



INDUSTRIAL HUMAN RESOURCE GEO-VISUALIZATION

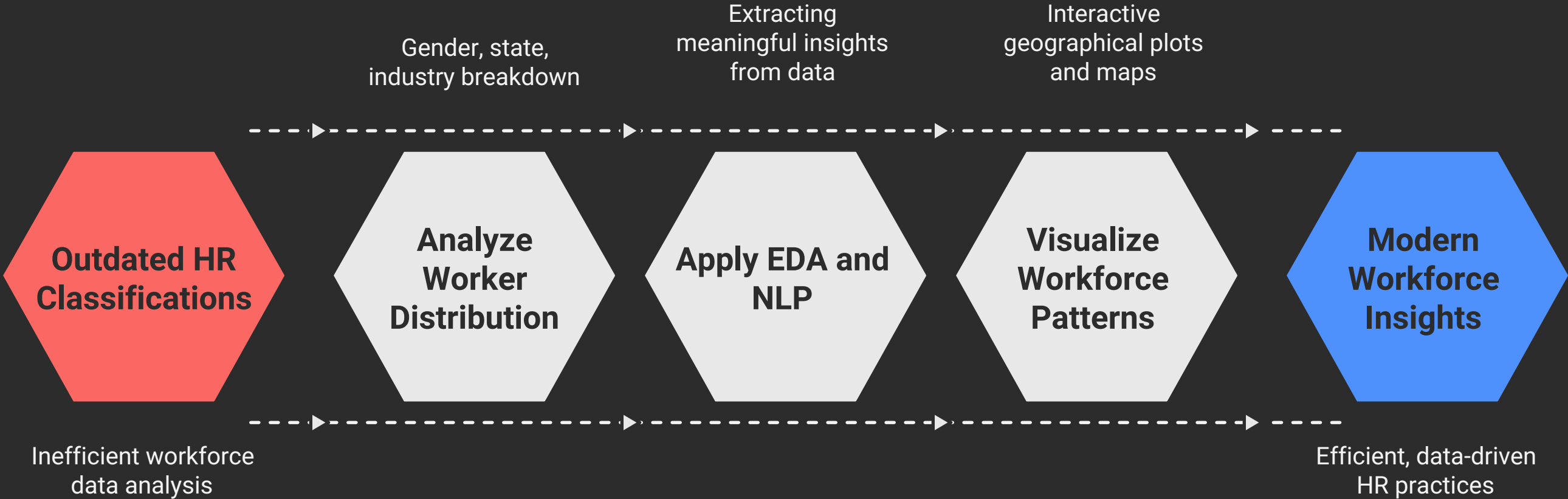
PROBLEM STATEMENT

Industrial Human Resource Geo-Visualization is a data-driven analysis project focused on understanding and visualizing the classification of Main and Marginal workers in Rural and urban areas in India. The project aims to update the outdated industrial classification data by gender, section, division, and class of workers. The insights generated will aid policymakers, researchers, and planners in employment forecasting and resource distribution.

INDUSTRIAL HUMAN RESOURCE GEO-VISULIZATION PROJECT



MODERNIZING INDIAN WORKFORCE



TECHNOLOGIES USED

Category	Tools/Libraries
Programming Language	Python
Data Manipulation	pandas, NumPy
Visualization	matplotlib, seaborn, plotly
NLP	Spacy, transformers (BERT tokenizer)
Data Preprocessing	scikit-learn, scipy
Others	Jupyter Notebook, Streamlit

DATA PRE-PROCESSING TECHNIQUES



Duplicates Handling

keep="first"
Removes duplicate rows from the DataFrame, keeping the first occurrence and modifying the original DataFrame in place.



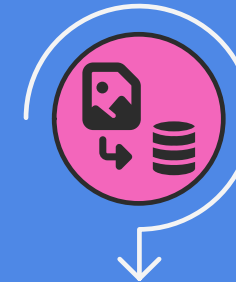
Outlier Handling

IQR, and
Winsorization were
used to handle
outliers.



Skewness Analysis

Applied log1p()
transformation for
right-skewed data.



