

2) Thunderstorm Forecasting with MLFlow Tracking (Climatology)

What are Thunderstorms?

→ A rain-bearing cloud that also produces lightning.
All thunderstorms are dangerous. Every thunderstorm produces lightning.

Impact

Impact on Humans

Impact on Animals

Impact on Properties

Impact on Nature

Benefits

Production of Nitrogen

Production of Ozone

Replenish Underground

Water Table Reservoir

To maintain Earth's Electric
balance.

2 Deployment

- 1 local

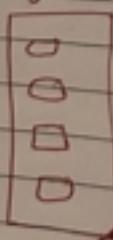
- 2 cloud deployment -- Free Cost

Assignment

1) From the doc provided, read and understand the
information given about data.

2) Read all accuracy metrics from document

Ifylib file



modular

logic1
.py

logic4
.py

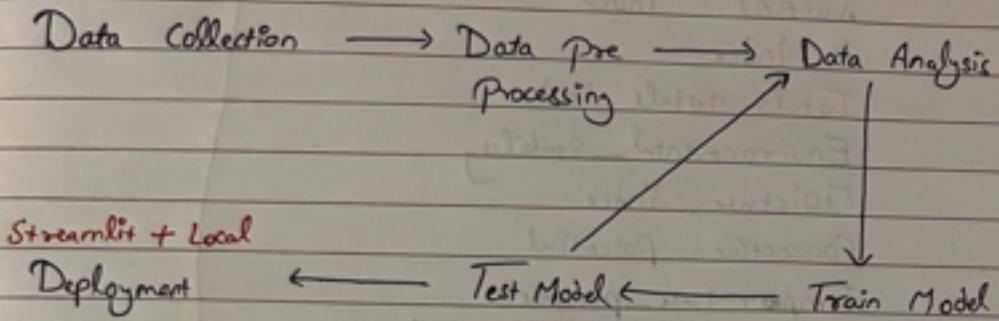
main
.py

python files

logic2
.py

logic3
.py

Machine Learning Life Cycle



OUR LOGIC

Development Process

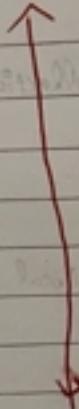
- Raw Data
- Processing & Merging as one Table
- Combining
- Model Training
- Model Testing

Data Transformation + Feature Engineering

- 1) 'PRECIPITABLE WATER' → 'Moisture Indices'
- 2) 'CAPE' → 'Convective potential'
- 3) '1000-500 THICKNESS' → 'Temperature Pressure'
- 4) 'PLCL' → 'Moisture Temperature profile'
- 5) 'Showalter Index' → 'Environmental stability'
- 6) 'LIFTED index'
- 6) Same as before → 'SWEAT Index'
'K index'
'Totals totals Index'

Only after taking Suggestion of SME

Variable Dependent
 SWEAT Index
 K index
 Totals totals index
 Environmental Stability
 Moisture Index
 Convective Potential
 Temperature pressure
 Moisture - Temperature - profile
 TH Dependent

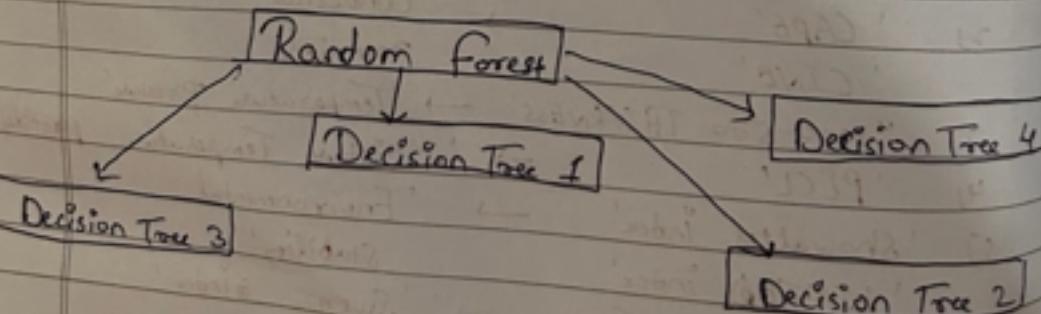


Model Training + vector coding

Model training includes the following steps:

- Data Preparation
- Model Selection
- Data Split
- Model Training

Random Forest Classifier



- Random forest is an ensemble learning method that combines Multiple decision Trees to make Predictions.
- It creates a collection of Decision Trees, where each Tree is Trained on a random subset of the Data & features.
- The final prediction determined by aggregating the Predictions of all individual Trees.

- ML Flow Tracking (To Land on the best Model)

