Demographic Activity Analysis Report

1. Introduction

This report presents a detailed demographic activity analysis based on the processed dataset. The objective is to identify trends, regional patterns, and behavioral insights using visual analytics and statistical summaries.

2. Dataset Description & Structure

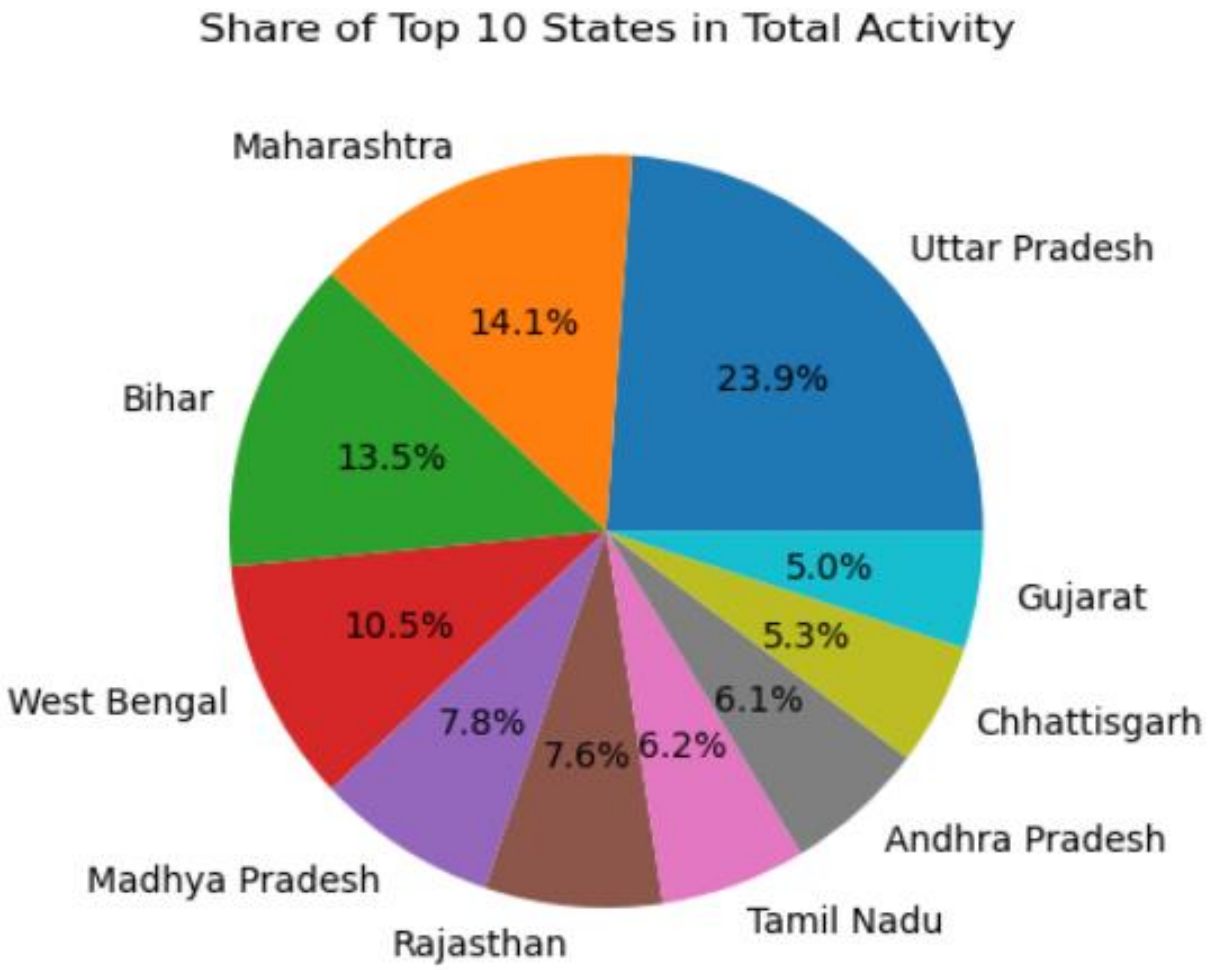
The dataset contains demographic update records categorized by state, district, pincode, age groups, and time (year and month). Derived features such as total activity, year, and month were created for deeper trend analysis.

