**Title: An Efficient Machine Learning Technique for weather forecasting**

**SYNOPSIS**

**Abstract** Weather forecasting is a critical tool for many different applications, from agriculture and transportation to disaster preparedness and response. While weather forecasts are not always perfect, they provide valuable information that can help people make decisions and take appropriate actions to protect themselves and their property from the impacts of extreme weather events. In this paper, to forecast the weather we are using the SARIMA model as RMSE is 1.24 and analyse how it forecast thecast the weather with high accuracy. Note that the SARIMA model is a machine learning (ML) technique used to forecast time series data that has both trend and seasonal components. It is an extension of the ARIMA model, which stands for Autoregressive Integrated Moving Average. To account for periodic changes in the data, the SARIMA model augments the ARIMA model with a seasonal component. The SARIMA model is trained on historical weather data and can be used to predict future weather patterns. It is a powerful tool for weather forecasting as it can accurately predict both short-term and long-term weather trends. The quality of the input data determines how accurate the SARIMA model will be, and the model can be adjusted to perform better. In conclusion, the model known as SARIMA is a ML based approach that has been successfully used to predict weather. It is a powerful tool that can handle non-stationary and seasonal components and can accurately predict short-term and long-term weather trends.

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**Objectives**

* The primary objective of crop yield protection is to minimize losses and maximize productivity by safeguarding crops from various threats such as pests, diseases, adverse weather conditions, and environmental stressors.
* This ensures a stable and sustainable food supply while also supporting farmers' livelihoods and economic stability in agricultural regions.
* Protecting crop yields helps farmers maximize their profits by ensuring they can harvest and sell healthy crops at competitive prices.
* By preventing crop losses, we reduce the need for additional land conversion for agriculture, helping to conserve natural habitats and biodiversity.

**Problem Statement**

A Novel YOLO-Based Deep Learning Technique for Crop Pest Detection.

**References**

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