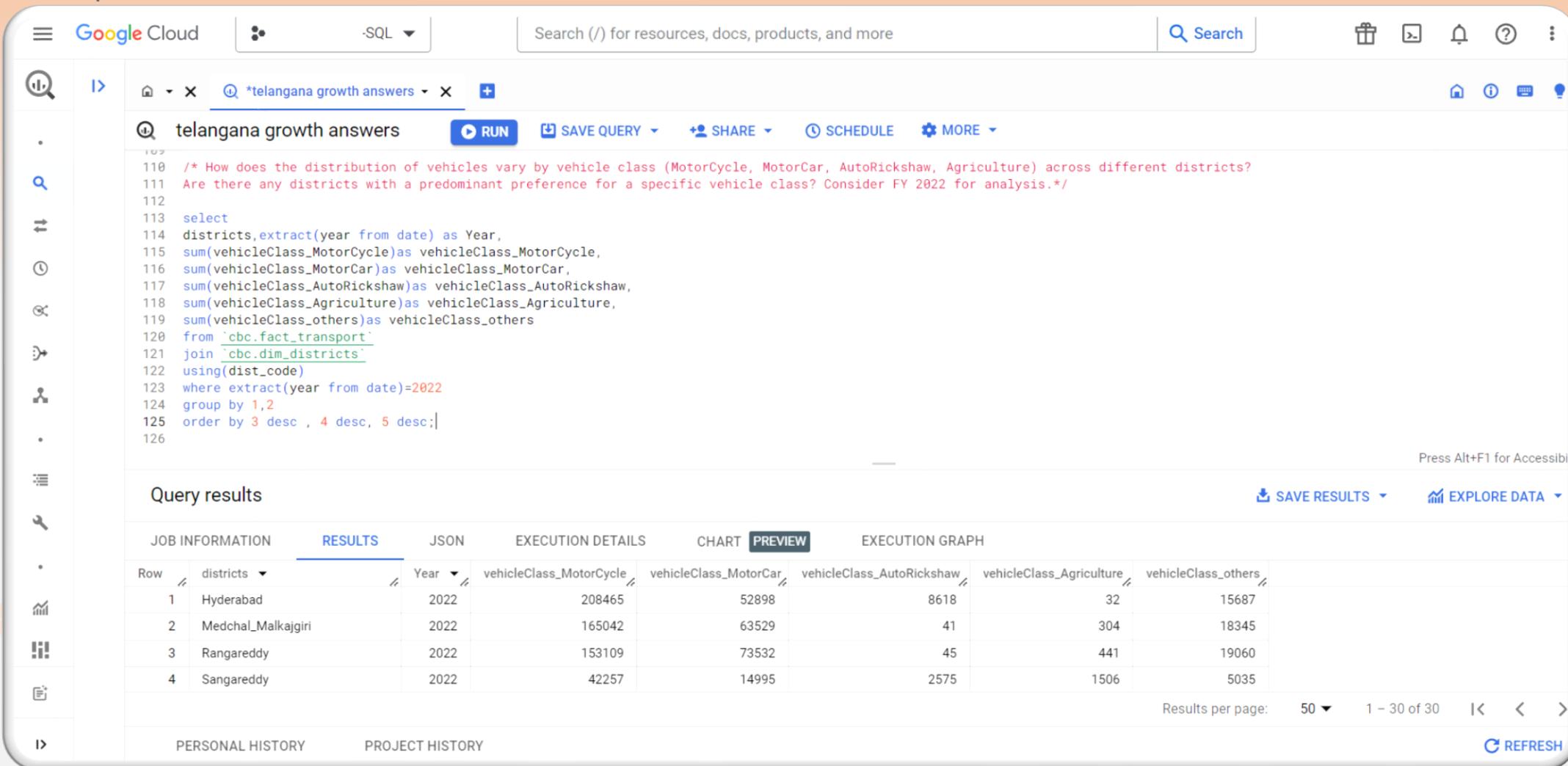
**Transportation Department**

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)



**Transportation Department**

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?



The screenshot shows the Google BigQuery web interface. The top navigation bar includes 'Google Cloud', 'SQL', a search bar, and various icons for export, share, and help. The main area displays a query titled 'telangana growth answers'.

```

110 /* How does the distribution of vehicles vary by vehicle class (MotorCycle, MotorCar, AutoRickshaw, Agriculture) across different districts?
111 Are there any districts with a predominant preference for a specific vehicle class? Consider FY 2022 for analysis.*/
112
113 select
114 districts, extract(year from date) as Year,
115 sum(vehicleClass_MotorCycle)as vehicleClass_MotorCycle,
116 sum(vehicleClass_MotorCar)as vehicleClass_MotorCar,
117 sum(vehicleClass_AutoRickshaw)as vehicleClass_AutoRickshaw,
118 sum(vehicleClass_Agriculture)as vehicleClass_Agriculture,
119 sum(vehicleClass_others)as vehicleClass_others
120 from `cbc.fact_transport`
121 join `cbc.dim_districts`
122 using(dist_code)
123 where extract(year from date)=2022
124 group by 1,2
125 order by 3 desc , 4 desc, 5 desc;
126

```

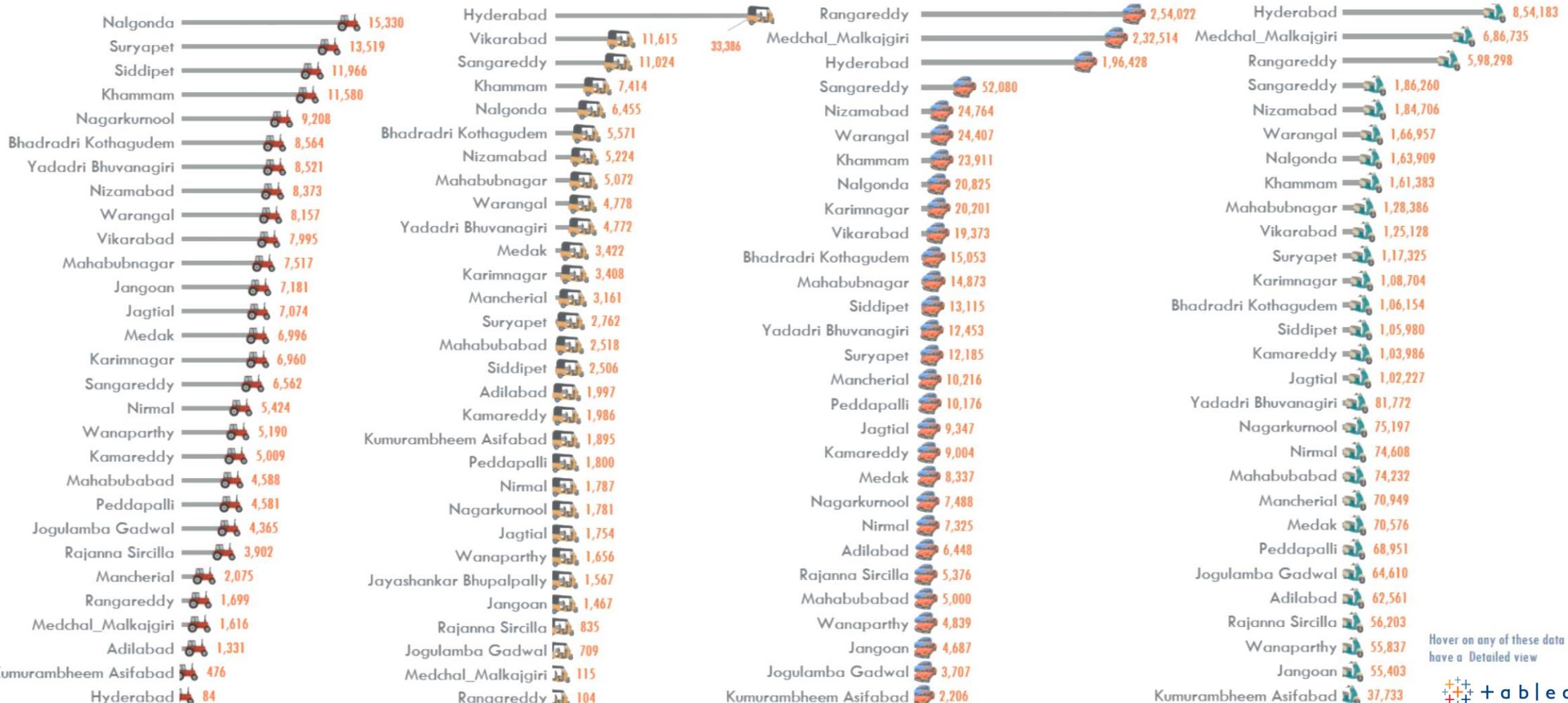
The 'Query results' section shows a table with the following data:

Row	districts	Year	vehicleClass_MotorCycle	vehicleClass_MotorCar	vehicleClass_AutoRickshaw	vehicleClass_Agriculture	vehicleClass_others
1	Hyderabad	2022	208465	52898	8618	32	15687
2	Medchal_Malkajgiri	2022	165042	63529	41	304	18345
3	Rangareddy	2022	153109	73532	45	441	19060
4	Sangareddy	2022	42257	14995	2575	1506	5035

At the bottom, there are links for 'PERSONAL HISTORY' and 'PROJECT HISTORY', and a 'REFRESH' button.