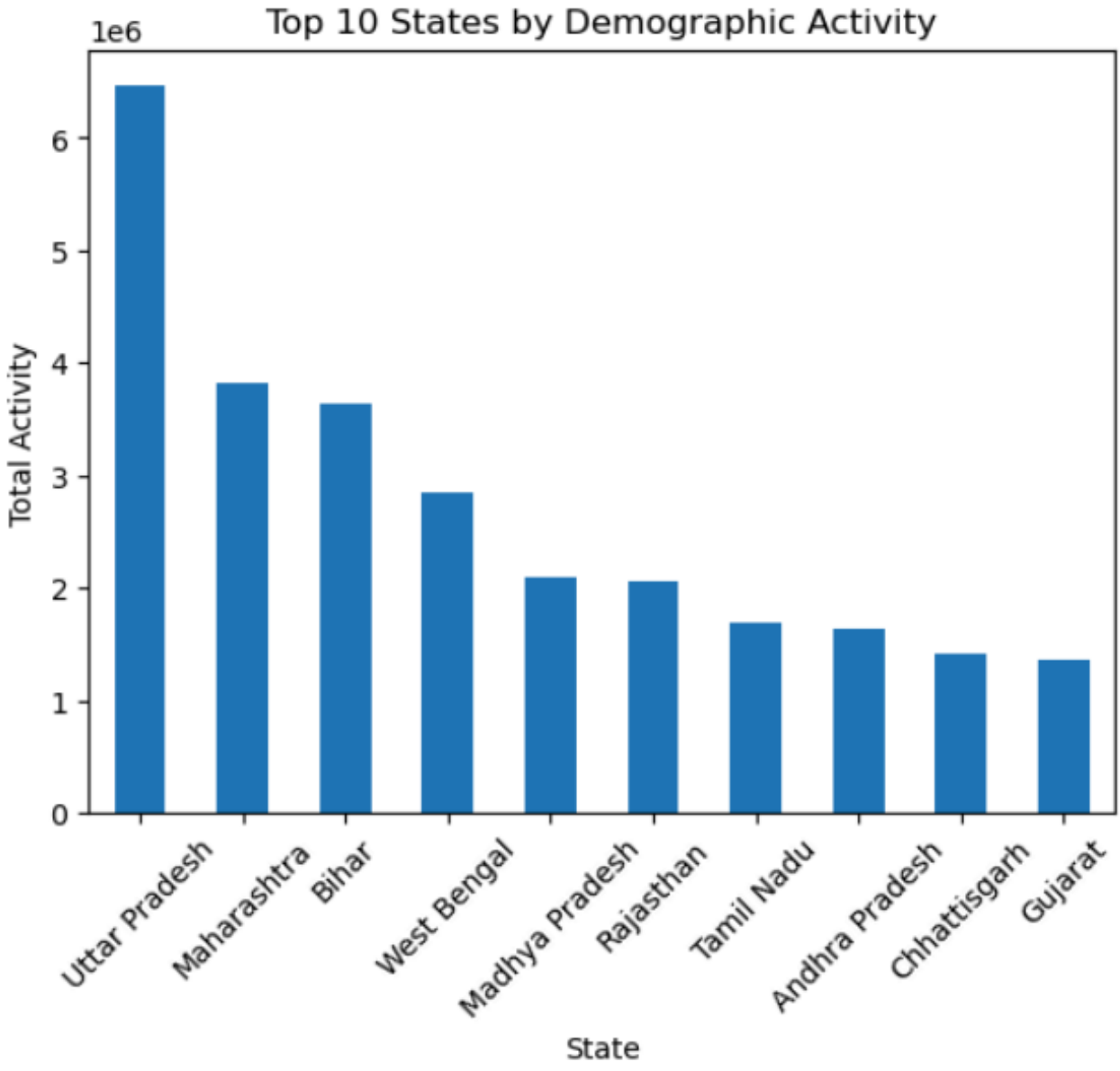
3. Data Cleaning Methodology

Data was cleaned by converting date columns into datetime format, handling missing values, standardizing state and district names, and creating derived columns like total activity, year, and month for trend analysis.

