JOB MARKET ANALYSIS USING NAUKRI DATA

Objective –

To explore the most in-demand job roles and locations in India’s data/analytics job market using Naukri dataset

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KEY PROBLEMS :

- Job seekers, students, and professionals often lack clear visibility into:
- Which **job roles** are most in demand?
- Which **cities or regions** have the highest job postings?
- Are there **geographical patterns** in role distribution?
- Which roles are growing, declining, or concentrated in specific cities?

HOW THIS CODE SOLVES IT

Data Loading & Cleaning

- Loads a .csv dataset with job listings
- Cleans missing entries and standardizes formatting (title case)
- Ensures consistent, accurate analysis

Data Visualization

- Bar charts show **Top 10 Job Locations** and **Top 10 Job Titles**
  - Helps identify cities and roles with the most opportunities
- Pie chart displays **job distribution share by city**
  - Makes it easy to compare proportions
- Heatmap shows **role concentration per city**
  - Reveals deep insights into how roles are distributed geographically

Insight Extraction

- By identifying trends, the code helps:
  - Job seekers decide where to apply
  - Students understand where to focus their learning (e.g. Business Analyst, Data Scientist)
  - Recruiters and analysts understand hiring trends

. DATASET OVERVIEW

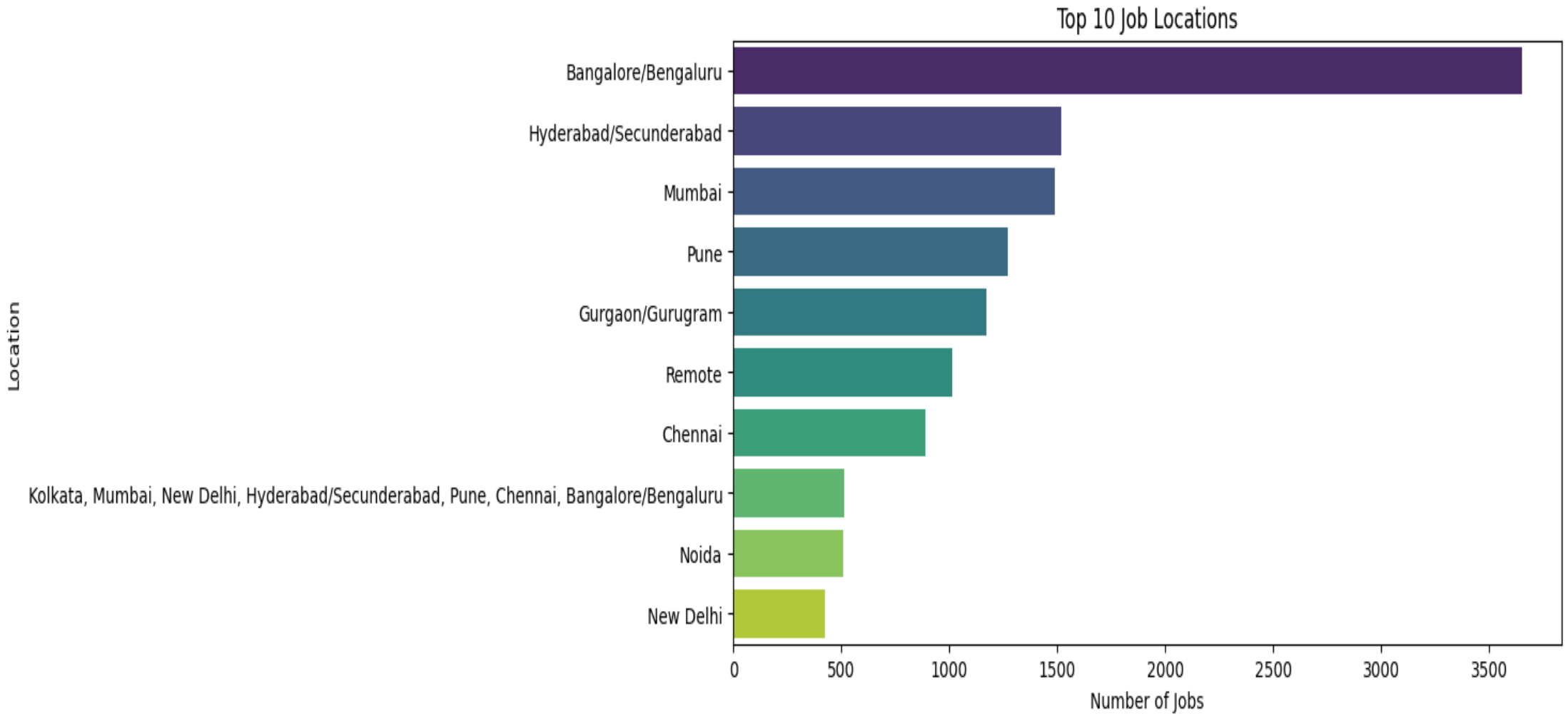
Source: Naukri.com(KAGGLE)