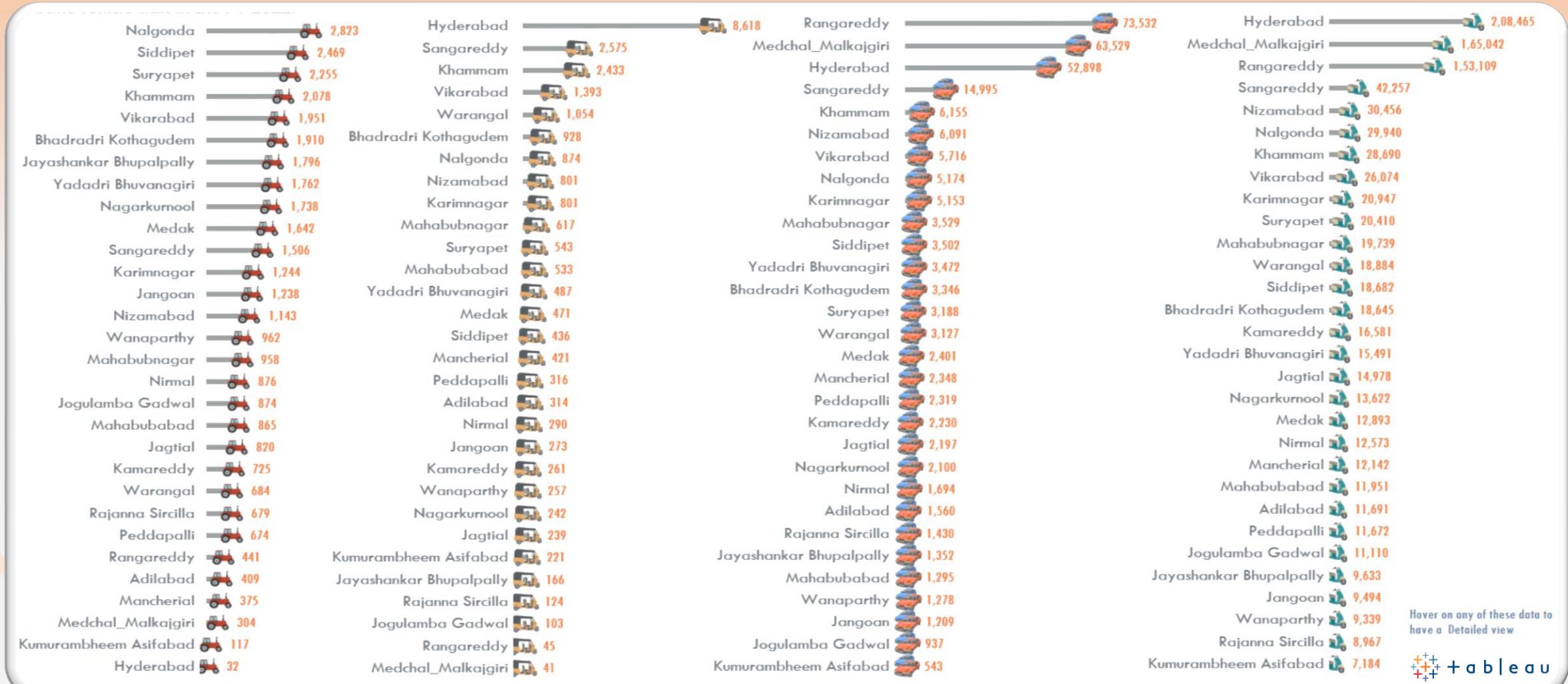
**Transportation Department**

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?



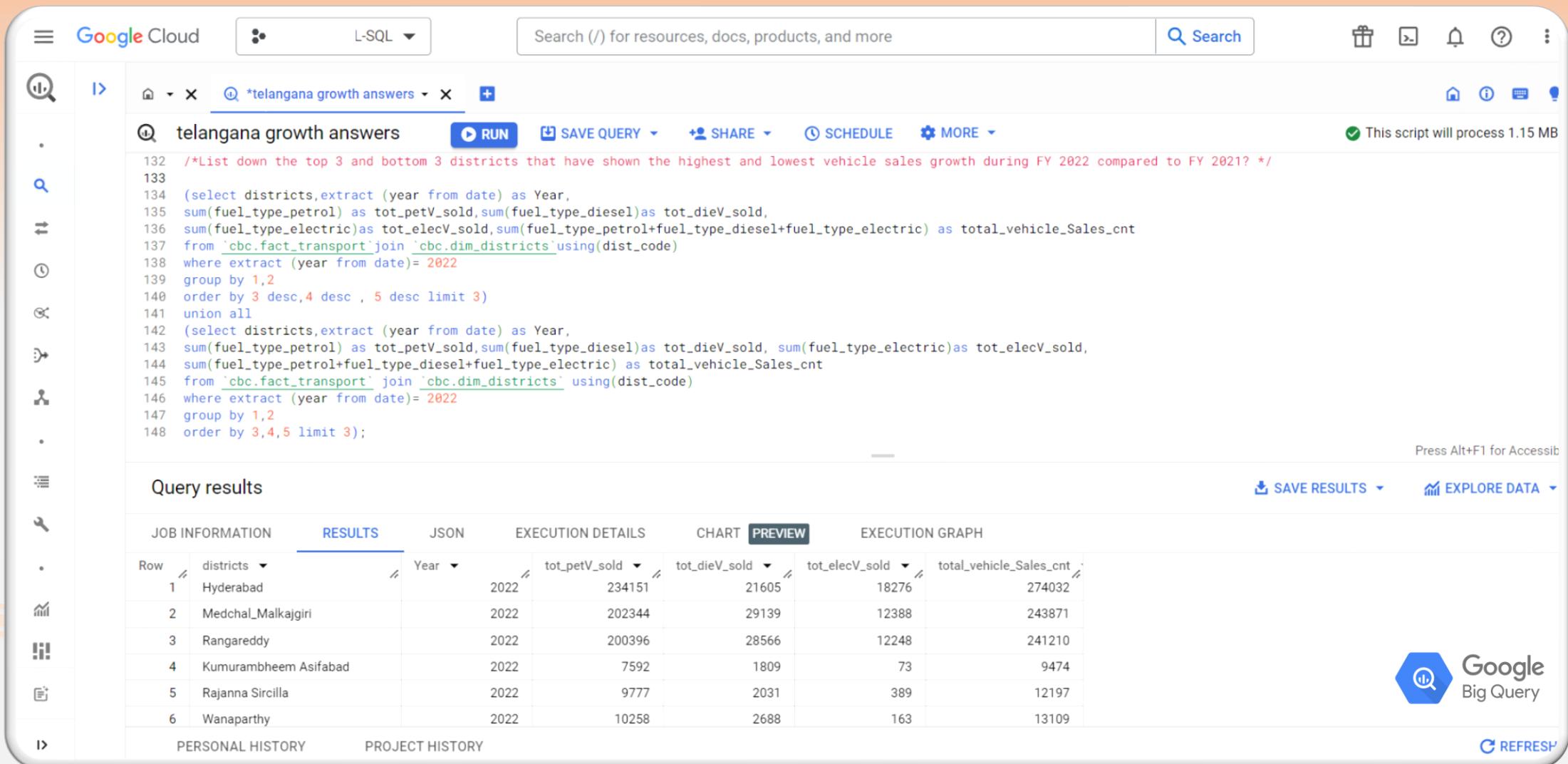
### Transportation Department

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 in the FY 2022 ?



## Transportation Department

7. List down the top 3 and bottom 3 districts that have shown the highest and lowest vehicle sales growth for the Fiscal Year 2021 & 2022?



The screenshot shows the Google Cloud BigQuery interface. The left sidebar has icons for navigation, search, and other tools. The main area shows a query titled "telangana growth answers". The query code is as follows:

```

132 /*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? */
133
134 (select districts,extract (year from date) as Year,
135 sum(fuel_type_petrol) as tot_petV_sold,sum(fuel_type_diesel)as tot_dieV_sold,
136 sum(fuel_type_electric)as tot_elecV_sold,sum(fuel_type_petrol+fuel_type_diesel+fuel_type_electric) as total_vehicle_Sales_cnt
137 from `cbc.fact_transport`join `cbc.dim_districts`using(dist_code)
138 where extract (year from date)= 2022
139 group by 1,2
140 order by 3 desc,4 desc , 5 desc limit 3)
141 union all
142 (select districts,extract (year from date) as Year,
143 sum(fuel_type_petrol) as tot_petV_sold,sum(fuel_type_diesel)as tot_dieV_sold, sum(fuel_type_electric)as tot_elecV_sold,
144 sum(fuel_type_petrol+fuel_type_diesel+fuel_type_electric) as total_vehicle_Sales_cnt
145 from `cbc.fact_transport` join `cbc.dim_districts` using(dist_code)
146 where extract (year from date)= 2022
147 group by 1,2
148 order by 3,4,5 limit 3);

