Unemployment Analysis with Python

1. Introduction
This project focuses on analyzing unemployment rate data using Python. The aim is to understand unemployment trends, study the impact of Covid-19, identify seasonal patterns, and derive insights useful for economic and social policy decisions.

2. Dataset Description
The dataset contains monthly unemployment statistics across different regions of India. Key attributes include Region, Date, Area (Rural/Urban), Estimated Unemployment Rate (%), Estimated Employed, and Labour Participation Rate.

3. Tools & Technologies
- Python
- Pandas
- NumPy
- Matplotlib
- Seaborn

4. Data Cleaning
Missing values were identified and removed. Column names were cleaned to remove extra spaces, and the Date column was converted into datetime format for time-series analysis.

5. Exploratory Data Analysis
Line charts and summary statistics were used to understand unemployment trends over time. Area-wise and region-wise comparisons were also performed.

6. Impact of Covid-19
A significant rise in unemployment was observed during 2020 due to lockdowns. Post-2021 data shows gradual recovery as economic activities resumed.

7. Seasonal Trend Analysis
Monthly analysis revealed seasonal variations in unemployment rates, indicating the influence of agricultural and informal sector employment.

8. Key Insights
- Covid-19 caused a sharp increase in unemployment.
- Urban unemployment showed higher volatility.
- Seasonal patterns exist across months.
- Recovery trends are visible post-pandemic.

9. Policy Implications

The insights can help policymakers plan employment schemes, crisis-response measures, and skill development programs.

10. Conclusion

Python-based analysis provides an effective approach to study unemployment trends and support data-driven policy decisions.