4. State-wise Activity Distribution

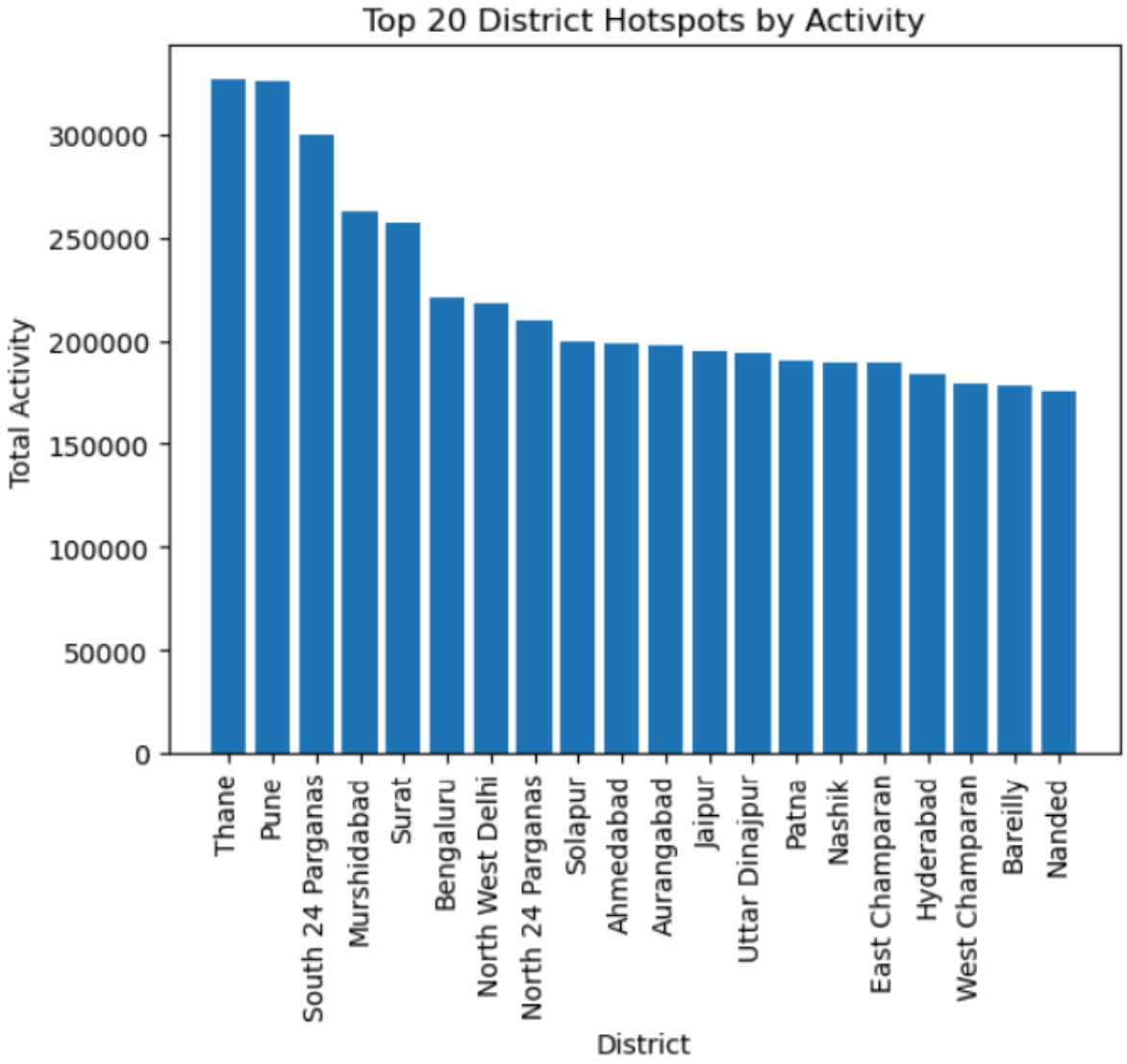
Bar charts and pie charts were used to visualize the top contributing states. Uttar Pradesh, Maharashtra, and Bihar were observed as the highest contributors