```

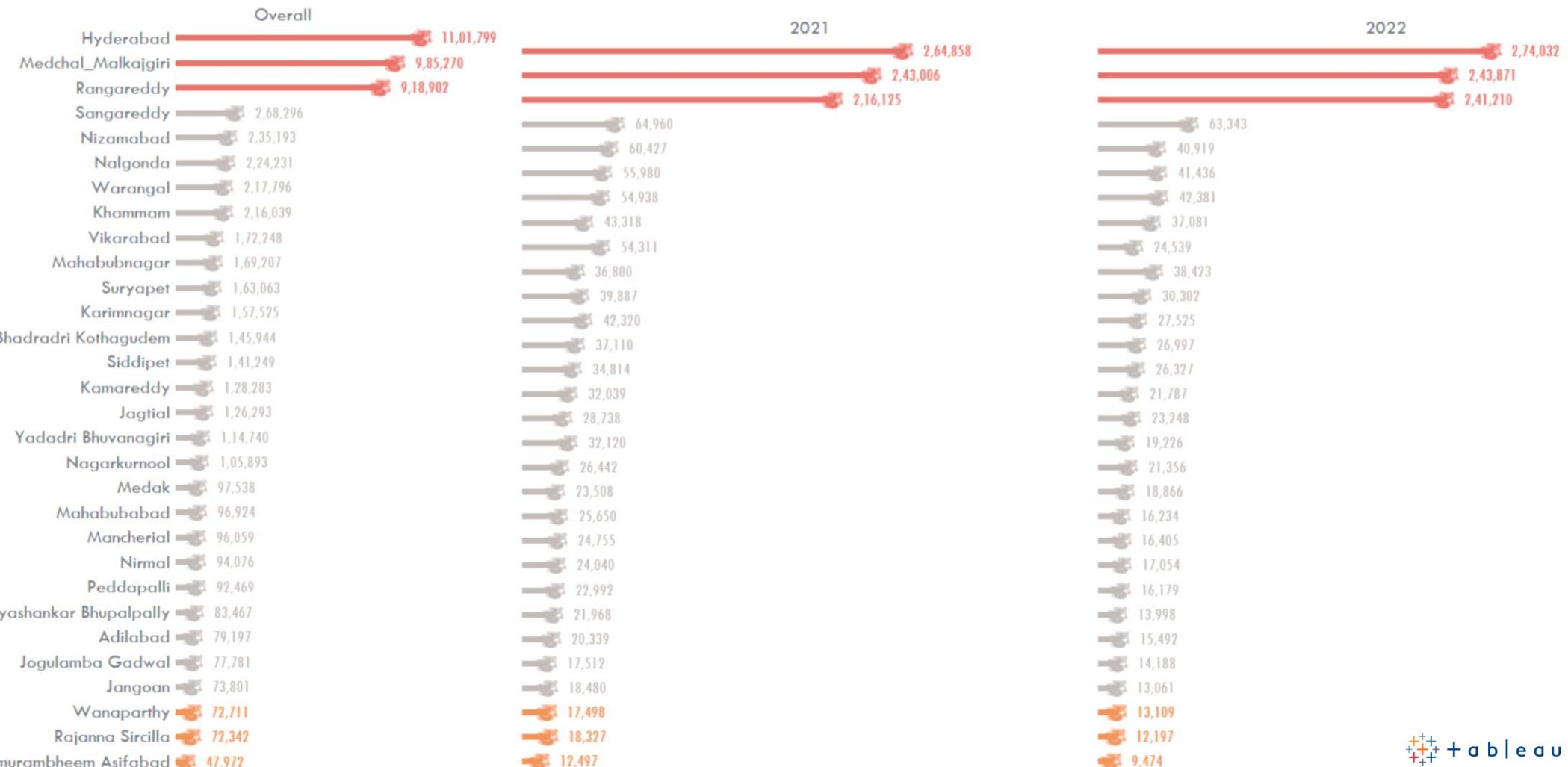
The "Query results" section displays the data in a table format:

Row	districts	Year	tot_petV_sold	tot_dieV_sold	tot_elecV_sold	total_vehicle_Sales_cnt
1	Hyderabad	2022	234151	21605	18276	274032
2	Medchal_Malkajgiri	2022	202344	29139	12388	243871
3	Rangareddy	2022	200396	28566	12248	241210
4	Kumurambheem Asifabad	2022	7592	1809	73	9474
5	Rajanna Sircilla	2022	9777	2031	389	12197
6	Wanaparthy	2022	10258	2688	163	13109

At the bottom right, there are "Google Big Query" and "REFRESH" buttons.

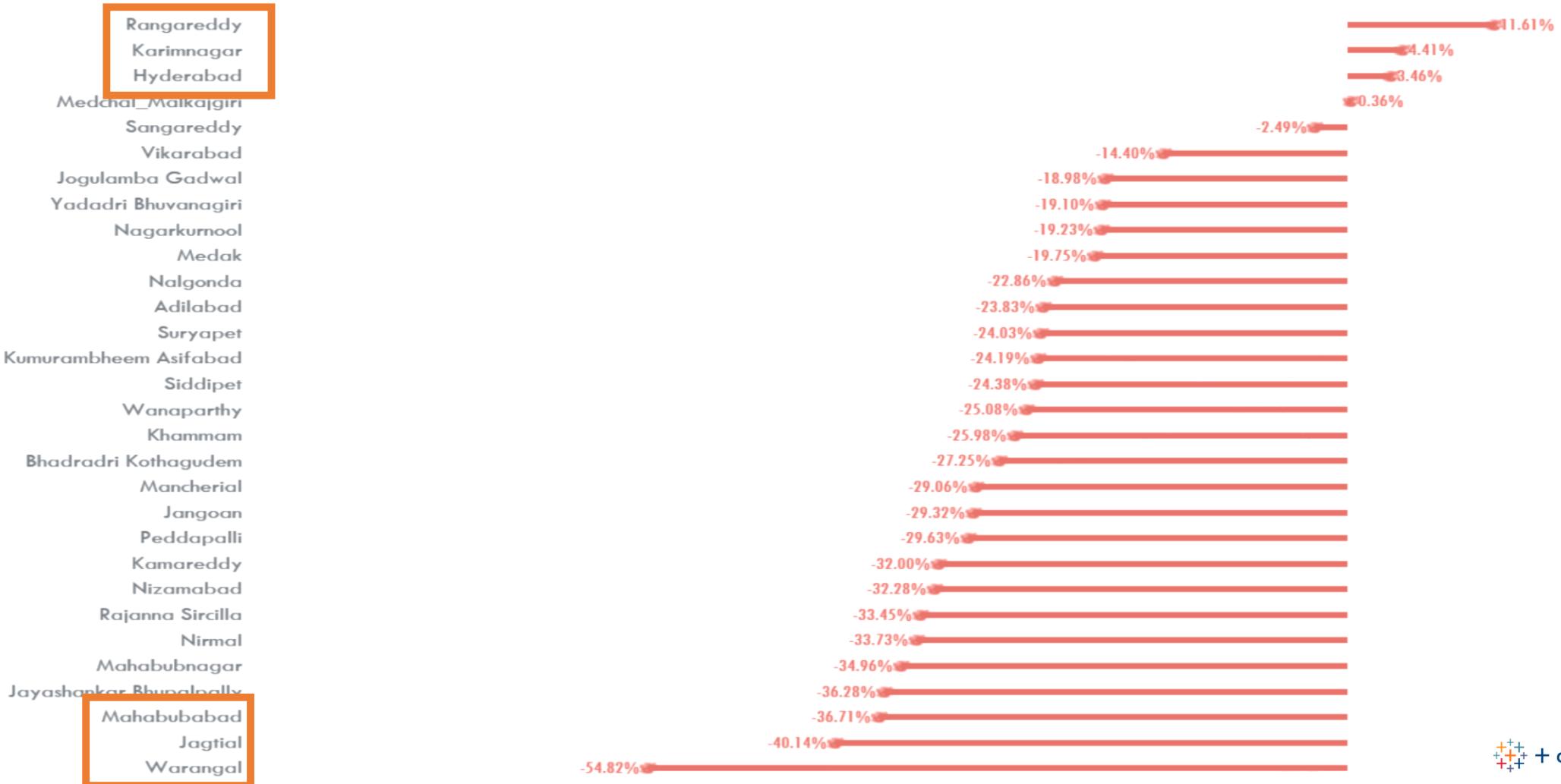
## Transportation Department

7. List down the top 3 and bottom 3 districts that have shown the highest and lowest vehicle sales growth for the Fiscal Year 2021 & 2022?



**Transportation Department**

7. List down the top 3 and bottom 3 districts that have shown the highest and lowest vehicle sales growth for the Fiscal Year 2021 & 2022?



## Transportation Department: → Insights from the Data of the Transportation department.

### The Correlation between vehicle sales and specific months or seasons in different districts:

A weak correlation was found between vehicle sales and specific months or seasons in different districts. However, there were some months and seasons that consistently showed higher or lower sales rates and we could see a pattern of seasonality and cyclical during October, November months as they show a consistent sales numbers across the span of years.

The distribution of vehicles varies significantly by vehicle class across different districts. For instance, in the vehicle class of motorcycles, the district of Hyderabad has the highest number of vehicles, followed by the districts of Rangareddy and Medchal-Malkajgiri. This is because these districts are more urbanized and have a higher population density. In contrast, the district of Adilabad has the lowest number of motorcycles, followed by the districts of Karimnagar and Warangal. This is because these districts are more rural and have a lower population density.

### Distribution of vehicles:

The distribution of vehicles also varies by vehicle class within a district. For example, in the district of Hyderabad, the vehicle class of motor cars has the highest number of vehicles, followed by the vehicle class of auto rickshaws. This is because motor cars are more popular among the upper and middle classes, while auto rickshaws are more popular among the lower classes.