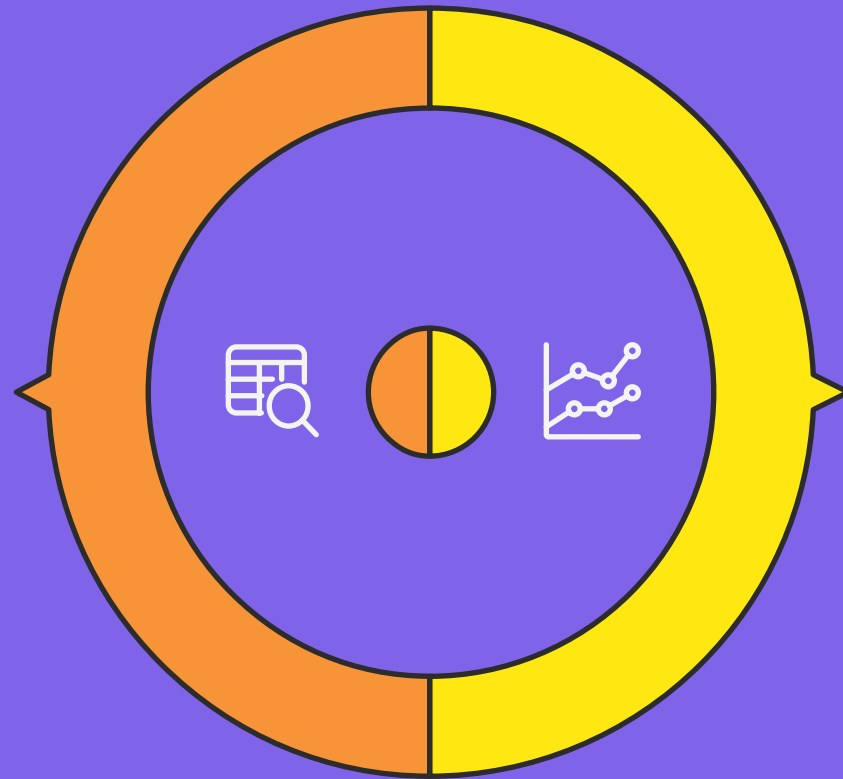
Feature Transformation

MultiLabelBinarizer
and text
preprocessing were
applied.

