Exploratory Analysis of Rainfall Data in India for Agriculture

Project Dashboard

The project dashboard visually summarizes rainfall insights to help farmers, policymakers, and researchers understand rainfall trends across India for agricultural planning.

- Average Annual Rainfall (mm)
- Total Years Analyzed
- Highest and Lowest Rainfall States
- Drought Years Identified
- Highest Rainfall Year
- Year-wise Rainfall Trend (Line Chart)
- State-wise Rainfall Comparison (Bar Chart)
- Seasonal Rainfall Distribution (Stacked Bar Chart)
- Rainfall Distribution (Histogram)
- Correlation Heatmap
- Interactive Filters (Year, State, Season)

Project Story (Data Storytelling)

India is an agriculture-dependent country where more than half of farming relies on monsoon rainfall.
Due to climate variability, rainfall patterns are becoming unpredictable, directly affecting crop yield and farmer income.

Through this project, historical rainfall data across states and years was analyzed.
Trend analysis revealed drought years and excess rainfall years. State-wise comparison showed that North-East India receives the highest rainfall, while Rajasthan and central regions receive lower rainfall.

Seasonal analysis confirmed that monsoon contributes the largest share of annual rainfall, making Indian agriculture highly dependent on monsoon performance.

The project concludes that data-driven rainfall analysis can help in crop planning, irrigation management,
drought preparedness, and sustainable agricultural practices.