

# Project Structure

## Exploratory Analysis of Rain Fall Data in India for Agriculture

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### Rainfall Prediction Project Structure

Name	Type	Date Modified
IBM end point deploy	File Folder	25-11-2021 11:58
templates	File Folder	12-11-2021 12:10
app.py	py File	12-11-2021 12:36
encoder.pkl	pkl File	28-10-2021 14:43
impter.pkl	pkl File	28-10-2021 14:43
rainfall_prediction.ipynb	ipynb File	25-11-2021 11:57
scale.pkl	pkl File	29-10-2021 10:45
Rainfall prediction	File Folder	15-02-2022 15:10
__pycache__	File Folder	11-11-2021 11:00
Flask	File Folder	29-01-2022 10:09
images	File Folder	08-11-2021 12:16
Rainfall_prediction.docx	docx File	15-02-2022 15:05
Rainfall_prediction.ipynb	ipynb File	28-10-2021 15:36
weatherAUS.csv	csv File	27-10-2021 11:59

#### 1. Data Layer

- **weatherAUS.csv** → Raw dataset containing historical weather and rainfall records.
- **imputer.pkl** → Pre-trained imputer for handling missing values.
- **encoder.pkl** → Encodes categorical variables into numerical format.
- **scale.pkl** → Standardization/normalization model for feature scaling.

## 2. Model Development

- **Rainfall\_prediction.ipynb** → Jupyter Notebook for data preprocessing, feature selection, model training, and evaluation.
- **rainfall\_prediction.ipynb (IBM deploy)** → Notebook adapted for deployment and integration with IBM Cloud.
- **Machine Learning Models Implemented:**
  - Logistic Regression
  - Decision Tree Classifier
  - Random Forest Classifier
  - K-Nearest Neighbors (KNN)
  - Support Vector Machine (SVM)

## 3. Application Layer

- **app.py** → Flask application script for serving predictions via a web interface.
- **Flask/** → Supporting files and configurations for the web app.
- **templates/** → HTML templates for the user interface.
- **images/** → Visual assets used in documentation or UI.

## 4. Deployment Layer

- **IBM end point deploy/** → Contains deployment-ready scripts and models for IBM Cloud.
- **Pickle files (.pkl)** → Serialized ML components for production use.
- **pycache/** → Compiled Python cache files for faster execution.

## **5. Documentation**

- **Rainfall\_prediction.docx** → Project report detailing methodology, results, and conclusions.
- **Project Structure.pdf (GitHub reference)** → Formal documentation of project organization.
- **Literature Survey.pdf (GitHub reference)** → Background research and related work.