DATA ANALYSIS TYPES

**Statistical
Analysis**

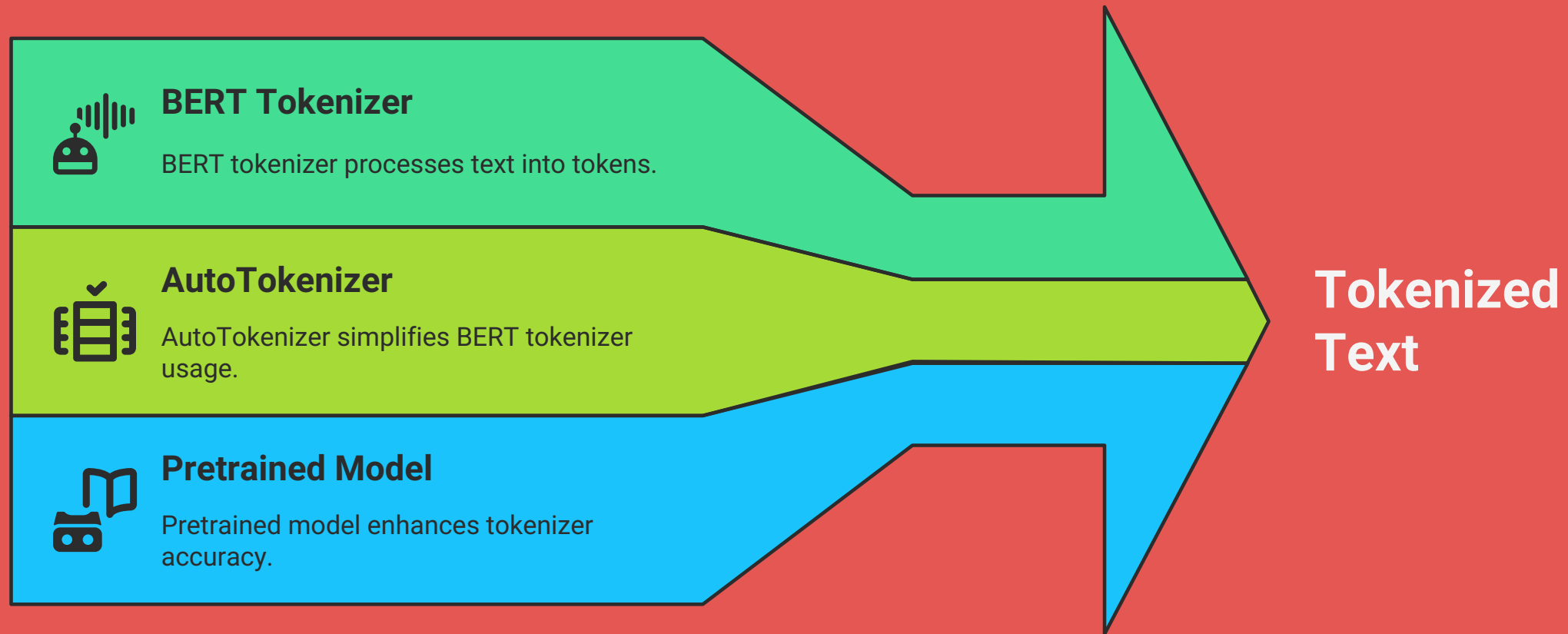
Distribution insights
using skewness



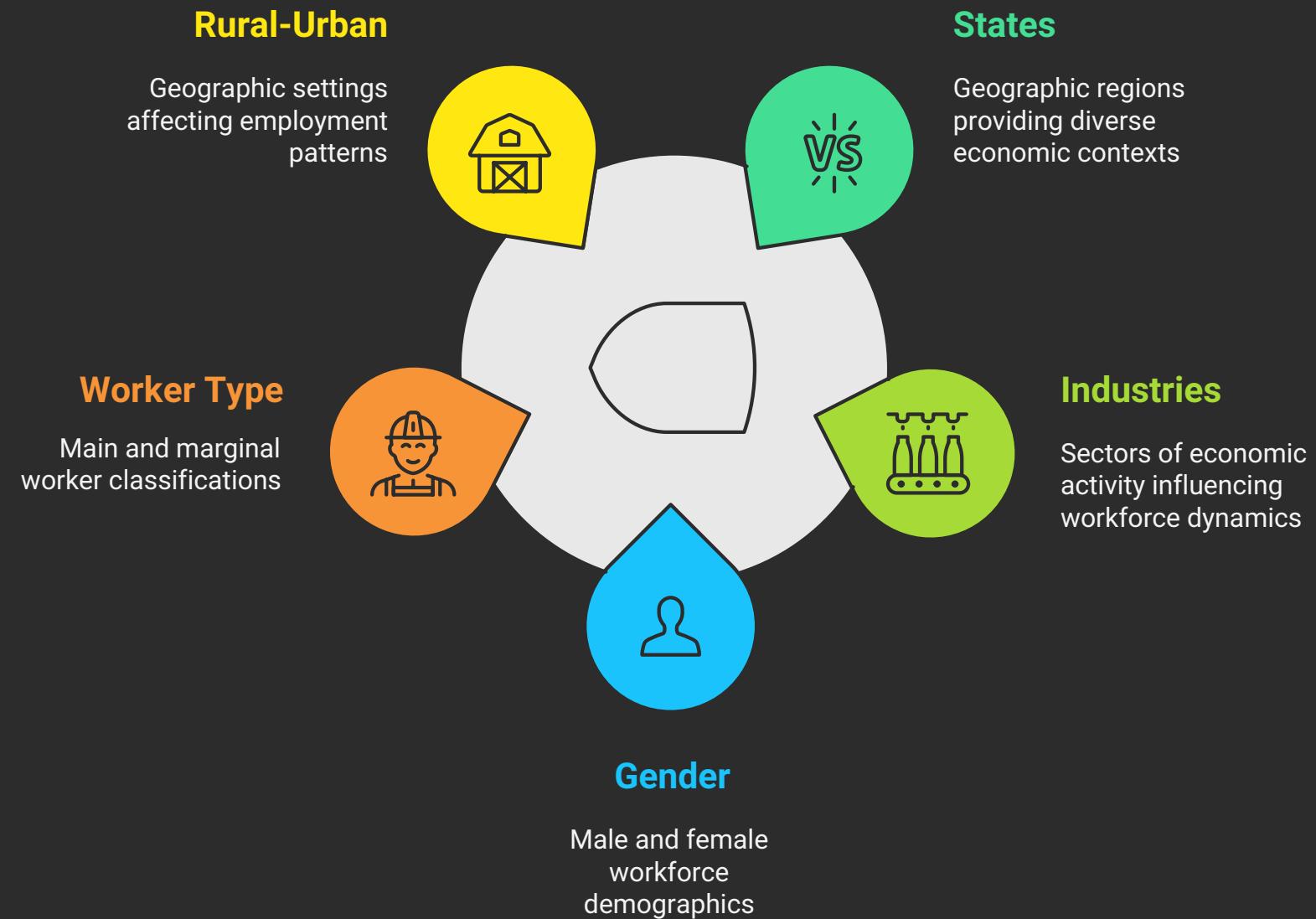
Visualizations

Charts showing worker
distribution. Mapping
workforce by state.

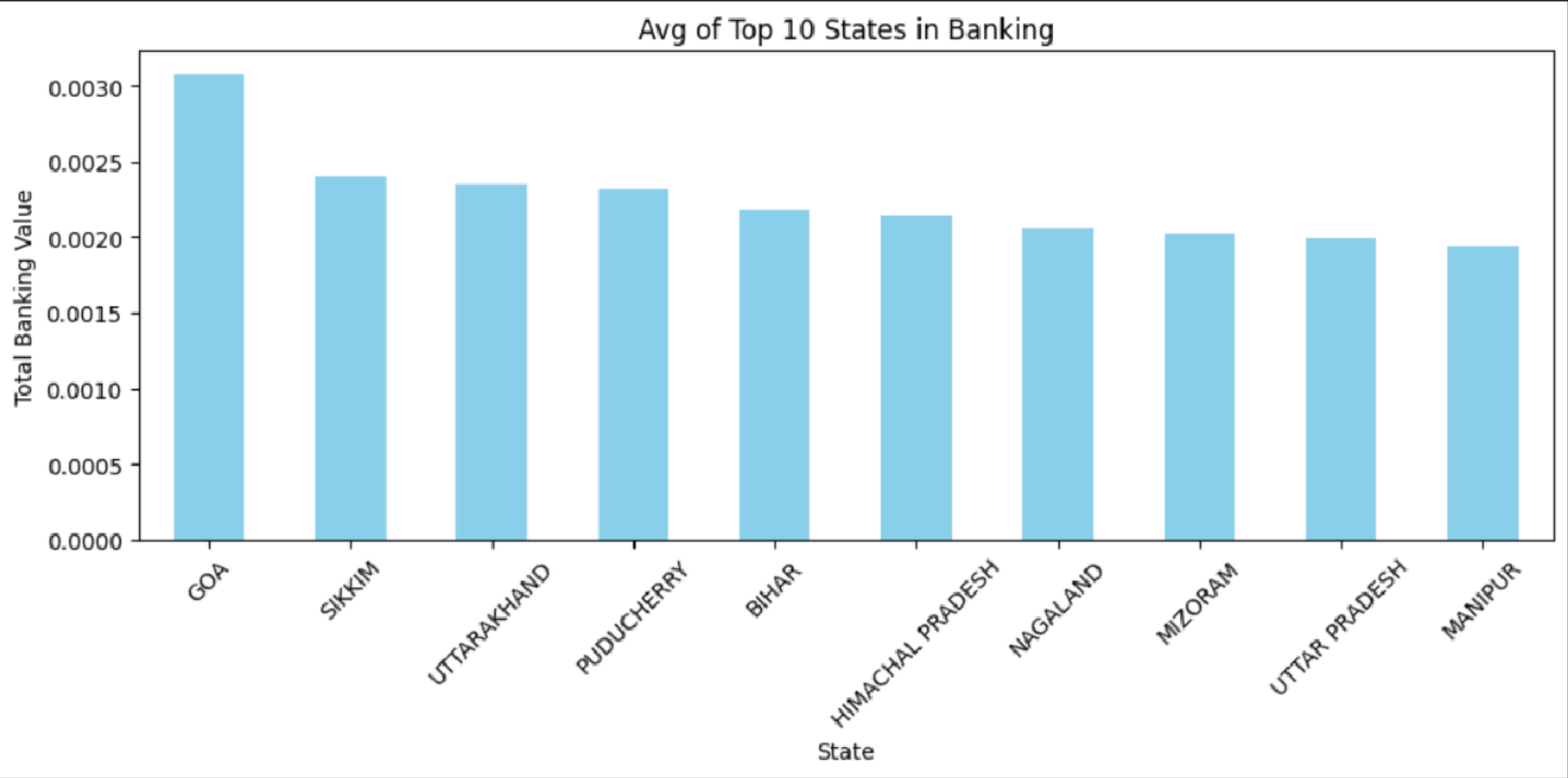
TRANSFORMING TEXT INTO TOKENS



Factors Contributing to Industrial Classification Analysis



AVERAGE OF BANKING SECTOR OVER STATES AND FILTERED TOP 10

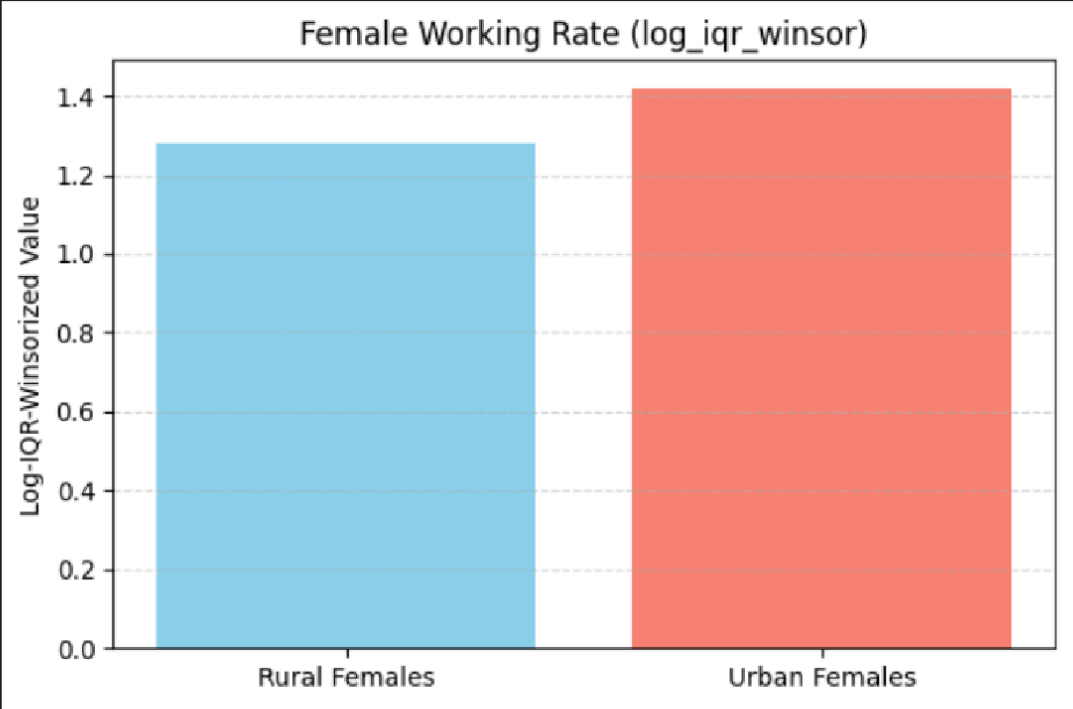


