CHAPTER 5
CONCLUSION AND RECOMMENDATION

The ML is an effective tool for predicting accidents; the model performs well in terms of non-fatality prediction, but there is still room for improvement in fatality prediction, which can be interpreted to mean that the factors that cause fatal accidents may cause a major accident but do not always result in a fatality. Because fatality is such a random feature, specific feature selection may be required before entering the model to predict fatality, such as riding experience, rider health fit, and even the time duration from the accident area to hospital.

In Thailand now, the majority of accidents occur during daytime (08.00–18.00), while peaks occur at 19.00–20.00 and 22.00–23.00 and high fatality rate at night (19.00–07.00). Accidents were more likely among young people (15-35 years old), who are less disciplined, unfamiliar with traffic laws, and have less driving experience, according to the study. Authorities are considering proposed laws to control speed limits on long straightaways by using light signs, warning signs, and cameras that closely monitor driving speeds, especially motorcycles and may consider raising the minimum age for obtaining a motorcycle license to at least 18 years old or imposing additional engine size restrictions based on rider age. Road lighting was also identified as a significant factor in motorcycle accidents, particularly on RRs, but in all accident categories except speeding-related deaths on HWs. As a result, we propose that better lighting be installed on Thai roads wherever possible, particularly in rural areas. It's important to note that predicting road accidents is a complex task and will likely require a combination of machine learning and other techniques, such as analyzing traffic patterns and engineering road designs to make them safer. In term of data, I would like to propose a recommendation to the organization responsible for collecting accident data, particularly regarding the importance of ensuring meticulous attention to data formatting and typing. We have encountered substantial data loss as a consequence of frequent errors and omissions during data entry. To address this issue,

I suggest implementing a drop-down selection feature for individuals involved in data input. This approach has the potential to significantly reduce or even eliminate errors, enhancing the overall accuracy and reliability of the collected accident data. By giving due consideration to these measures, the organization can ensure the utmost precision and integrity in its data collection practices.

Study 1: Males riding motorcycles at over-the-limit speeds on straight roads in clear weather have a higher risk of injury or death in traffic accidents than other conditions, with confidence levels increasing from 0.5x, 06x, and 0.7x to 0.99x if the consequences are motorcycle and dry surface road with high lift. As stated on the finding rule, the greater the number of elements involved, the greater the likelihood of an accident. In addition, the newly discovered straightway contributes significantly, while transportation authority's exercise caution at intersections and on curve roads. With all of the rules discovered in this study, policymakers may be able to eliminate some of the factors that contribute to highway traffic accidents. It should, at the very least, raise awareness of risky driving behaviors. Authorities are considering proposed legislation to control speed limits on long straightaways through the use of light signs, warning signs, and cameras that closely monitor driving speeds, particularly those of motorcycles.

Study 2: HWs have more fatality contributors than RRs; for example, accidents on HWs were common when riders had been drinking, especially at night with no light. HWs also have significantly more traffic and a wider variety of vehicles traveling at higher speeds than RRs, facilitating accidents that can result in serious injury or death. Age was another significant factor in motorcycle accident fatalities on both types of roads, though only HW fatalities included riders as old as 90 years; the highest age in RR fatalities was 60 years. One interesting observation here was that whether or not a rider was speeding, RR fatalities generally occurred at night with no street lighting. As a result, we propose that Thailand properly post speed limits and support enforcement of compliance within these limits. Another important predictor of motorcycle fatalities was short-cutting. Although male gender was the most common cause of HW motorcycle fatalities in this study, age, accident location, and vehicle type had less of an impact. Substance use, on the other hand, was a factor in many

accidents, and we propose more education on the dangers of riding while intoxicated, as well as stricter enforcement of penalties for infractions.

Study 3: According to our findings, GB is the second runner after RF. Because of the complexities and wide range of factors that contribute to traffic accidents. The comparison analysis helps to determine which models outperformed and provided the most accurate prediction with the least amount of error, and which will be implemented. Different models are better suited to different types of data. When features are highly independent, Naive Bayes performs well. When there are too many features and the dataset is medium in size, SVM is useful. Linear regression, logistic regression, and SVM are appropriate when the dependent and independent variables have a linear relationship. kNN can be applied to small data sets with an unknown relationship between the dependent and independent variables. As a result, before making a decision.