

Model Development Phase Template

Date	01 December 2024
Team ID	739791
Project Title	Rice Crop Monitoring-Time Series Analysis
Maximum Marks	5 Marks

Model Selection Report

In the model selection report for future deep learning and computer vision projects, various architectures, such as CNNs or RNNs, will be evaluated. Factors such as performance, complexity, and computational requirements will be considered to determine the most suitable model for the task at hand.

Model Selection Report:

Model	Description
ARIMA	ARIMA is a popular statistical model used for time series forecasting. It captures dependencies in the data. ARIMA is suitable for univariate time series data, especially when data shows patterns like trends or seasonality after differencing. It Handles non-stationary data through differencing. It is Well-suited for short-term forecasts with clear patterns.
SARIMA	SARIMA extends ARIMA by incorporating seasonal patterns in time series data. It is particularly useful for datasets with periodic behavior, such as monthly sales or temperature data. The model adds seasonal terms to ARIMA (denoted as (P, D, Q, m)), where P, D, and Q are the seasonal counterparts of ARIMA's parameters, and m represents the length of the season. SARIMA provides a more robust framework for time series with cyclical trends, making it well-suited for datasets with clear and repetitive seasonal patterns.

FACEBOOK PROPHET	Prophet, developed by Facebook, is a forecasting tool designed for business and research applications where there is a need for interpretable and flexible time series modeling. Unlike ARIMA and SARIMA, Prophet can automatically handle missing data, irregular time intervals, and outliers. It decomposes time series into three main components: trend, seasonality, and holidays or special events. Prophet allows users to input custom holiday effects, making it highly adaptable to domain-specific requirements.
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