AVERAGE OF MAIN WORKERS ACROSS STATES

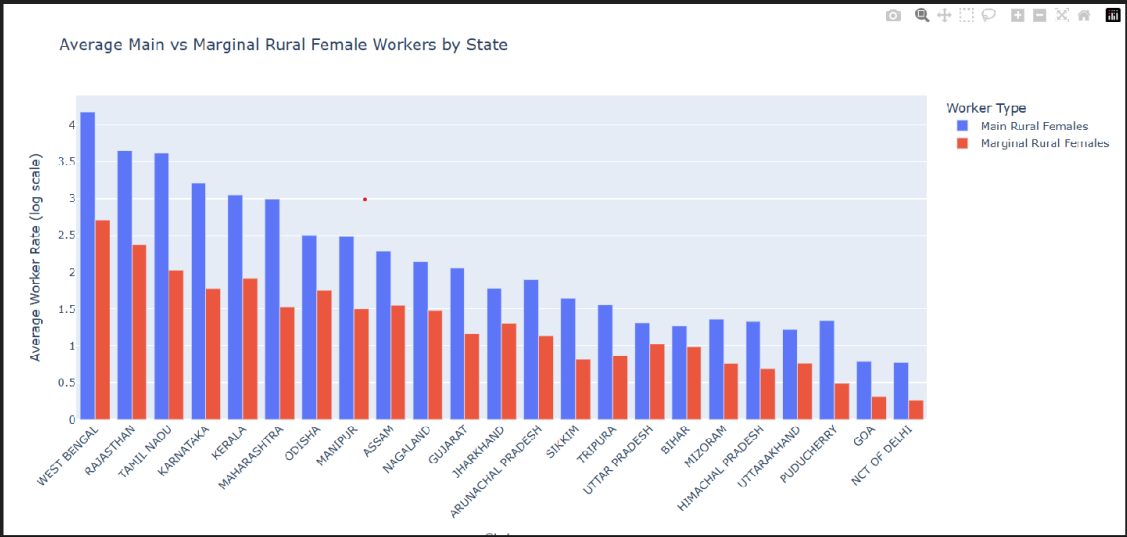


COMPUTING THE RATIO OF FEMALE WORKING RATE BETWEEN URBAN AND RURAL

Rural to Urban Female Working Rate Ratio (log scale): 0.90
Female working rate is higher in urban areas.