Link : https://storage.googleapis.com/kaggle-data-sets/3902630/6818246/bundle/archive.zip?X-Goog-Algorithm=GOOG4-RSA-SHA256&X-Goog-Credential=gcp-kaggle-com%40kaggle-161607.iam.gserviceaccount.com%2F20250703%2Fauto%2Fstorage%2Fgoog4_request&X-Goog-Date=20250703T140411Z&X-Goog-Expires=259200&X-Goog-SignedHeaders=host&X-Goog-Signature=4aaad9aea7d6e501fadd94b05c0bfc409df205e8edadbdb1c7c7cc56d1d5585864d1e62be3400a853fc150ee336aae1745dce4c4277c789825fdd155f08f08d422cd62cee82b09ec6e4275befa8d4c2fcdbe1dbe2c18e867a6fa096b54d68e539b11026c65981ff4b19e86ed7105b0d46aa759b3e27f23af3a8a8feb6ae0bc0a1e4ddf3683af89a9a5e345c5b882b4a3f5f4e7337e737b3d3650130d5facdeccb5a3e16a911aa4df2ad5040e3666ec4cc70209c36be314dbe8ef9ad9c84a7bb263950b98bc69cf42c89bb3205f452d426f1e6e90c2b30737b63ce45a5b8952b5d6331e7bcae763ac40410fcaf247e12c1fe230b8a656d585f01acae1ad731285

Fields used: Job_Titles, Locations

Total records: 20017

TOP JOB LOCATIONS



Key Observations:

1.Bangalore/Bengaluru Leads the Market

1. With the highest number of job postings, Bengaluru emerges as the **undisputed leader** in data and analytics hiring.
2. This aligns with its status as India's **IT capital**, housing major tech companies, startups, and data-driven enterprises.

2.Hyderabad and Mumbai Follow Closely

1. Hyderabad/Secunderabad ranks second, highlighting its growing tech ecosystem with firms in AI, data science, and enterprise solutions.
2. Mumbai, India's financial hub, ranks third — reflecting demand from banks, fintech, and consulting firms.

3.Pune and Gurgaon/Gurugram Hold Strong Positions

1. Pune's steady rise in IT and analytics makes it a strong alternative to Bangalore.
2. Gurugram shows the north's presence in the analytics job market — especially among multinational firms and consulting agencies.

