

## Abstract

The digitalization of health records has paved the way for enabling many clinical analyses such as prediction and response management for incidents such as mortality rates in the hospital's intensive care units (ICU). Moreover, following recent years, electronic health records (EHR) adoption have been rising along with more standardized methods to ease the automated process of data extraction to obtain valuable information for improving patient care and mitigate medical costs for healthcare institutions. Certain developed countries such as the United States, United Kingdom, and the Netherlands, to name a few, have already adopted a standardized EHR system and have even created publicly available data for use such as the MIMIC-III database. Such standardized procedures and an increase in adoption help leverage analysis using machine learning models for several studies, such as predictive modeling. This study will focus on developing a simple predictive machine learning model utilizing XGBoost algorithms for predicting of mortality risk and length of stay based on data from a patient's past medical history in ICU care from MIMIC-III database. Subsequently, the prediction results can then be visualized for practitioners or shareholders in clinical settings to quickly identify trends from the patient's past medical history and aid practical decision-making efforts.

**Keywords:** Machine learning, XGBoost, electronic health records, intensive care unit, MIMIC-III database.