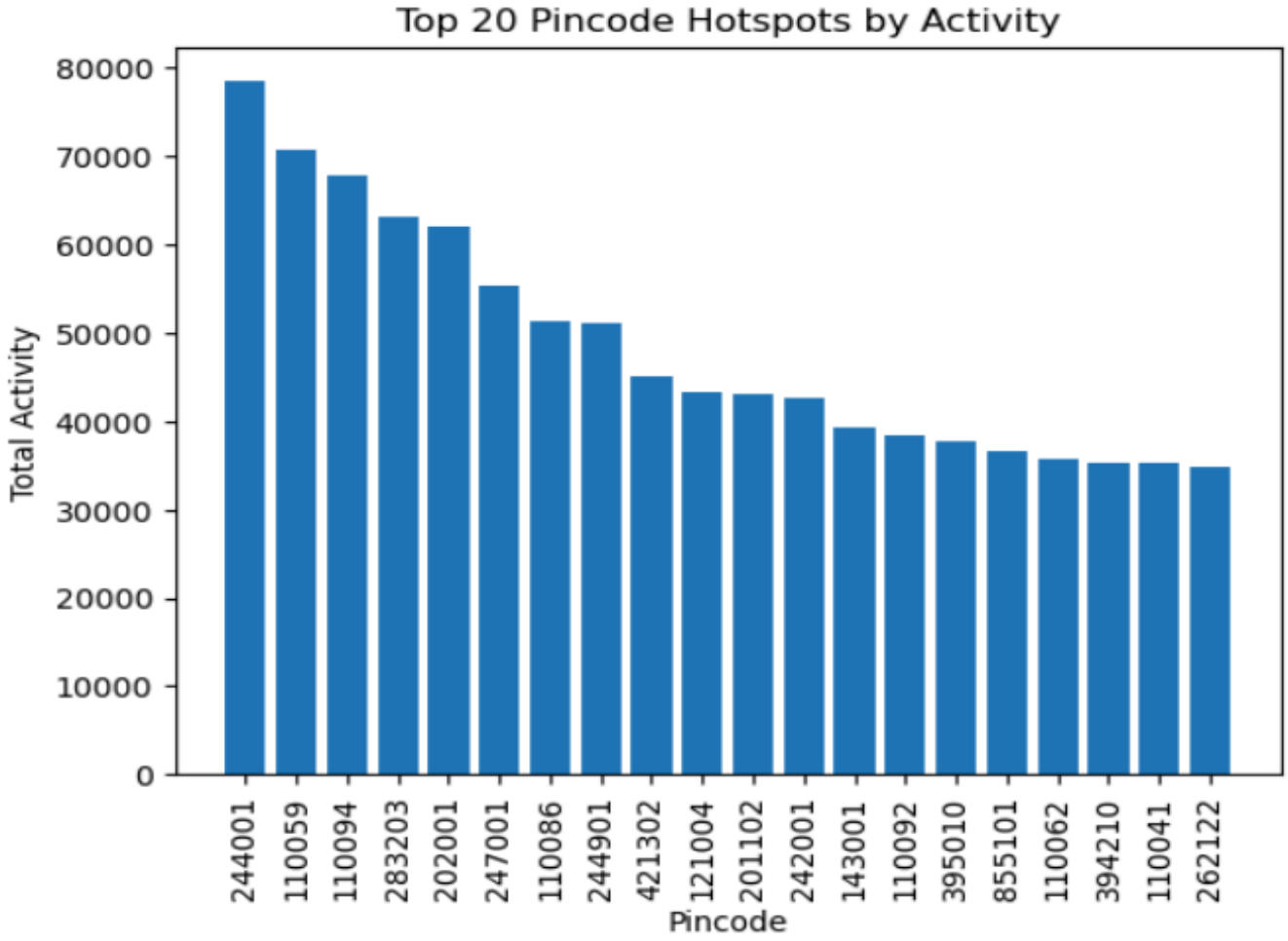


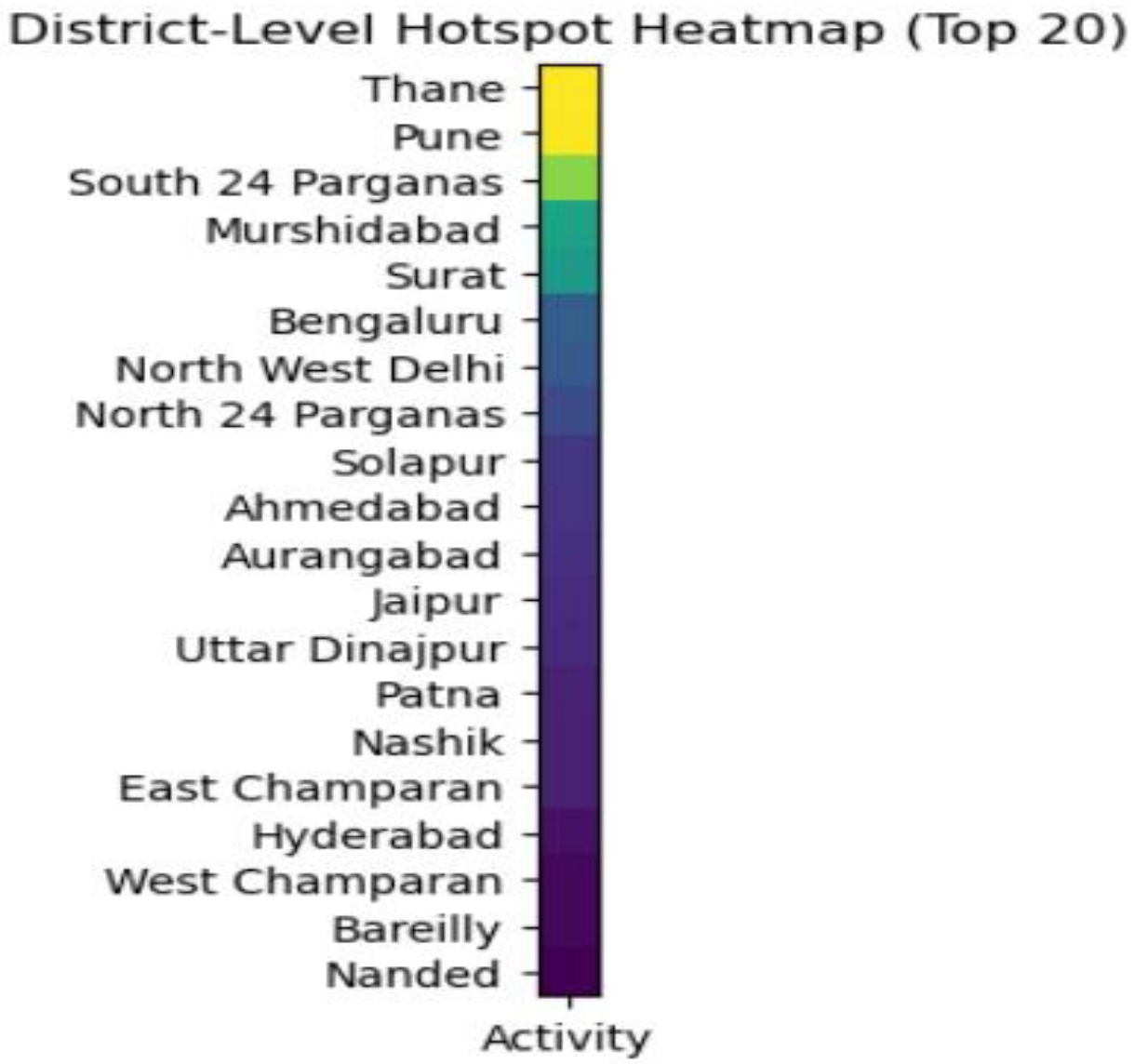

Top 10 States by Demographic Activity
1e6
Total Activity
0
1
2
3
4
5
6
Uttar Pradesh
Maharashtra
Bihar
West Bengal
Madhya Pradesh
Rajasthan
Tamil Nadu
Andhra Pradesh
Chhattisgarh
Gujarat
State

5. District & Pincode Hotspots

District-level and pincode-level hotspot analysis highlights regions with concentrated activity, indicating higher service demand. Thane, Pune, and South 24 Parganas emerged as major hotspots.