### Districts shows High vehicle sales growth due to:

- \* The increasing population and urbanization
- \* The growing economy
- \* The increasing disposable income of the people

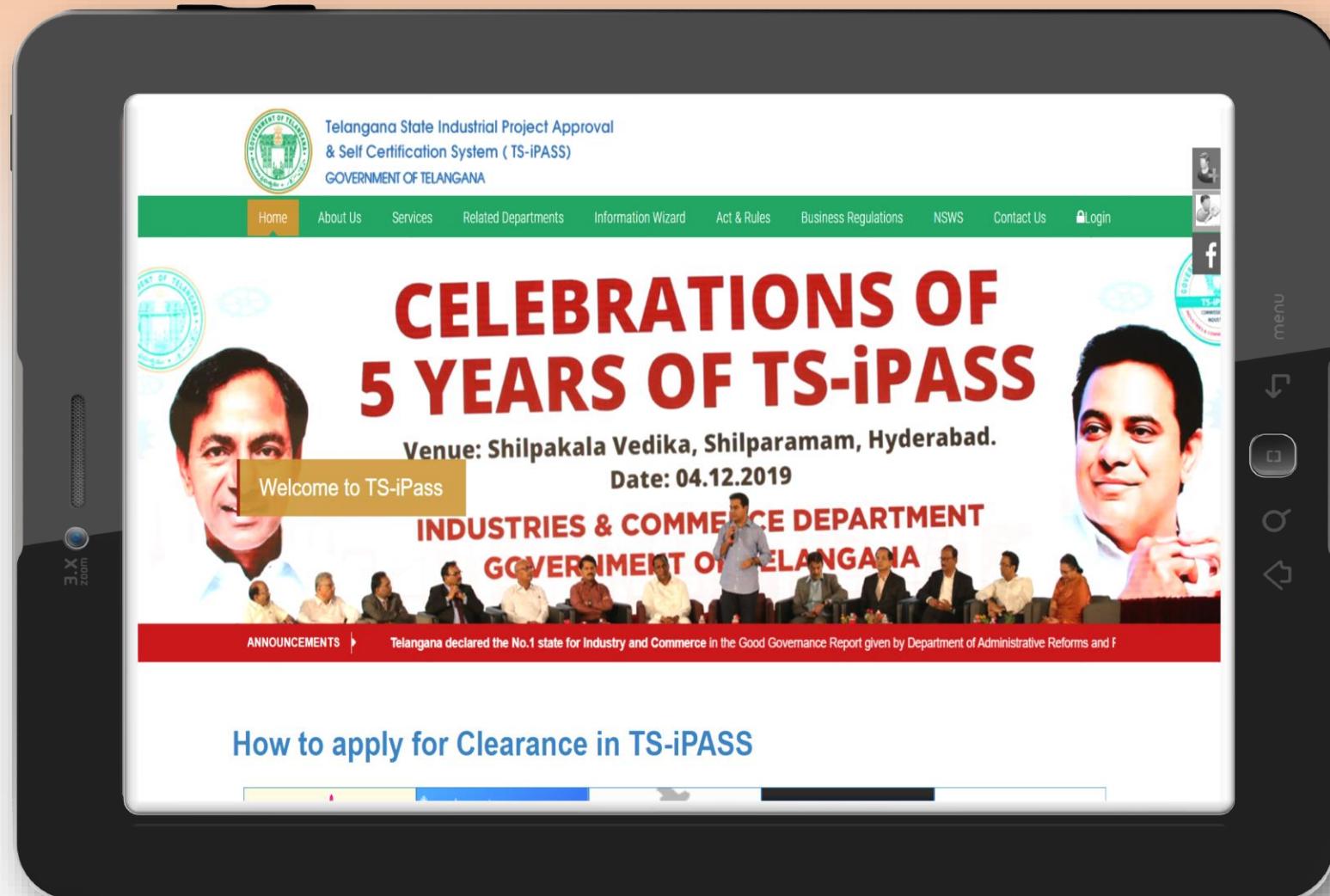
### Districts shows low vehicle sales growth due to:

- \* The lower population and urbanization
- \* The slower growing economy
- \* The lower disposable income of the people
- \* The lack of infrastructure

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## TS-iPass (Telangana State Industrial Project Approval and Self Certification System) Department



The smartphone screen shows the official website of the Telangana State Industrial Project Approval & Self Certification System (TS-iPASS). The header includes the Government of Telangana logo and navigation links for Home, About Us, Services, Related Departments, Information Wizard, Act & Rules, Business Regulations, NSWS, Contact Us, and Login. A sidebar on the right features social media icons for YouTube, Facebook, and Twitter, along with a menu icon.

**CELEBRATIONS OF 5 YEARS OF TS-iPASS**

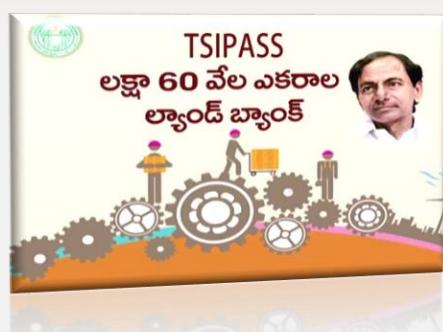
Venue: Shilpakala Vedika, Shilparamam, Hyderabad.  
Date: 04.12.2019

INDUSTRIES & COMMERCE DEPARTMENT  
GOVERNMENT OF TELANGANA

How to apply for Clearance in TS-iPASS

ANNOUNCEMENTS

Telangana declared the No.1 state for industry and Commerce in the Good Governance Report given by Department of Administrative Reforms and F



## Ts-Ipass Department

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

The screenshot shows the Google Cloud Big Query interface. The left sidebar has icons for Home, Search, Data Catalog, ML, Data Studio, and Big Data. The main area shows a query titled "telangana growth answers". The query code is:

```
155 /*List down the top 5 sectors that have witnessed the most significant investments in FY 2022.*/
156
157 select*
158   sector,
159   round(sum(investment_in_cr),2) as Investment_in_crore
160 from `cbc.fact_TS_iPASS`
161 group by sector
162 order by Investment_in_crore desc;
163
```

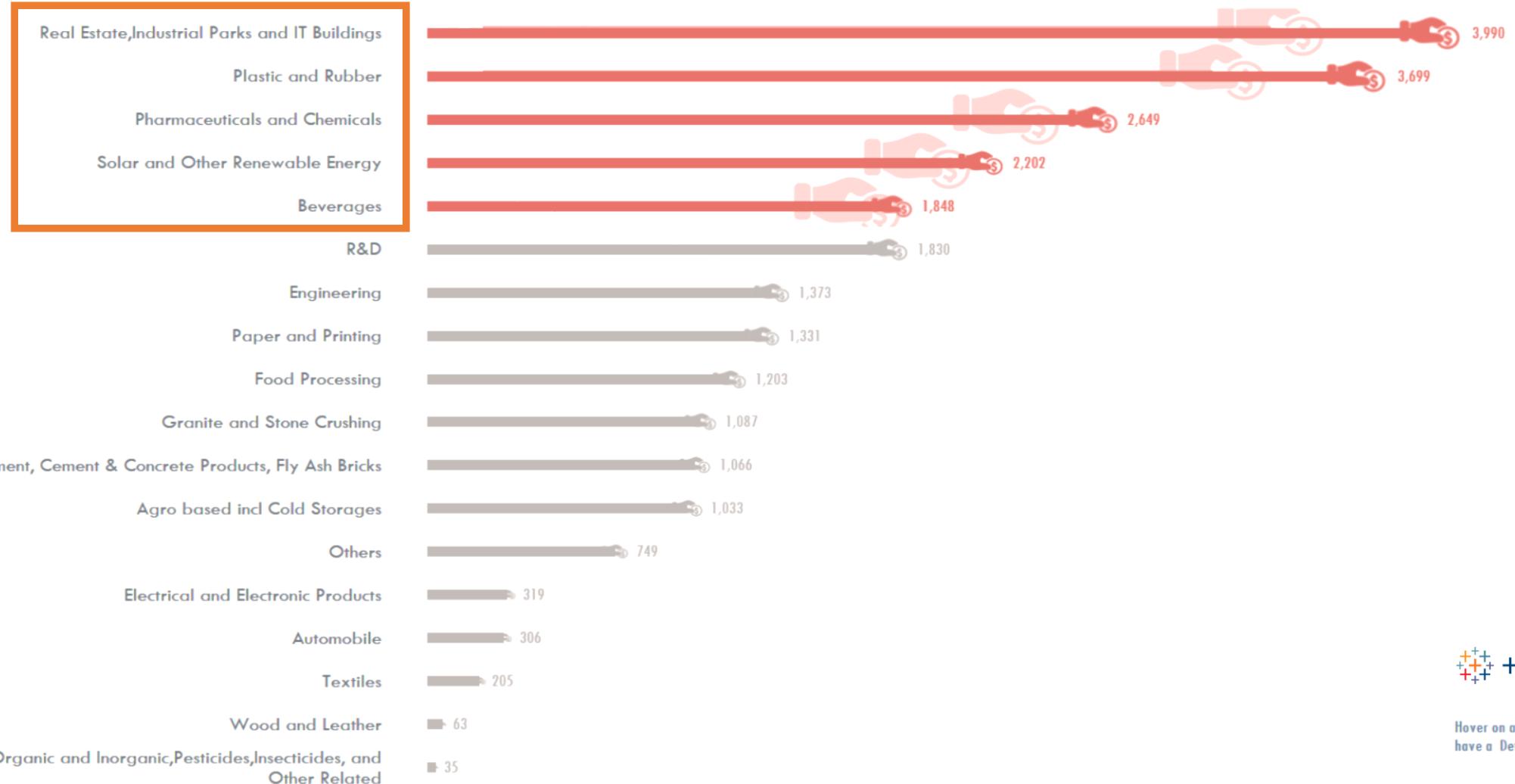
The "Query results" section displays the following data:

Row	sector	Investment_in_crore
1	Real Estate,Industrial Parks an...	29778.17
2	Pharmaceuticals and Chemicals	15858.06
3	Plastic and Rubber	9649.78
4	Solar and Other Renewable Ene...	5639.7
5	Fertilizers Organic and Inorganic,Pesticides,Insecticid...	5418.4
6	Engineering	5024.61
7	Food Processing	4115.91

At the bottom right, there is a "Google Big Query" logo.

