

Project Initialization and Planning Phase

Date	24 April 2024
Team ID	Team-738169
Project Title	Rainfall Prediction Using Machine Learning
Maximum Marks	3 Marks

Project Proposal (Proposed Solution) template

The proposed Rainfall Prediction Model aims to address the challenges associated with rainfall forecasting by leveraging advanced machine learning techniques and comprehensive weather datasets. By providing accurate and timely predictions, the model has the potential to enhance decision-making processes across various sectors and contribute to improved resilience to weather-related risks.

Project Overview	
Objective	The objective of this project is to develop a robust and accurate Rainfall Prediction Model that leverages machine learning techniques to forecast rainfall patterns with improved accuracy and lead time. By harnessing historical weather data and advanced predictive algorithms.
Scope	The Model aims to provide accurate forecasts by using old whether report data and machine learning algorithms and models.
Problem Statement	
Description	The unpredictability of rainfall patterns poses significant challenges to various sectors, including agriculture, water resource management, and disaster preparedness. Accurate rainfall prediction is crucial for effective decision-making and risk mitigation in these domains.
Impact	Increased crop yield through optimized irrigation and planting schedules.Better risk management against droughts and floods, reducing crop losses.Efficient water allocation for agriculture, industry, and domestic use.Improved reservoir management for flood control and water storage.

Proposed Solution	
Approach	Gather historical weather data from reliable sources, including rainfall measurements, temperature, humidity, and wind speed. Extract informative features from the raw weather data, such as seasonal trends, spatial correlations, and historical patterns. Train the prediction model using the preprocessed data. Develop a user-friendly web application or API for accessing real-time rainfall predictions and historical data analysis.
Key Features	Accurate Predictions, Real-Time Updates, Customizable Reports, Interactive Visualization, User-Friendly Interface.

Resource Requirements

Resource Type	Description	Specification/Allocation
Hardware		
Computing Resources	CPU/GPU specifications, number of cores	Intel(R) Core(TM) i5-8130U CPU /T4 GPU
Memory	RAM specifications	8 GB
Storage	Disk space for data, models, and logs	1 TB SSD
Software		
Frameworks	Python frameworks	Flask
Libraries	Additional libraries	scikit-learn, pandas, numpy
Development Environment	IDE, version control	Jupyter Notebook
Data		
Data	Source, size, format	Kaggle dataset, 145460/23 csv