Project Objectives Exploratory Analysis Of RainFall Data In India For Agriculture

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Project Objectives:

AccuratepredicƟon of daily rainfall plays a crucial role in enhancing agricultural producƟvity and ensuring food and water security, which are essenƟal for maintaining public health. To achieve this, numerous studies have been conducted uƟlizing data mining and machine learning techniques applied to environmental datasets from various countries. Irregular rainfall distribuƟon significantly impacts agriculture, upon which the naƟonal economy heavily relies. Therefore, the judicious management and uƟlizaƟon of rainfall water are imperaƟve to miƟgate the adverse effects of droughts and floods.

The primary objecƟve of this study is to idenƟfy the key atmospheric variables influencing rainfall and to predict the intensity of daily rainfall using machine learning methods. The Pearson correlaƟon technique was employed to select relevant environmental variables, which were subsequently used as input features for the machine learning models. The dataset comprised variables such as LocaƟon, Minimum Temperature, Maximum Temperature, Rainfall, EvaporaƟon, Sunshine, Temperature at 3 p.m., and Rain Today. To evaluate model performance, several algorithms were implemented, including LogisƟc Regression, Decision Tree Classifier, Random Forest Classifier, K-Nearest Neighbors (KNN), Support Vector Machine (SVM), and XGBoost.

Technical Aspeccts 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.