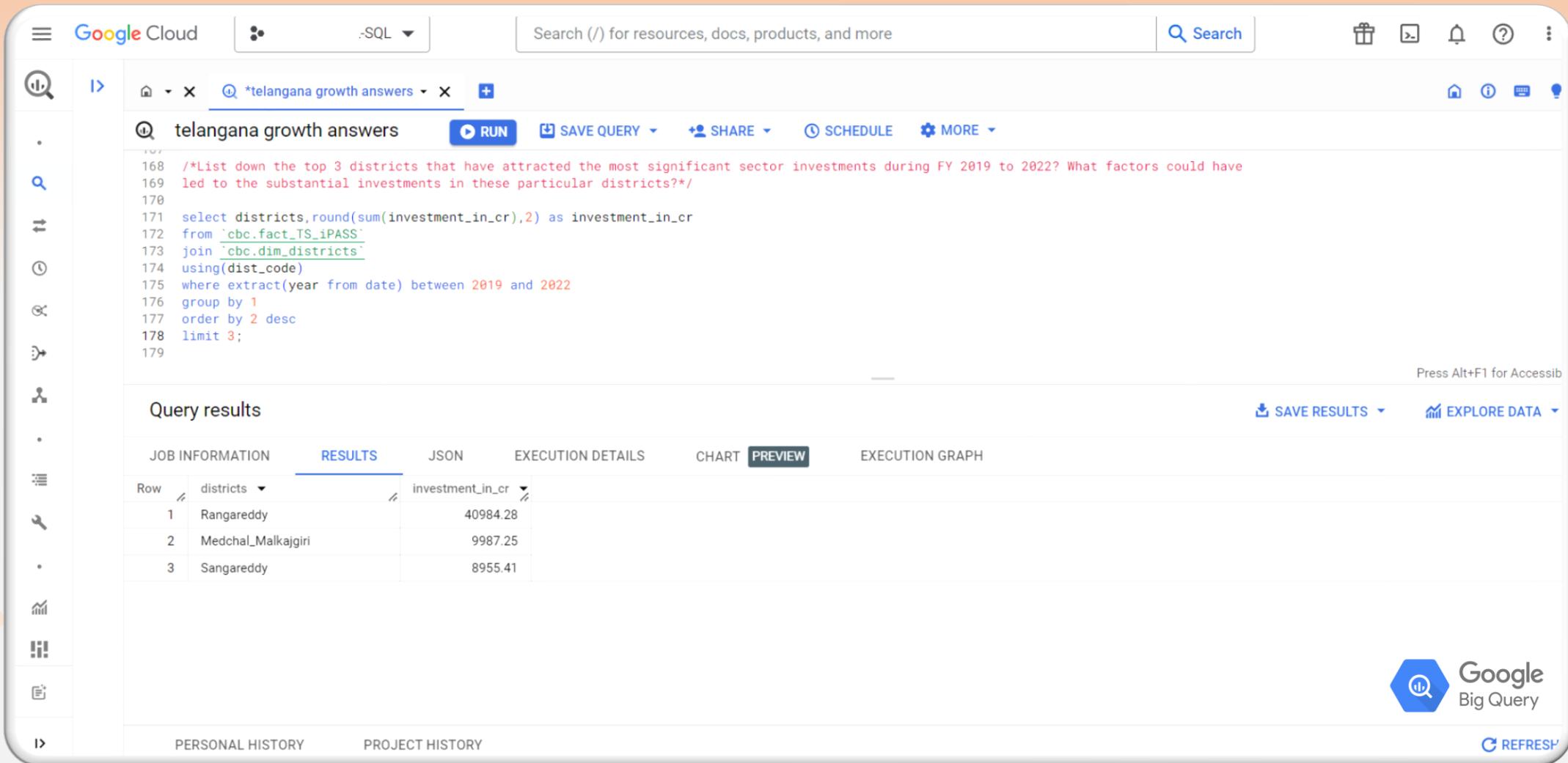
## Ts-Ipass Department

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



**Ts-Ipass Department**

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?



The screenshot shows the Google Cloud Big Query interface. The query is:

```
168 /*List down the top 3 districts that have attracted the most significant sector investments during FY 2019 to 2022? What factors could have
169 led to the substantial investments in these particular districts?*/
170
171 select districts,round(sum(investment_in_cr),2) as investment_in_cr
172 from `cbc.fact_TS_ipass`
173 join `cbc.dim_districts`
174 using(dist_code)
175 where extract(year from date) between 2019 and 2022
176 group by 1
177 order by 2 desc
178 limit 3;
179
```

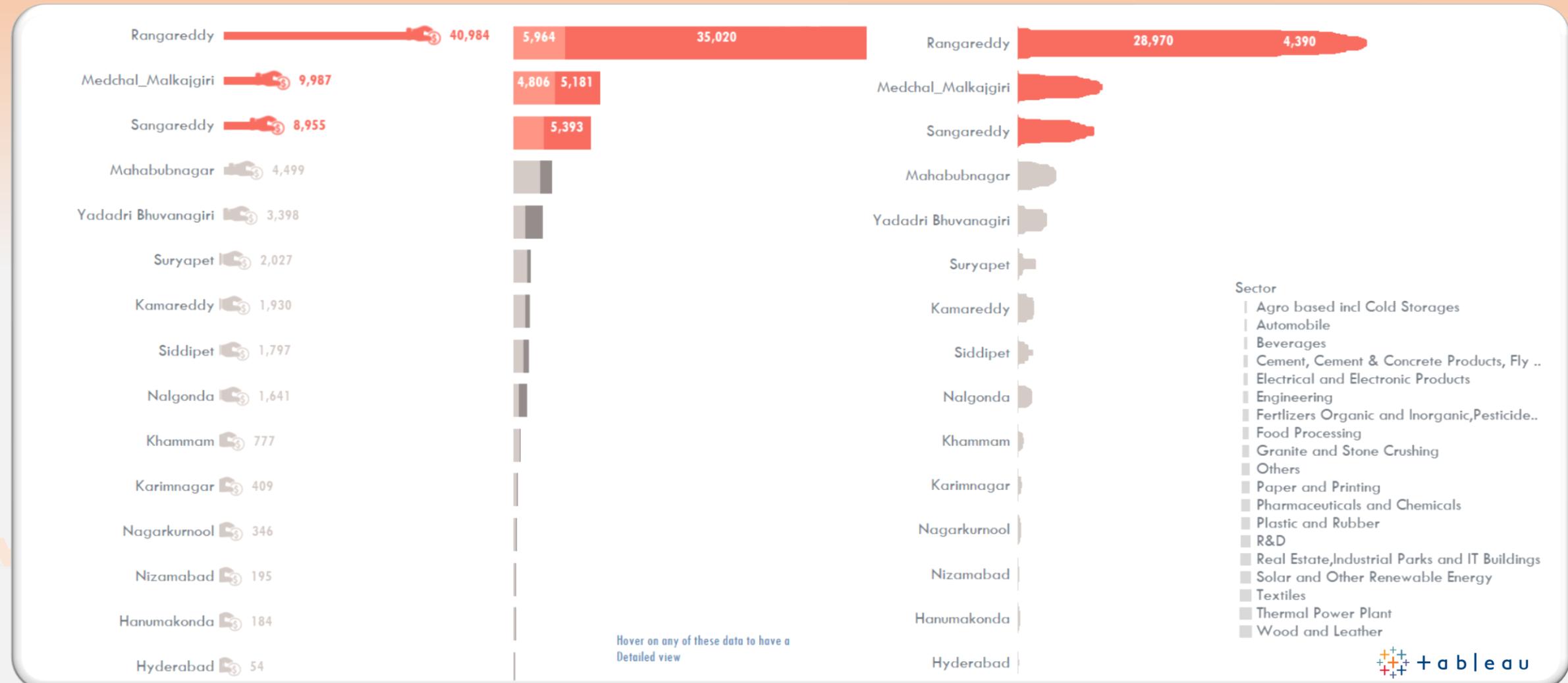
The results table shows the following data:

Row	districts	investment_in_cr
1	Rangareddy	40984.28
2	Medchal_Malkajgiri	9987.25
3	Sangareddy	8955.41

