RAINFALL PREDICTION USING ARIMA AND LINEAR REGRESSION

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**ABSTRACT**

Rainfall is the greatest of nature's gifts for our daily life, as well as the most important climate factor affecting human lives with farmers and agricultural complex systems. Rainfall forecasting is critical because excessive and irregular rainfall can have numerous consequences, such as crop destruction and property damage, so a better forecasting model is required for early warning that can limit risks to life and property while also better managing agricultural farms. Time series data have been used extensively in classical statistics. The proposed methodology predicts annual rainfall by time series ARIMA model and Linear Regression a machine learning algorithm. Time series data have been used extensively in classical statistics. The ARIMA has been trained to produce excellent outcomes. The ARIMA model demonstrated greater accuracy in all seasonal and yearly rains. To offer a solid prediction, this method, like time series ARIMA, requires a strict assumption of stationarity. We use real data from the Indian government website and Kaggle to compare model quality in ARIMA using different evaluation metrics. As a result, the ARIMA model accurately forecasts rainfall with less error, and the resultant model can be used to forecast rainfall for future years.