Exploratory Analysis of Rainfall Data in India for Agriculture

Introduction

Agriculture in India is highly dependent on monsoon rainfall, which directly influences crop yield, irrigation planning, and food security. Due to the spatial and temporal variability of rainfall across different regions, understanding rainfall patterns is crucial for informed agricultural decision-making.

This project focuses on the exploratory analysis of rainfall data in India to uncover trends, seasonal patterns, regional variations, and anomalies. By applying data analysis and visualization techniques, the project aims to provide insights that can support farmers, policymakers, and researchers in improving agricultural planning and risk management.

The analysis uses historical rainfall data collected across various states and districts of India and explores how rainfall distribution impacts agricultural productivity.

Features

- Exploratory Data Analysis (EDA) to identify rainfall patterns and trends.
- Seasonal rainfall analysis focusing on monsoon and non-monsoon periods.
- Region-wise comparison of rainfall across Indian states.
- Trend analysis to study long-term rainfall variability.
- Data cleaning and preprocessing to handle missing and inconsistent values.
- Visual insights using charts and graphs for better interpretation.
- Agricultural relevance for crop planning and irrigation management.
- Scalable framework for future integration with crop yield or climate data.