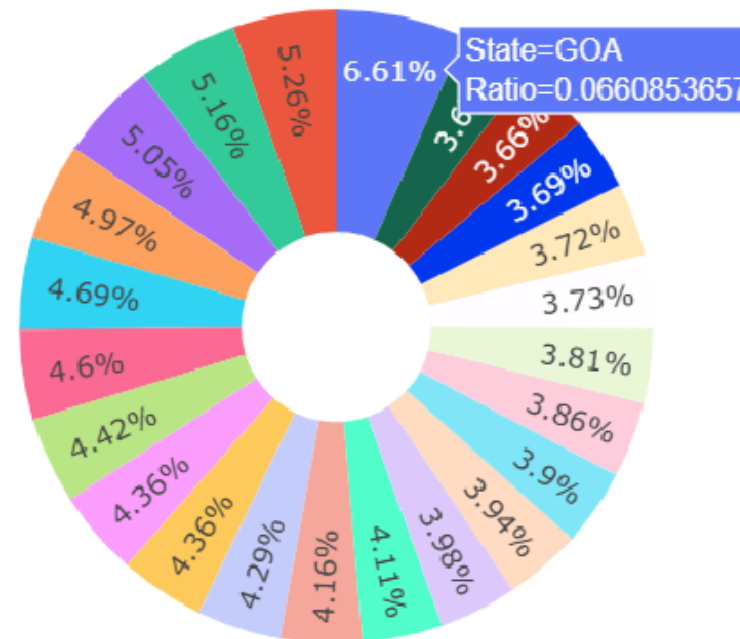


CALCULATING THE AVERAGE OF MAIN VS MARGINAL RURAL FEMALE WORKERS BY STATE



COMPUTING THE RATIO OF AGRICULTURE INDUSTRY OVER STATES

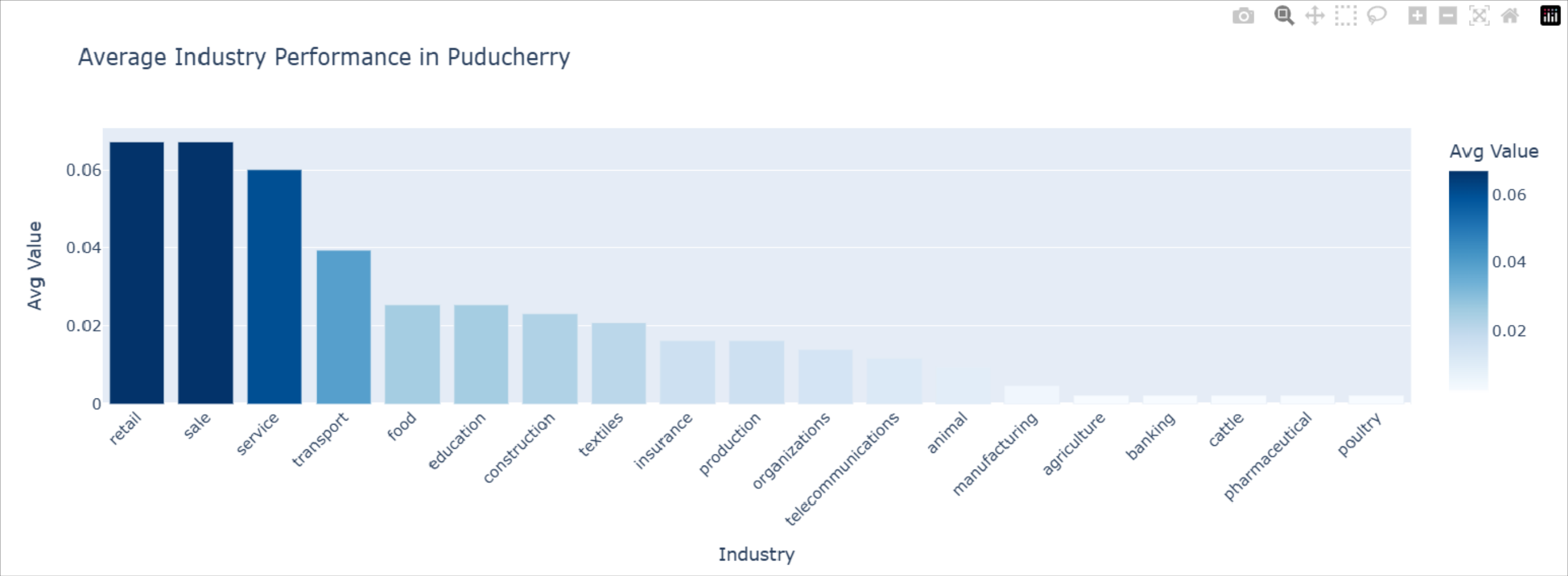