4.Remote Jobs Are Gaining Ground

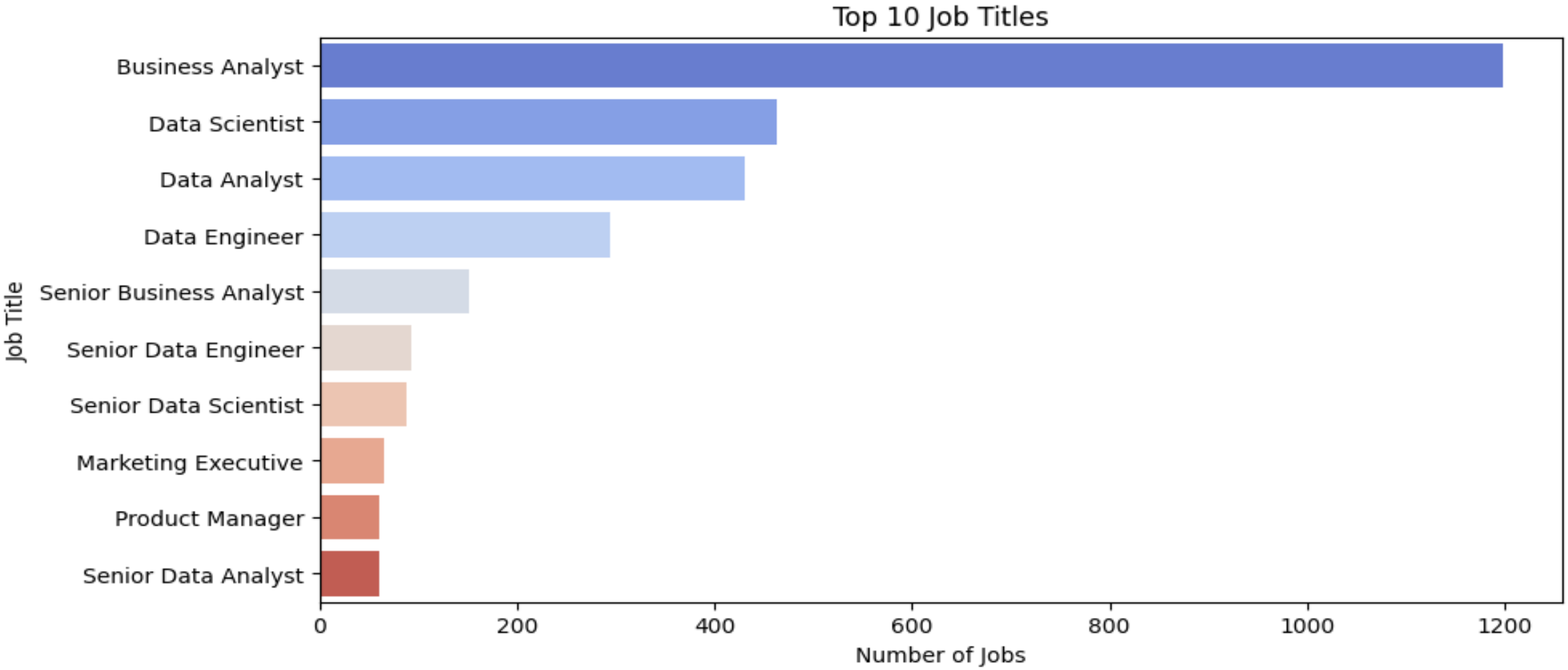
1. "Remote" as a job location ranks in the top 10, suggesting a **shift in employer flexibility post-pandemic**, enabling talent from smaller towns to contribute.

5.Chennai, Noida, and New Delhi Appear as Emerging Hubs

1. While smaller in volume compared to the top 3, these cities still present decent opportunities and reflect regional balance.

- **The data indicates that Bengaluru, Hyderabad, and Mumbai dominate India's data/analytics job market.**
- **There's a noticeable trend towards remote work, making location less of a constraint for skilled candidates**
- **Professionals targeting these cities — or remote roles — will find greater job visibility and opportunity.**

TOP JOB TITLES



Key Insights:

1.Business Analyst is the Most In-Demand Role

1. Topping the list with a significant lead, this reflects organizations' growing need for professionals who can **translate data into business strategy**.
2. It is often considered an entry-to-mid-level role with **cross-functional responsibilities**, which increases its demand across industries.

2.Data Scientist & Data Analyst: Core Tech Roles

1. These two are close contenders, indicating **strong ongoing demand** for technical professionals skilled in **data modeling, machine learning, and visualization**.
2. The balance between them suggests that **both research-based and reporting-based data roles** are valued.

3. Data Engineer on the Rise

1. Ranking 4th, this shows the rising importance of **data infrastructure and pipeline management**.
2. With growing data volume, organizations are **prioritizing data architecture** roles more than before.

4. Fewer Senior-Level Postings

1. Roles like "Senior Business Analyst", "Senior Data Scientist", and "Senior Data Engineer" appear less frequently.
2. This could mean:
    1. Fewer senior openings
    2. Preference to promote internally
    3. Companies preferring flexible experience levels in job descriptions