Google Big Query logo

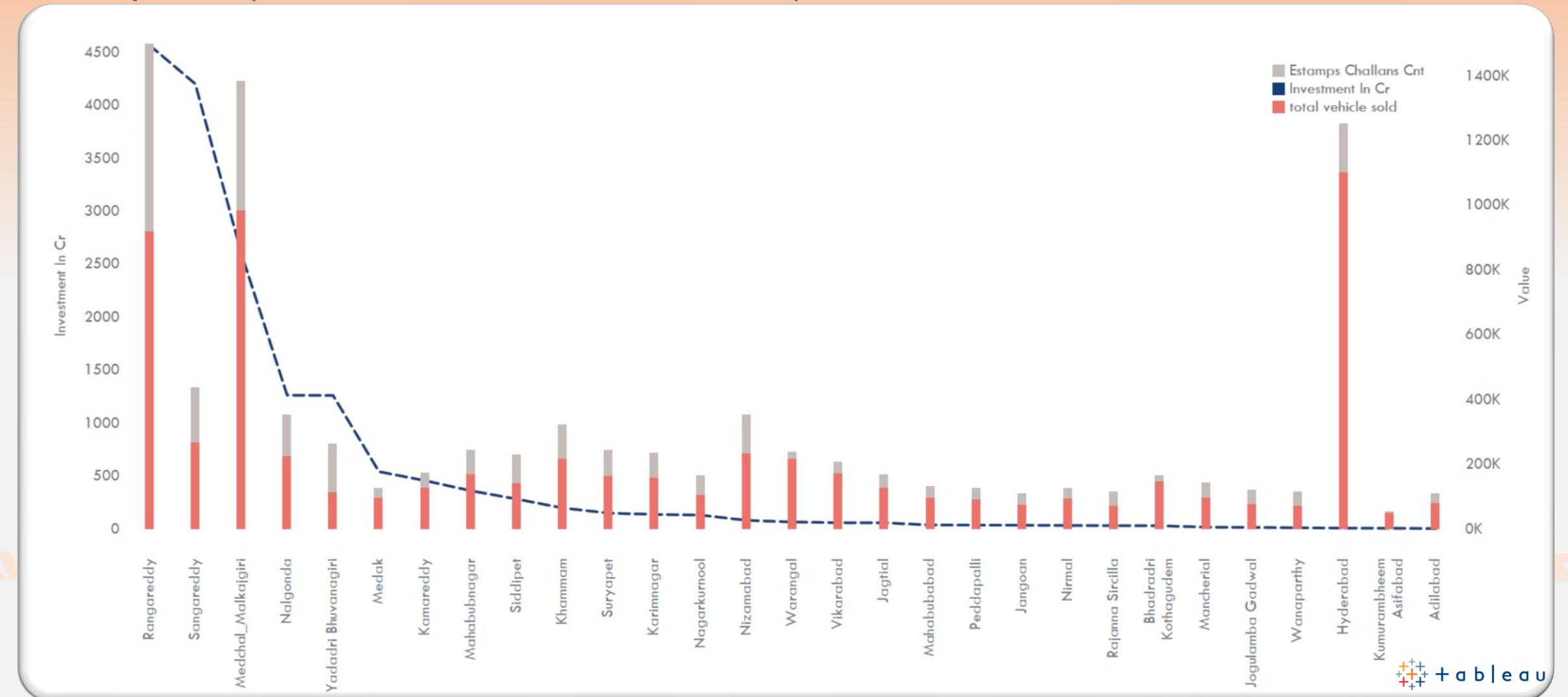
### Ts-Ipass Department

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?



**Ts-Ipass Department**

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



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## Exploring Departments

### Ts-Ipass Department

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

The screenshot shows the Google Cloud BigQuery interface. On the left is a sidebar with various icons. The main area has a header bar with "Google Cloud", a search bar, and a "Search" button. Below the header is a tab labeled "telangana growth answers". The main content area displays a SQL query:

```
205
206 /*are there any particular sectors that have shown substantial investment in multiple districts between FY 2021 and 2022?*/
207
208 with cte as
209 (
210 select dist_code,sector,sum(investment_in_cr) as investment
211 from `cbc.fact_TS_IPASS`
212 where extract(year from date)between 2021 and 2022
213 group by 1,2
214 )
215 select sector,round(sum(investment),2) as Investment_in_Cr
216 from cte
217 join `cbc.dim_districts`
218 using(dist_code)
219 group by 1
220 order by 2 desc,2;
```

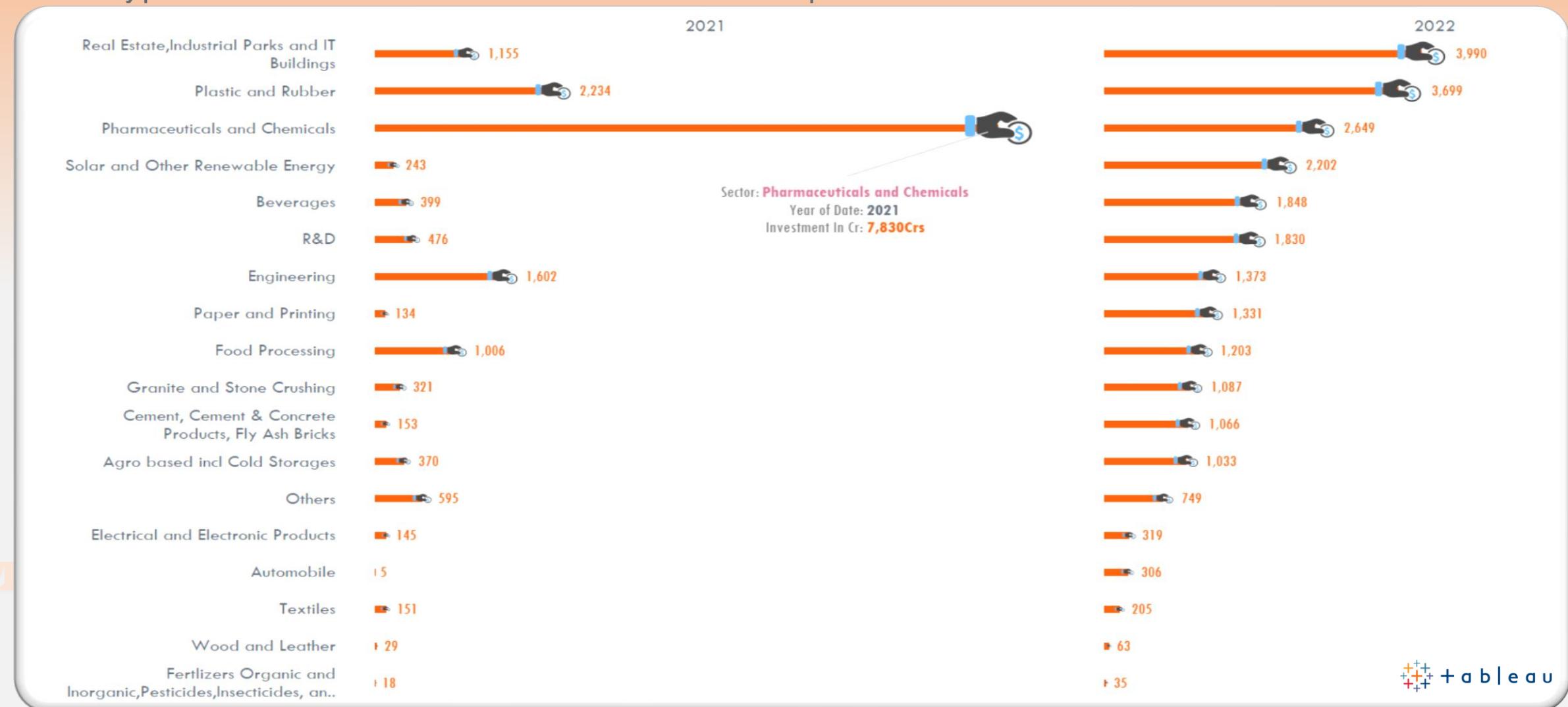
Below the query is a "Query results" section. It includes tabs for "JOB INFORMATION", "RESULTS", "JSON", "EXECUTION DETAILS", "CHART", "PREVIEW" (which is selected), and "EXECUTION GRAPH". The "RESULTS" tab shows a table with the following data:

Row	sector	Investment_in_Cr
1	Pharmaceuticals and Chemicals	10479.17
2	Plastic and Rubber	5933.55
3	Real Estate,Industrial Parks an...	5145.73
4	Engineering	2974.48
5	Solar and Other Renewable Ene...	2444.35

On the right side of the results table, there are buttons for "SAVE RESULTS" and "EXPLORE DATA". At the bottom right, there is a "Google Big Query" logo. The footer of the page includes links for "PERSONAL HISTORY" and "PROJECT HISTORY", and a "REFRESH" button.

