

**Title :** A Comparative of Time Series Model of Dengue Hemorrhagic Fever Cases for Monthly Dengue Cases in Chiang Mai Province

**Author :** 1. Mr. Thanakorn Rueansit

**Student ID :** 640510533

**Major :** Statistics

**Advisors :** 1. Dr.Chalermrat Nontapa  
2. Dr.Parichart Pattarapanitchai

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## ABSTRACT

This study aimed to study models for forecasting the number of Dengue Hemorrhagic Fever (DHF) cases in Chiang Mai and compare four forecasting models, namely SARIMA, Holt-Winters, LightGBM, and XGBoost. The dataset is a monthly dataset of the number of Dengue Hemorrhagic Fever cases in Chiang Mai province from January 2011 to May 2024 (161 months). This dataset was divided into two sets: the first training dataset from January 2011 to May 2023 (149 months), to construct the forecasting model; and the second testing data set from June 2023 to May 2024 (12 months), to compare the accuracy of each model. The performance of each model was compared by the Mean Absolute Percentage Error (MAPE), the coefficient of determination (R-Squared), and the Reduce of Error Rate (RER). The results show that XGBoost is the best model for forecasting the number of Dengue Hemorrhagic Fever, with the lowest MAPE of the training set of 0.078% and MAPE of the test set of 6.809%, R-Squared of 85.90%, and RER of 53.103%.