Date	24 October 2023
Team ID	Team-592454
Project Name	Project - Machine Learning Approach For Predicting The Rainfall
Maximum Marks	4 M

Solution Architecture:

1. **Weather Data Collection**

   - Data Sources: Identifying and accessing the different sources where weather data can be collected from.
   - Data Ingestion: The process of obtaining and importing data for immediate use or storage in a database.
   - Data Storage: Keeping the ingested data in a structured format, often in databases or data lakes, for analysis.

2. **Data Pre-processing**

   - Data Cleaning: Removing inaccuracies, correcting errors, and dealing with missing values to improve data quality.
   - **Feature Engineering**: Creating new input features from the existing data to improve model performance.
   - Data Normalization: Scaling data to a small specified range, like 0-1, to make the training process more stable and faster.

3. **Modeling and Analysis**

   - ML Models: Selecting and defining machine learning algorithms that will be trained to make predictions.
   - Model Training: Feeding the cleaned and structured data into the ML models to learn from it.
   - Model Evaluation: Testing the ML models on unseen data to assess their performance and accuracy.

4. **Visualization and Reporting**

   - Data Visualization: Creating visual representations of the analysis results to understand trends and patterns.
   - Reporting: Documenting the findings, the insights drawn from the data, and the performance of the models.

5. **Forecasting Output**

   - Rainfall Prediction: Using the trained ML models to predict rainfall.
   - Disaster Management Planning: Applying rainfall predictions to plan for potential natural disasters.
   - Agricultural Planning: Utilizing rainfall forecasts to inform farming strategies and crop planning.
   - Water Resource Management: Using predictions to manage water supply and allocation for various needs.

Solution Architecture Diagram: