

EXPLORATORY ANALYSIS OF RAINFALL DATA IN INDIA FOR AGRICULTURE

Rainfall has been a major concern these days. Weather conditions have been changing for time being. Rainfall forecasting is important otherwise, it may lead to many disasters. Irregular heavy rainfall may lead to the destruction of crops, heavy floods that can cause harm to human life. It is important to exactly determine the rainfall for effective use of water resources, crop productivity, and pre-planning of water structures.

This comparative study is conducted concentrating on the following aspects: modeling inputs, Visualizing the data, modeling methods, and pre-processing techniques. The results provide a comparison of various evaluation metrics of these machine learning techniques and their reliability to predict rainfall by analyzing the weather data.

We will be using classification algorithms such as Decision tree, Random forest, KNN, and xgboost. We will train and test the data with these algorithms. From this best model is selected and saved in pkl format. Once the model is saved, we integrate it with flask application and also deploy the model in IBM.

Who does the problem affect?	Humans will be impacted more because we usually depend on rainfall for agriculture. Agriculture contributes to a number larger of environmental issues that cause environmental degradation including: climate change, deforestation, biodiversity loss, dead zones, genetic engineering, irrigation problems, pollutants, soil degradation, and waste.
What is the issue?	Heavy rainfall can lead to numerous hazards like flooding, including risk to human life,damage to buildings and infrastructure,and loss of crops and livestock.
When does the issue occurs?	The proximate or immediate cause of a rainfall shortage may be due to one or more factors including an absence of available moisture in the atmosphere; large scale subsidence

	(downward movement of air within the atmosphere) which suppresses convective activity; and the absence or non-arrival of rain-bearing systems.
Why is the issue occurring?	Recent extreme weather events are destroying standing crops as well as causing other impacts such as climate-triggered pestilence.
Why is it important to fix the problem?	Farmers say they need more reliable forecasts as well as rescue, relief and rehabilitation measures – including crop insurance – to aid climate-resilient farming.
How important is rainfall in affecting agricultural output?	In spite of various developments that have taken place in the field of agriculture, dependence on monsoon continues. Over the long run, agricultural production is influenced by a variety of factors which include technological changes, extension of irrigation, availability of credit and land reforms.