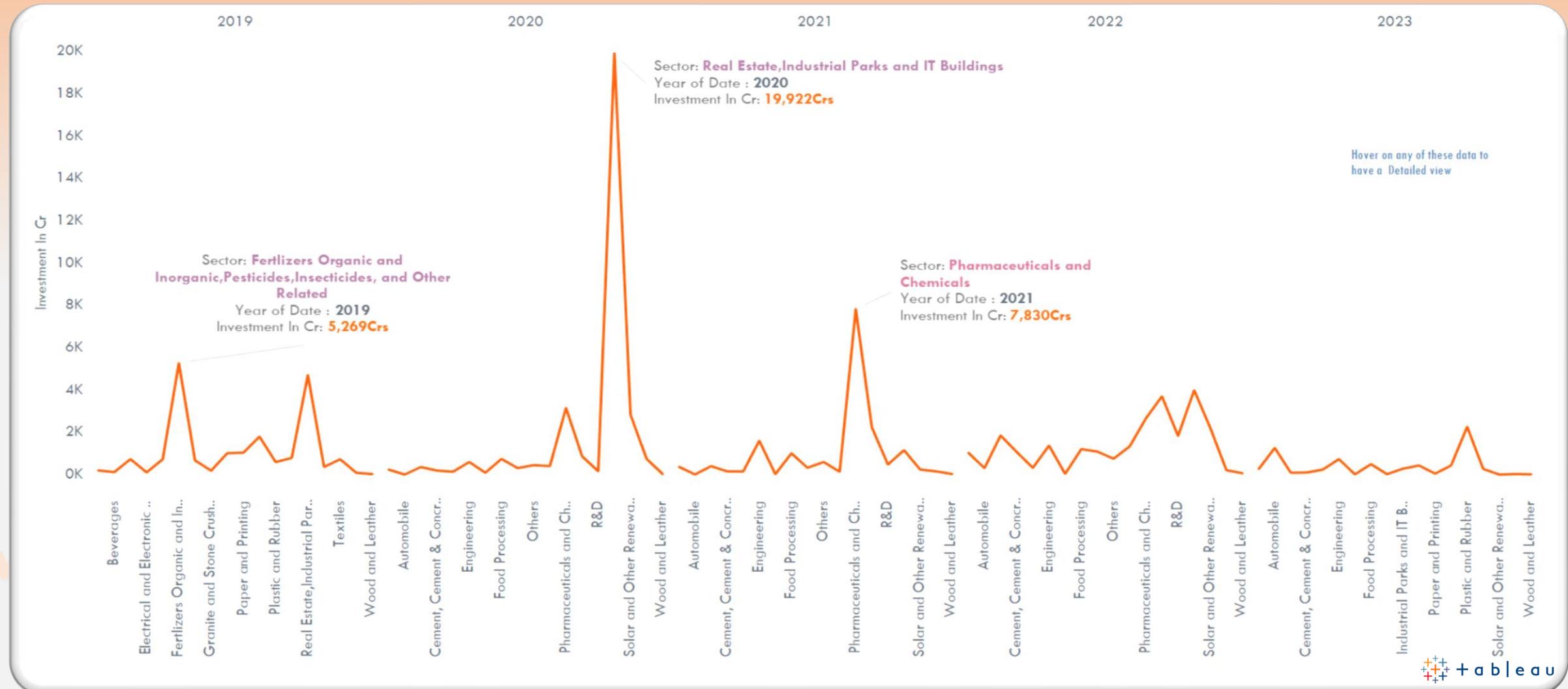
### Ts-Ipass Department

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



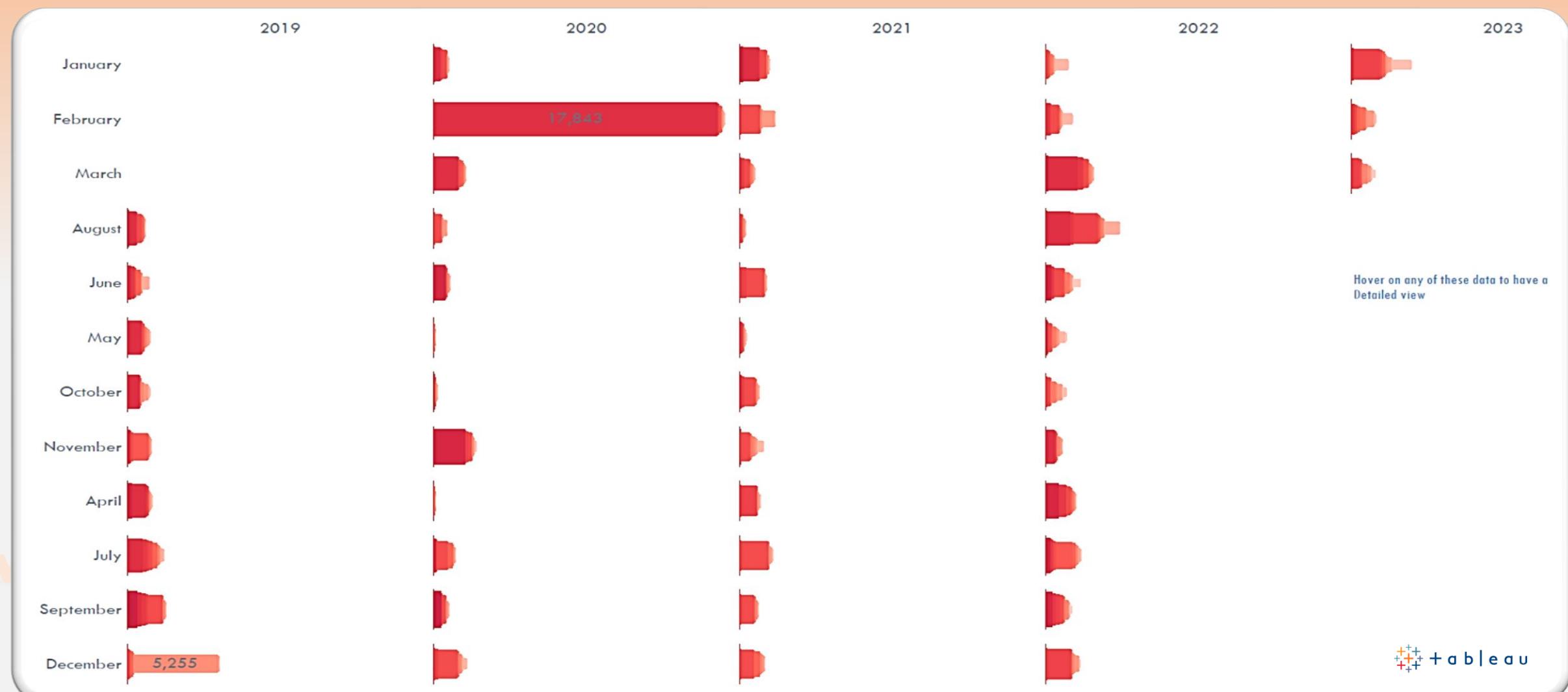
### Ts-Ipass Department

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 Department**

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?



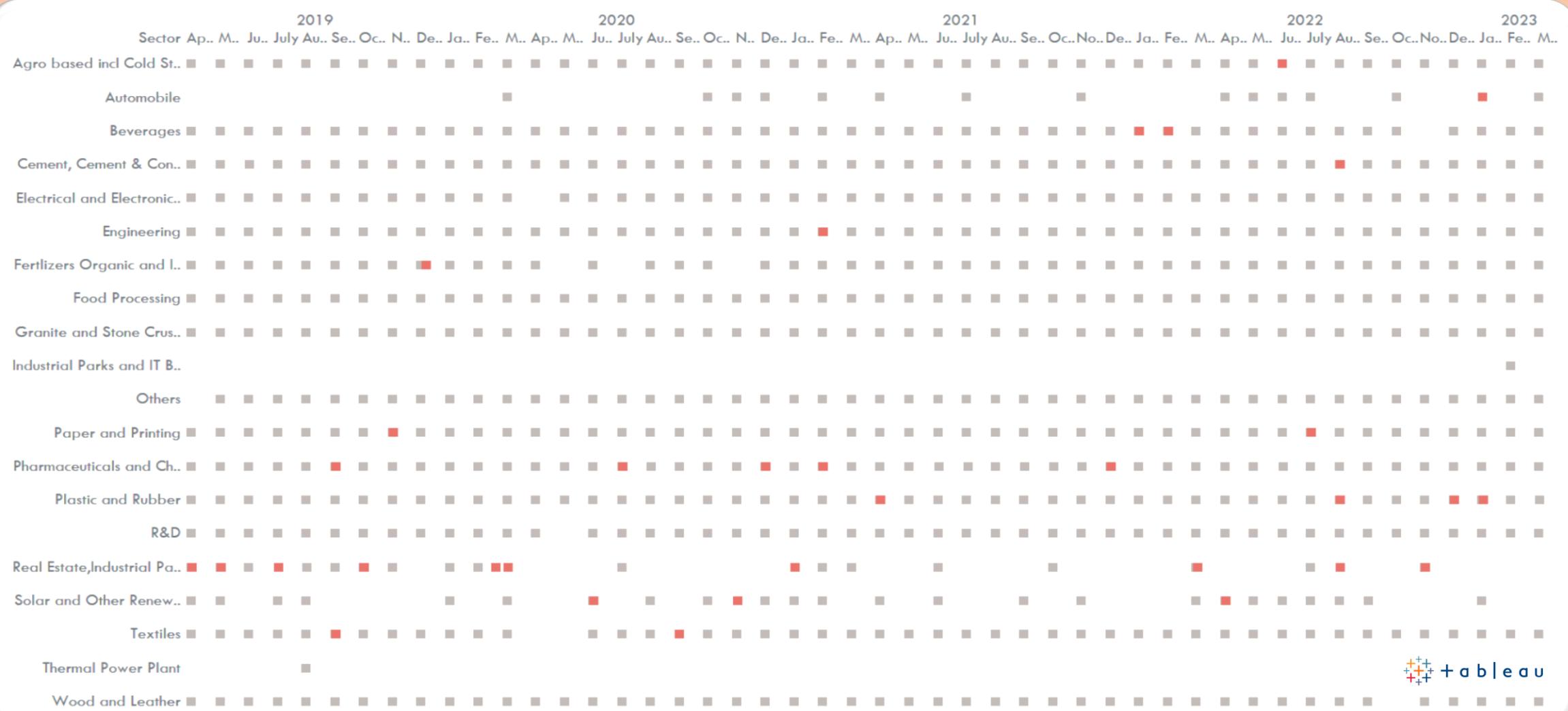


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# Exploring Departments

Ts-Ipass Department

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



## TS-iPass : (Telangana State Industrial Project Approval and Self Certification System) → Insights

Top sectors that have witnessed and attracted the most significant investments in FY 2022 is due to variety of factors influenced by :

- The growing economy of Telangana and the government's pro-investment policies.
- The government's incentives for investors.
- The government's focus on promoting industrial development & The proximity to the national and international markets.
- The availability of land and The favorable business environment.
- The ease availability of IT services, Manufacturing, Infrastructure, Logistics, Renewable energy(solar and wind power - sector).
- The presence of major industrial clusters and skilled manpower.

Relationship between district investments, vehicles sales and stamps revenue in FY 2021 and 2022 :

We can say, There is a weak positive relationship between district investments, vehicles sales, and stamps revenue within the same district between FY 2021 and 2022. This means that districts with higher investments tend to have higher vehicle sales and stamps revenue. This is because investments lead to economic growth, which in turn leads to an increase in demand for vehicles and stamps.

Sectors that shows substantial investment in multiple districts between FY 2021 and 2022 :

Yes, there are a few sectors that have shown substantial investment in multiple districts between FY 2021 and 2022. These sectors are considered to be sunrise sectors and are expected to grow rapidly in the coming years. As a result, they are attracting investments from both domestic and foreign investors.

Seasonal patterns or cyclical in the investment trends for specific sectors? Do certain sectors experience higher investments during particular months?