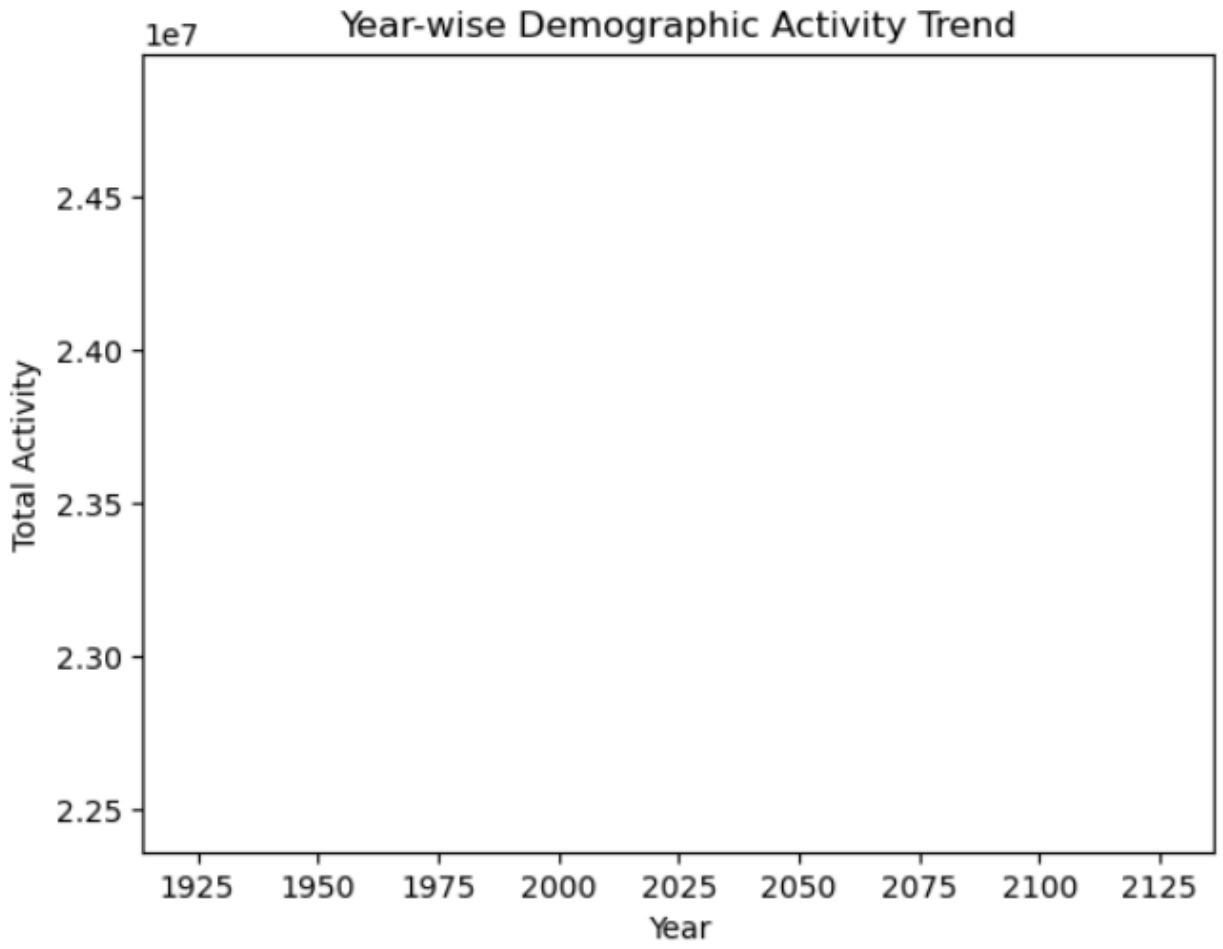



Top 20 Pincode Hotspots by Activity
Total Activity
80000
70000
60000
50000
40000
30000
20000
10000
0
244001
110059
110094
283203
202001
247001
110086
244901
421302
121004
201102
242001
143001
110092
395010
855101
110062
394210
110041
262122
Pincode


District-Level Hotspot Heatmap (Top 20)
Thane
Pune
South 24 Parganas
Murshidabad
Surat
Bengaluru
North West Delhi
North 24 Parganas
Solapur
Ahmedabad
Aurangabad
Jaipur
Uttar Dinajpur
Patna
Nashik
East Champaran
Hyderabad
West Champaran
Bareilly
Nanded
Activity