State-wise Ratio of Average Agriculture



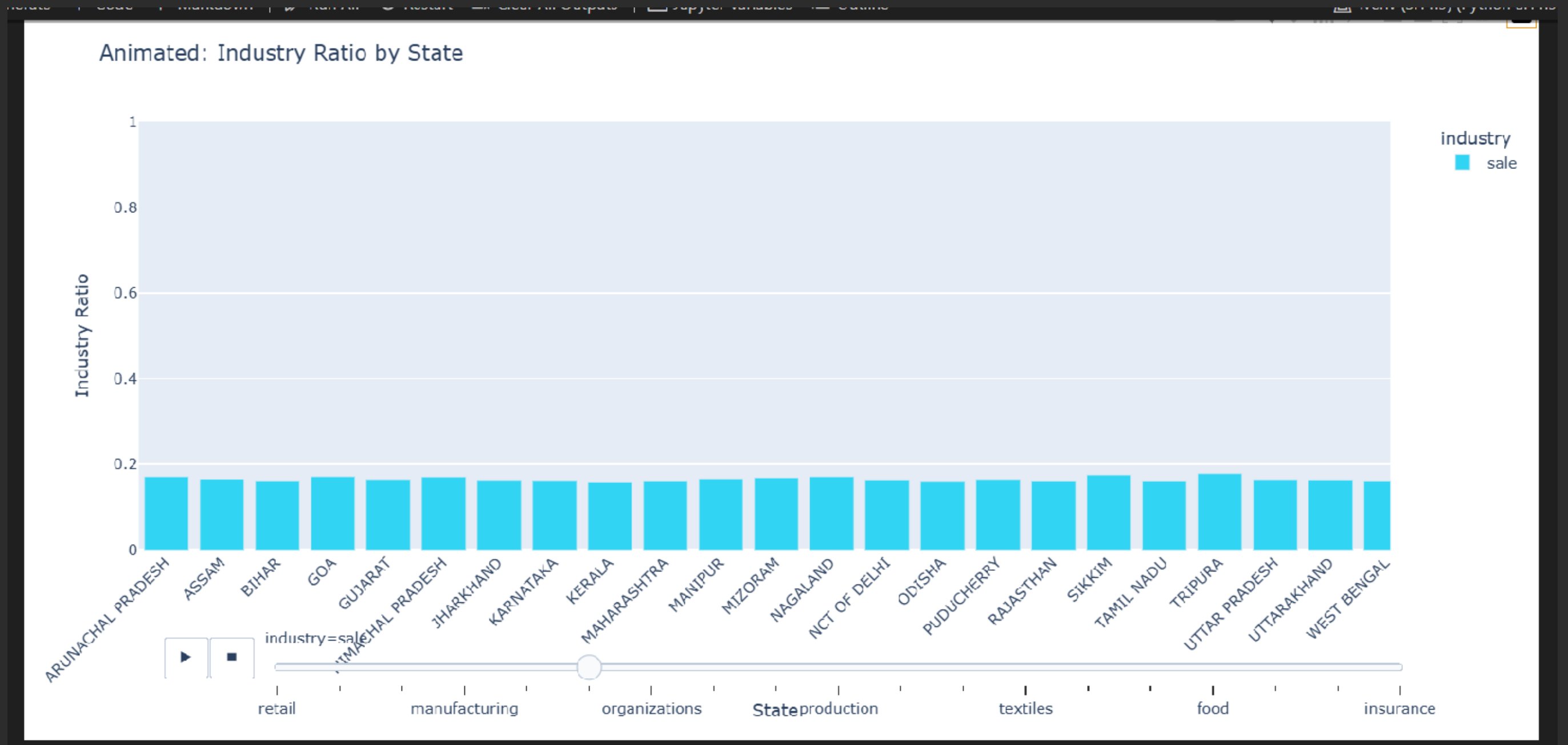
- ARUNACHAL PRADESH
- UTTAR PRADESH
- MANIPUR
- ASSAM
- JHARKHAND
- ODISHA
- GUJARAT
- KERALA
- NCT OF DELHI
- MAHARASHTRA
- TAMIL NADU
- KARNATAKA
- RAJASTHAN
- WEST BENGAL