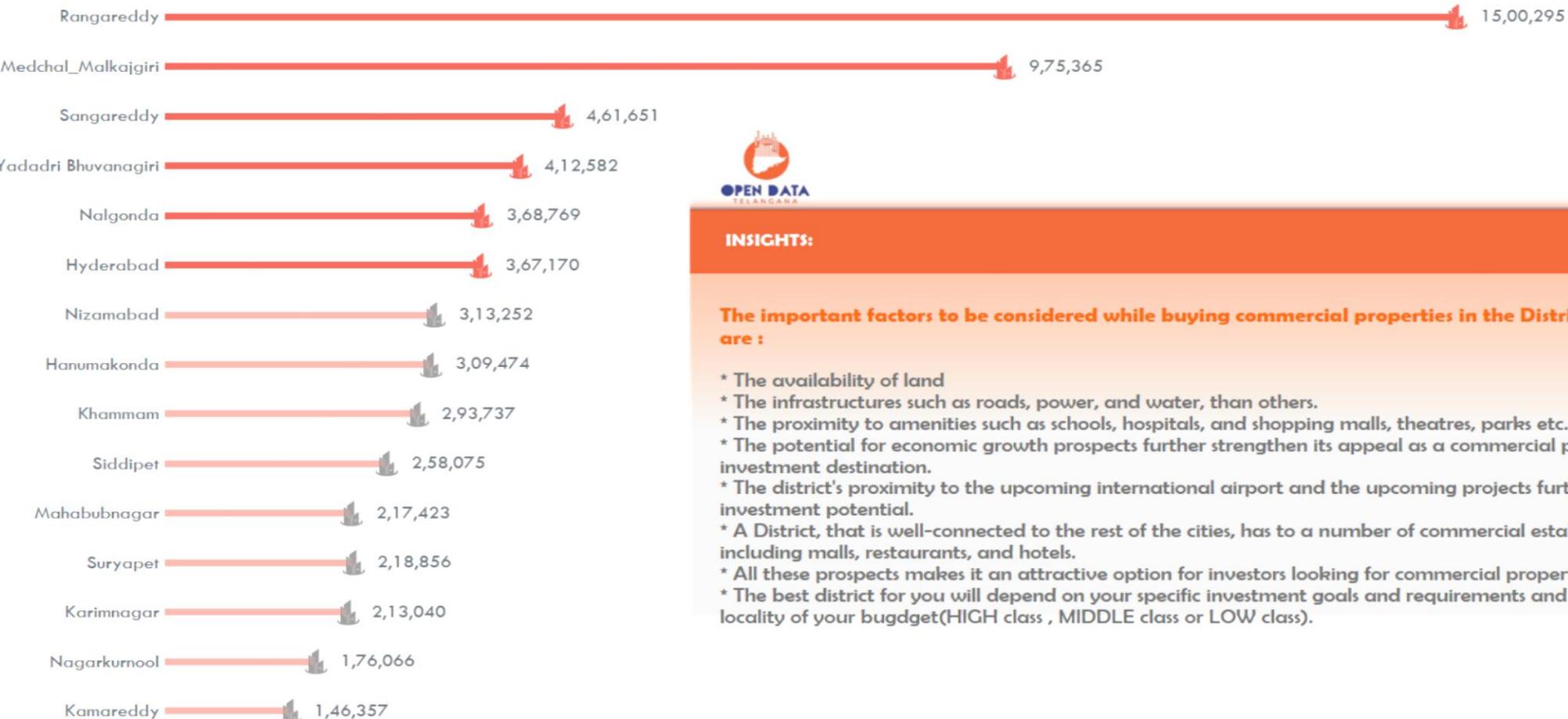
Yes ofcourse, there are some seasonal patterns and cyclical in the investment trends for specific sectors. For example, the automobile sector tends to experience higher investments during the festive seasons, such as Diwali and Pongal. The construction sector also tends to experience higher investments during the summer months, when there is less rainfall .The IT sector typically experiences higher investments during the months of October to December, as this is the time when the companies start their annual budgeting process. The manufacturing sector, on the other hand, typically experiences higher investments during the months of January to March, as this is the time when the companies start their new financial year.

However, there are also some sectors that do not follow any particular seasonal patterns. They receive investments all over the year based on the demand.

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## Additional Research:

1. What are the top 5 districts based on total registration count to buy commercial properties in Telangana?



### INSIGHTS:

The important factors to be considered while buying commercial properties in the Districts of Telangana are :

- \* The availability of land
- \* The infrastructures such as roads, power, and water, than others.
- \* The proximity to amenities such as schools, hospitals, and shopping malls, theatres, parks etc.
- \* The potential for economic growth prospects further strengthen its appeal as a commercial property investment destination.
- \* The district's proximity to the upcoming international airport and the upcoming projects further boost its investment potential.
- \* A District, that is well-connected to the rest of the cities, has a number of commercial establishments, including malls, restaurants, and hotels.
- \* All these prospects makes it an attractive option for investors looking for commercial properties in the vicinity.
- \* The best district for you will depend on your specific investment goals and requirements and also based on the locality of your budget(HIGH class , MIDDLE class or LOW class).

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## Additional Research:

2. What significant policies or initiatives were put into effect to enhance economic growth, investments, and employment in Telangana by the current government? Can we quantify the impact of these policies using available data?

### Policies for Economic Growth, Investments, and Employment in Telangana :

- ❑ Industrial Promotion : **TS-iPASS** streamlined industrial approvals to attract investment.
- ❑ Industrial Parks : **ITIR** (Information Technology & investment Region) and **Pharma City** aimed to attract IT and pharma investments.
- ❑ Innovation Support : **TSIC** (Telangana State Innovation Cell) and T-Hub supported startups and innovation.
- ❑ Startup Assistance : Idea to Market (**I2M**) aided startups from ideation to market entry.
- ❑ Textile and Food : Policy focused on boosting the textile industry for job creation and focused on food processing tech.
- ❑ Rural Employment : **TREGS** (Telangana Rural Employment Guarantee Scheme) provided rural job opportunities.
- ❑ Infrastructure Projects : **Mission Bhagiratha** and **Kakatiya** addressed water and irrigation needs, generating rural employment.

*It is difficult to quantify with the available data, But there is no doubt that "**TELANGANA**" is one of the youngest and Fastest growing states in India.*

### Challenges in Quantifying Impact :

- ✓ Policies may take years to show full effect. Economic growth influenced by various external factors.
- ✓ Reliable data on economic indicators and investments is essential.
- ✓ Comparing actual outcomes with policy absence is complex.
- ✓ Policies may have indirect and long-term effects, creating feedback loops.

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The Government of Telangana has implemented a number of significant policies and initiatives to enhance economic growth, investments, and employment in the state such as:

**TS-iPASS:** The Telangana State Industrial Project Approval and Self-Certification System is a single-window clearance system that was introduced to simplify the process of setting up industries in the state. This has made it easier for investors to set up businesses in Telangana, which has led to increased investments and employment.

**Investment Promotion Policy:** The Telangana Investment Promotion Policy is a policy that was introduced to attract investments to the state. The policy offers a number of incentives to investors, such as tax breaks, subsidies, and land allotment. This has helped to attract investments from both domestic and foreign investors.

**Skill Development Programs:** The Telangana government has launched a number of skill development programs to train the workforce in the state. These programs have helped to create a skilled workforce, which has made the state more attractive to investors.

**Infrastructure Development:** The Telangana government has invested heavily in infrastructure development. This has included the construction of roads, railways, airports, and power plants. This has improved the connectivity and the ease of doing business in the state, which has attracted investments and created jobs.

The impact of these policies and initiatives can be quantified using the available data:

Lets say , the Telangana government has set a target of attracting Rs400 billion in investments in the next five years.

The government has also set a target of creating 1 million jobs in the next five years.

If the government is able to achieve these targets, it will be a significant achievement and will demonstrate the success of the policies that have been put into place.

These initiatives are aimed at creating a conducive environment for businesses to operate in Telangana and to attract investments and create jobs. The government is committed to making Telangana a leading state in the country in terms of economic growth and development.

## Foresights for Sustained Growth in Telangana's Economy :

- Telangana has a strong foundation for sustained growth. The state has a young and growing population, a skilled workforce, and a favorable business environment.
- The state has made significant progress in recent years in attracting investments and creating jobs. In the last five years, the state has attracted over \$10 billion in investments and created around 5,63,762 jobs.
- The government has implemented a number of policies and initiatives to boost the economy. These include the TS-iPASS single-window clearance system, the Investment Promotion Policy, skill development programs, infrastructure development, and ease of doing business reforms.
- The state has also taken a number of initiatives to promote tourism, develop the agricultural sector, promote entrepreneurship, and promote innovation. These initiatives are aimed at creating a conducive environment for businesses to operate in Telangana and to attract investments and create jobs.
- The state is well-positioned to achieve its target of attracting \$25 billion in investments and creating 1 million jobs in the next five years. The state has the potential to become a major economic hub in the country.

### Recommendations to boost Telangana's Economy :

- ✓ The government should continue to implement the policies and initiatives that have been put in place to boost the economy. This includes the TS-iPASS single-window clearance system, the Investment Promotion Policy, skill development programs, infrastructure development, and ease of doing business reforms.
- ✓ The government should focus on attracting investments in the key sectors of the economy, such as IT, manufacturing, and tourism. These sectors have the potential to create the most jobs and generate the most revenue for the state.
- ✓ The government should invest in infrastructure development, particularly in roads, railways, and airports especially in the rural areas. This will improve the connectivity of the state and make it more attractive to investors and businesses.
- ✓ The government should improve the ease of doing business in the state by reducing the number of clearances required and simplifying the tax system. This will make it easier for businesses to operate in the state and create more jobs.
- ✓ The government should promote entrepreneurship and innovation by providing support to start-ups. This will help to create new businesses and to create a more dynamic and vibrant economy



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