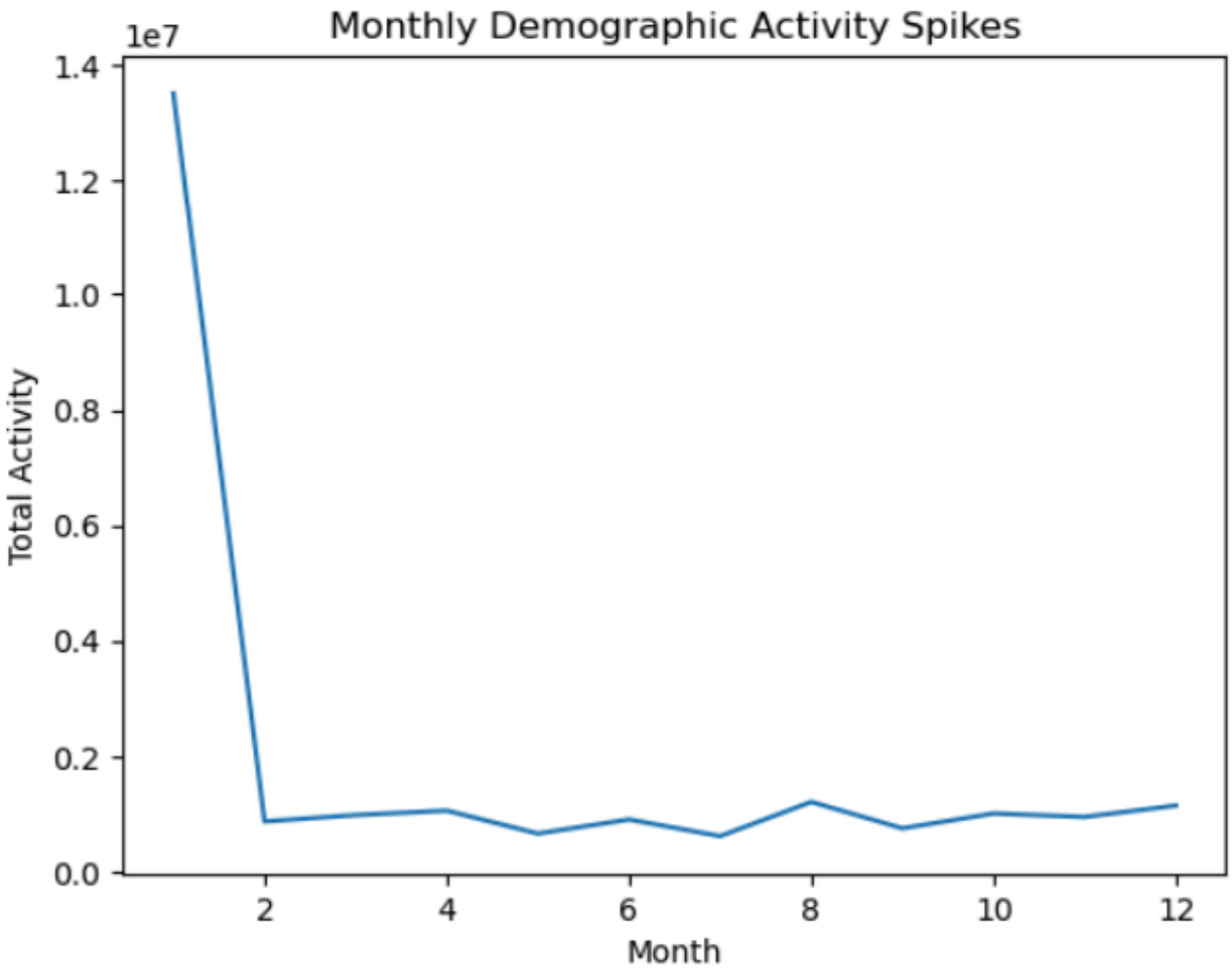
6. Year-wise Trend Analysis

The year-wise trend analysis shows cumulative demographic activity over time, helping identify growth patterns and seasonal impacts.



7.Month-wie Spike Analysis

Monthly spike analysis reveals non-uniform distribution of updates, indicating administrative or seasonal behavior. Month 1 shows a significant spike.



8.Urban vs Rural Behavioral Patterns

Urban regions show higher activity concentration, suggesting greater digital access, migration, and administrative interactions compared to rural regions.

9.Key Insights

- Top 3 states contribute a major share of total activity.

- Month 1 shows the highest update volume.

- Thane, Pune, and South 24 Parganas are key hotspots.

- Urban areas show denser activity.

- 17+ age group dominates updates.

- Uneven regional service demand exists.

- Monthly trends are non-uniform.

- High-activity regions need priority scaling.

- Manpower optimization is possible using these trends. - Strong regional imbalance is visible.

10. Conclusion

The demographic dataset reveals strong regional, seasonal, and behavioral patterns. These insights can be effectively used for targeted policy planning, infrastructure scaling, and efficient service deployment.