5. Traditional Roles Are Losing Share

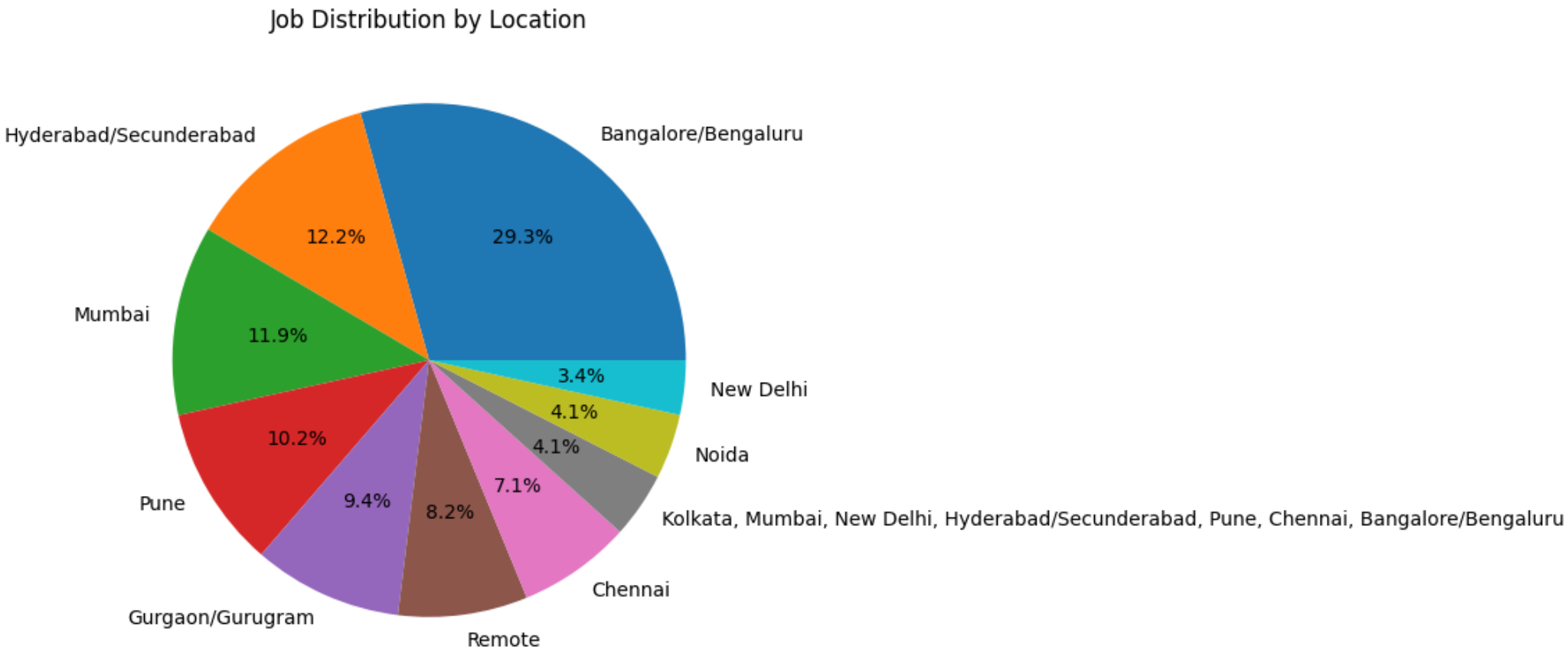
1. "Marketing Executive" appears below tech roles — a reflection of shifting budgets towards **data-driven decision making**.
2. Indicates companies now expect marketing professionals to also have **data fluency**.

6. Product Manager's Niche Demand

1. Present in the top 10, Product Managers are expected to combine **data awareness with leadership and customer understanding**.

Data-driven roles dominate today's job market. Business Analysts are in highest demand, with Data Analysts and Scientists close behind. The emergence of Data Engineers highlights backend importance, while fewer senior openings suggest high internal promotions or bundled role expectations. This chart reflects a strong pivot toward technical data literacy across all functions

JOB TITLE VS. LOCATION



Key Insights:

1.Bangalore/Bengaluru Dominates with 29.3% Share

- Nearly **one-third** of all jobs are concentrated in Bengaluru, solidifying its position as **India's Silicon Valley**.
- The city attracts top tech firms, startups, and analytics consultancies, making it the **primary destination for data professionals**.

2. Hyderabad/Secunderabad and Mumbai Have Strong Presence

- Hyderabad: 12.2% — boosted by IT parks and analytics centers.
- Mumbai: 11.9% — driven by demand in **finance, banking, and media sectors** using data for decision-making.

