

Project Objectives

Exploratory Analysis Of RainFall Data In India For Agriculture

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Objectives:

Accurate prediction of daily rainfall is vital for boosting agricultural productivity and safeguarding food and water security, both of which are essential to public health. Numerous studies worldwide have applied data mining and machine learning techniques to environmental datasets in pursuit of this goal. Irregular rainfall distribution poses significant challenges to agriculture, a sector that heavily influences national economies. Therefore, effective management and utilization of rainfall are crucial to reducing the adverse impacts of droughts and floods.

The primary objective of this study is to identify the key atmospheric variables that influence rainfall and to predict daily rainfall intensity using machine learning methods. To achieve this, Pearson correlation analysis was employed to select the most relevant environmental variables, which were then used as input features for the models. The dataset included variables such as location, minimum temperature, maximum temperature, rainfall, evaporation, sunshine, temperature at 3 p.m., and whether it rained today.

To evaluate predictive performance, several machine learning algorithms were implemented, including Logistic Regression, Decision Tree Classifier, Random Forest Classifier, K-Nearest Neighbors (KNN), Support Vector Machine (SVM), and XGBoost.

Technical Aspects that we would get if we complete this projects:

1. Know about pre-processing/clean the data using different data pre-processing techniques.
2. Applying different algorithms according to the dataset and based on visualization.
3. Real-Time Analysis of Project.
4. Knowledge of Machine Learning Algorithms .
5. Knowledge of Python Language with Machine Learning .
6. Understand about classification and regression problem .
7. Building ease of user Interface (ui).
8. Knowledge of building ML Models and Build web application using the Flask framework.