IBM AICTE PROJECT

ANALYZING DEMOGRAPHIC AND REGIONAL DISPARITIES IN TELE LAW CASE REGISTRATIONS FOR INCLUSIVE LEGAL ACCESS

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PROBLEM STATEMENT

EVALUATING INCLUSIVITY IN DIGITAL LEGAL AID ACCESS

The Project aims to analyze the Tele Law case registration data to identify gender-wise, caste- wise, regional disparities in service availing across India. Through identifying patterns of underrepresentation of specific people in certain geographical areas, the study is designed to provide data-driven perspective to gauge the equity and efficacy of the service and to improve the delivery of it for a more equitable legal access.

PROPOSED SOLUTION

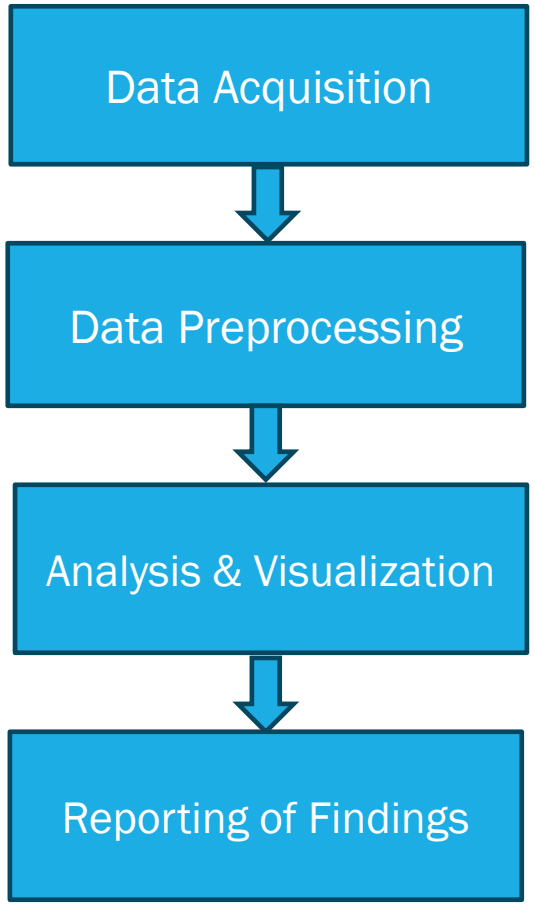
A THREE-PILLAR ANALYTICAL APPROACH

Our solution is to perform a comprehensive exploratory data analysis (EDA) to systematically investigate the dataset. This approach directly addresses the problem by providing clear, data-backed evidence of any disparities. The solution involves:

- **Gender-wise Analysis: To quantify the difference in service usage between male and female users.**
- **Caste-wise Analysis: To understand the demographic distribution across caste categories.**
- **Geographic Analysis: To identify states with the highest and lowest service adoption rates.**

SYSTEM APPROACH

Project Workflow



ALGORITHM & DEPLOYMENT

ALGORITHM: EXPLORATORY DATA ANALYSIS (EDA) METHODOLOGY

- This project uses a structured data analysis approach with the Python pandas library, not a predictive machine learning model.
- The core logic involves:
  - **Data Aggregation**: Grouping data by categories (State, Gender, Caste) using the groupby() function.
  - **Summarization & Ranking**: Calculating totals with sum() and sorting results with sort_values() to identify key trends and disparities.

DEPLOYMENT: CLOUD-BASED ANALYTICAL ENVIRONMENT

- **Platform:** The project is developed and hosted on **IBM Watson Studio** within the **IBM Cloud**.
- **Format:** The analysis is contained in a shareable **Jupyter Notebook**, processing data from IBM Cloud Object Storage.
- **Outcome:** The "deployment" is the analytical notebook itself and its generated outputs (charts and data summaries), not a standalone live application.