3. Pune (10.2%) & Gurgaon (9.4%) Form the Second Tier

- Both cities are important satellite hubs, particularly in the **IT services and consulting industries**.
- Strong infrastructure and educational presence contribute to this trend.

4. Remote Jobs at 8.2%

- A considerable portion reflects the **rise in hybrid/remote job postings** post-COVID, showing industry flexibility.

5. Chennai (7.1%), Noida (4.1%), and New Delhi (3.4%)

- Smaller in share but still reflect **regional hiring diversity**.
- Noida/Delhi NCR collectively still hold a respectable chunk.

Bangalore continues to be the top destination for data jobs, with Hyderabad and Mumbai not far behind. The growing share of remote opportunities reflects changing work culture. Cities like Pune, Gurgaon, and Chennai also offer a significant number of roles, making them key targets for job seekers.

HEATMAP: JOB TITLE VS. LOCATION

This heatmap provides a visual cross-comparison of how frequently specific job titles appear across different locations. It's designed to:

- **Highlight concentration of job roles in certain cities**
- **Reveal job clusters by role and geography**

Key Observations:

1.Bangalore/Bengaluru is the Primary Hub Across Multiple Roles

- Most job titles — including *Data Scientist*, *Business Analyst*, *Data Engineer*, and *Senior Analyst* — show the **highest density (brightest color)** in Bengaluru.
- This reflects the city's role as a **pan-role job magnet**.

2.Hyderabad, Mumbai, and Pune Show Strong Diversity

- A wide range of roles appears in these cities with moderate frequency.
- Indicates that these are **mature secondary hubs** where both tech and business roles are growing.

3.Sparse Visibility in Small Cities and International Locations

- Locations like *Sonipat*, *Korba*, and *Nigeria* show minimal job posting activity — typically niche or satellite postings.
- These regions may represent **remote office setups** or location-based tagging errors.

4.Vertical Congestion Suggests Role Repetition in Few Locations

- The heatmap's layout shows clustering of job titles in **limited high-demand cities**.
- This concentration indicates companies may be **centralizing teams** in specific metros rather than evenly distributing talent across India.

5.Job Title Diversity is Higher in Larger Cities

- Cities like **Bangalore, Hyderabad, Gurgaon, and Mumbai** show activity for a **wider variety of specialized roles**, e.g.:
  - *Senior Data Analyst*
  - *Machine Learning Engineer*
  - *Product Manager*
  - *Analytics Consultant*

The heatmap reveals that Bengaluru leads not only in job volume but also in the diversity of roles offered. Hyderabad, Pune, and Mumbai follow with strong presence in both core and niche analytics roles. Smaller towns show isolated role postings, indicating concentrated job demand in a few urban tech ecosystems.

Conclusion: Data Analytics Job Market Insights (India)

Bangalore Reigns as the Analytics Capital- Bangalore/Bengaluru stands out with the highest number of job opportunities across almost **every major data-related role**, reaffirming its position as **India's tech and analytics hub**. Its dominance spans Business Analysts, Data Scientists, and Engineers, making it the go-to destination for data professionals.

Other Major Hubs: Hyderabad, Mumbai, Pune, and Gurgaon - These cities follow Bangalore and show strong hiring activity, with diverse roles and growing demand. **Hyderabad** excels in data and AI roles, **Mumbai** drives demand through fintech and consulting, and **Pune** and **Gurgaon** support a healthy mix of IT services and analytics jobs.

Remote Work and Hybrid Roles Are Rising - Remote jobs rank among the top locations — indicating **changing work cultures post-COVID**, allowing companies to tap into talent beyond metros.

Most In-Demand Roles

Business Analyst is the most sought-after role — valued for its strategic, cross-functional nature.

Data Scientist, **Data Analyst**, and **Data Engineer** are also in high demand, highlighting the core need for technical expertise and data infrastructure.

Senior roles appear less frequently, suggesting limited openings at the top or internal promotions.

Conclusion for Stakeholders

Job Seekers: Target Bangalore and Hyderabad for maximum opportunities; build skills in Business Analysis, Data Science, and Engineering.

Students: Focus on trending roles like Business Analyst, Data Engineer, and ML Engineer.

Recruiters/Companies: Expand remote offerings to tap into wider talent pools and consider decentralizing hiring to Tier 2 cities.