FINDING IN WHICH INDUSTRY PUDUCHERRY EXCELS

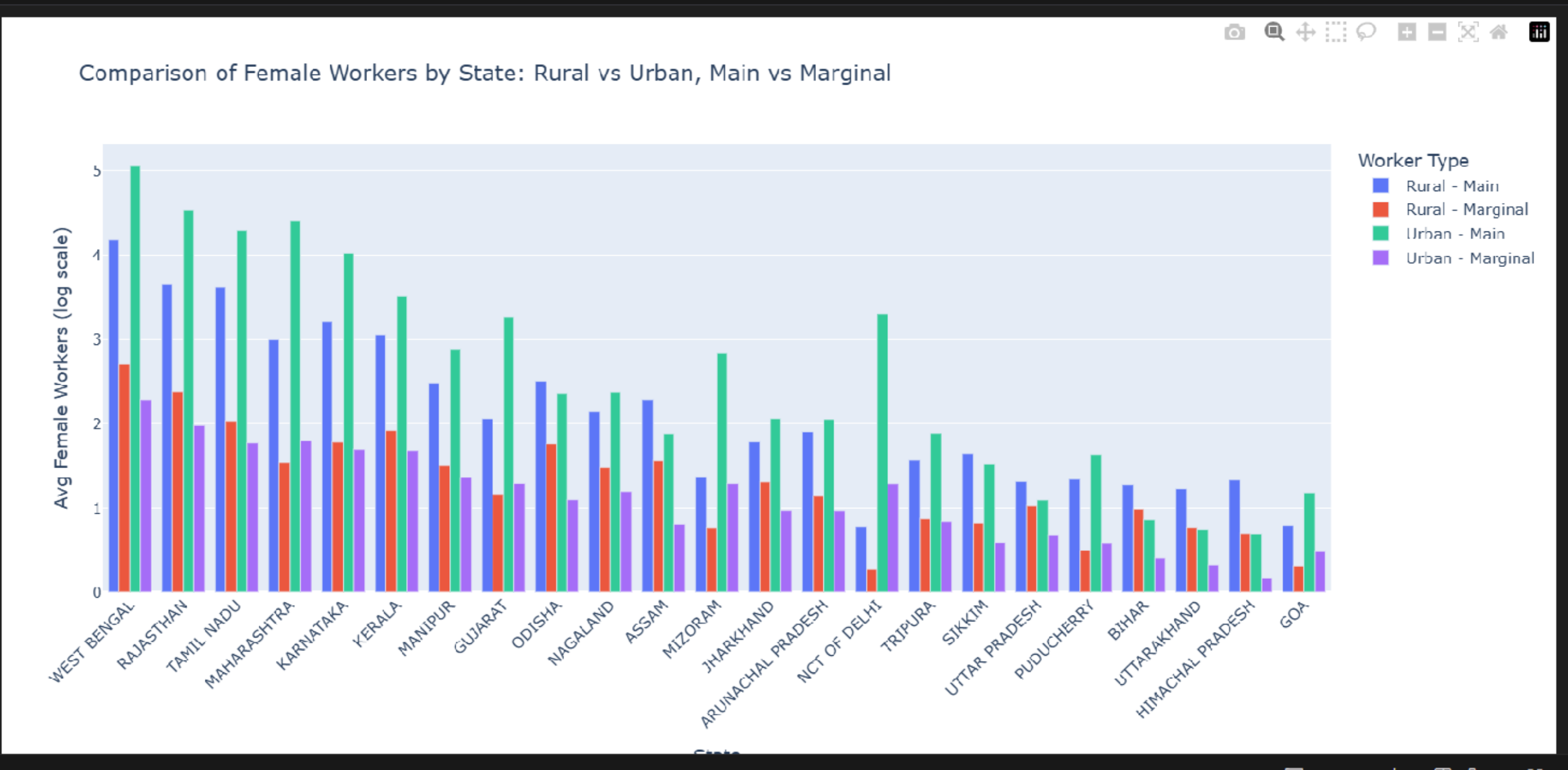
Puducherry excels in 'retail' with an average value of 0.07.



VISUALIZATION IN WHICH INDUSTRY EACH STATE EXCELS - ANIMATION CHART



COMPARISON OF RURAL VS URBAN, MAIN VS MARGINAL FEMALE WORKERS



COMPARISON OF MALE AND FEMALE WORKERS ACROSS INDIA