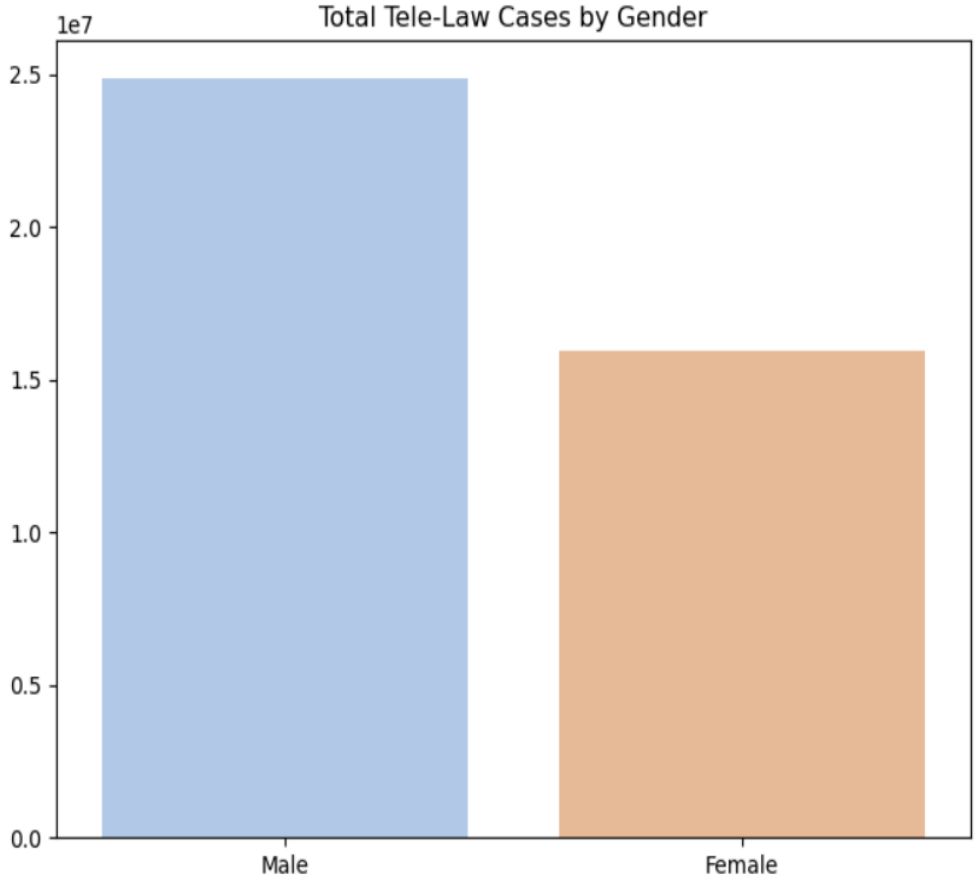
RESULT

KEY ANALYTICAL FINDINGS

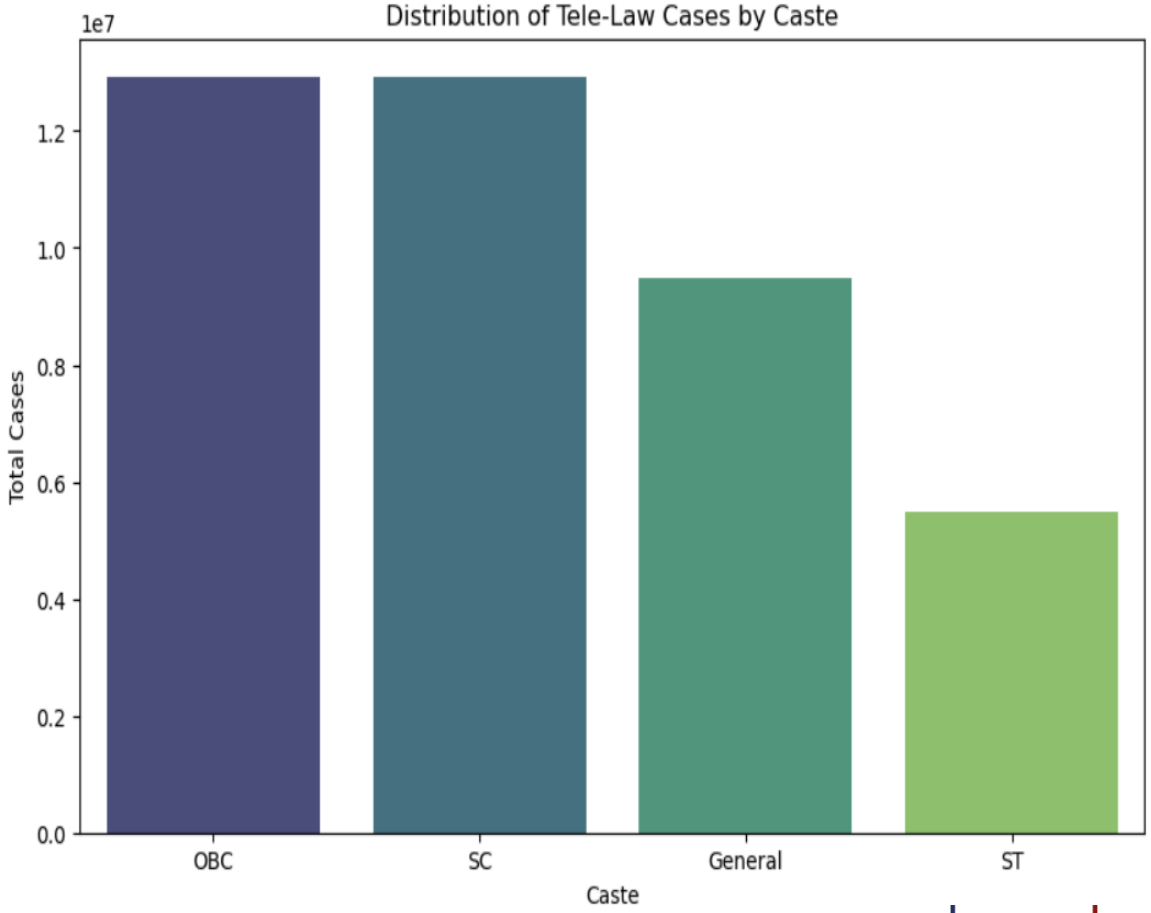
- **Gender Analysis**: Male users (**24.8M**) significantly outnumber female users (**15.9M**).
- **Caste Analysis**: The service is most used by the OBC and General categories, indicating a potential awareness gap in SC/ST communities.
- **Geographic Analysis**: Use of the service is highly concentrated, with **Uttar Pradesh** and **Bihar** having the highest number of case registrations.

RESULT

```
--- GENDER ANALYSIS ---
Total Male Cases: 24862532
Total Female Cases: 15956220
/opt/conda/envs/Python-RT24.1/lib/python3.11/site-packages/seaborn/_oldcore.py:1765: FutureWarning: uniq
ed and will raise in a future version.
  order = pd.unique(vector)
```




```
--- CASTE ANALYSIS ---
     Caste  Total Cases
1      OBC     12931124
2       SC     12921364
0  General      9479618
3       ST      5486646
```



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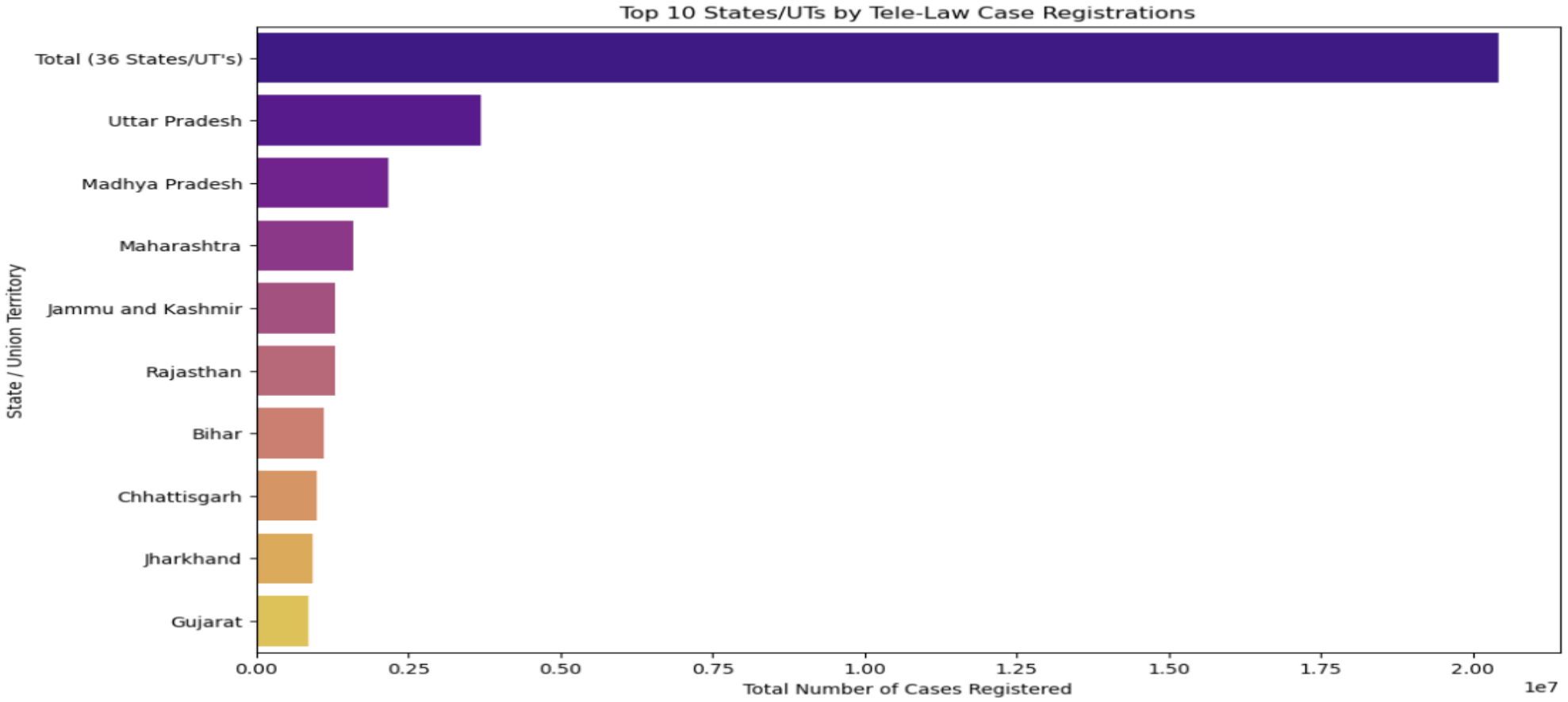
RESULT

```
--- GEOGRAPHIC ANALYSIS (FIXED) ---
State_UT
Total (36 States/UT's)    20409376
Uttar Pradesh              3688417
Madhya Pradesh             2164028
Maharashtra                1593236
Jammu and Kashmir          1302643
Rajasthan                  1294118
Bihar                      1100029
Chhattisgarh                996342
Jharkhand                   926786
Gujarat                     862579
Name: Total_Cases, dtype: int64
```



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CONCLUSION

- Our analysis successfully quantified significant disparities in the Tele-Law service based on gender and geography. The findings confirm that while the program is widely used, its reach is not uniform across all demographics and regions. To enhance equity, targeted outreach programs are recommended, especially for women and in states with lower registration figures.

FUTURE SCOPE

- **Predictive Modeling:** Build a model to predict future districts with low adoption rates.
- **Causality Analysis:** Integrate socio-economic datasets to identify root causes of the disparities.
- **Interactive Dashboard:** Create a dashboard to allow stakeholders to explore the data dynamically.

REFERENCES

- **Dataset Source**:
  - Ministry of Law and Justice. (2024). *District-wise Tele-Law case registration and advice enabled data (FY 2021-22 to 2024-25)*. National Data and Analytics Platform. Retrieved from data.gov.in.
- **Project Definition Source**:
  - IBM Skills Build for Academia & Edunet Foundation. (2025). *Problem Statements on Agentic AI*.
- **Technology & Libraries**:
  - Python Software Foundation. Python Language Reference. Available at http://www.python.org
  - The pandas development team. (2020). *pandas-dev/pandas: Pandas*. Zenodo. http://doi.org/10.5281/zenodo.3509134
  - Hunter, J. D. (2007). *Matplotlib: A 2D Graphics Environment*. Computing in Science & Engineering, 9(3), 90-95.

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IBM CERTIFICATIONS

Getting Started with AI -

IBM CERTIFICATIONS

Journey to Cloud -

IBM CERTIFICATIONS

RAG Lab -

IBM **SkillsBuild** Completion Certificate

This certificate is presented to

Abhishek Kumar Singh

for the completion of

Lab: Retrieval Augmented Generation with LangChain

(ALM-COURSE_3824998)

According to the Adobe Learning Manager system of record

Completion date: 25 Jul 2025 (GMT)

Learning hours: 20 mins

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- Git hub Link - https://github.com/AC757/Demographic-and-Regional-Disparities-in-Tele-Law-Case-Registrations-for-Inclusive-Legal-Access-

THANK YOU

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