ABSTRACT

Digital transformation in the insurance industry demands companies to manage claim data efficiently and accurately, especially in risk analysis. PT. Jasa Raharja Kupang currently lacks a system capable of performing automatic risk analysis on insurance claims. This research aims to design and develop a web-based application to analyze claim risk by applying the ICONIX software development method. The application processes insurance claim data using the K-Means Clustering algorithm to classify claims based on their risk level. The development process includes requirement analysis, Storyboard, Use Case Modeling, Robustness and *Sequence Diagram*s, as well as the implementation of Class Diagrams and database design. The application was built using Laravel framework and MySQL for database management. The testing result indicate that the system successfully performs risk clustering with accurate results, presented in visualizations and downloadable reports. This application assists management in identifying high-risk claims and supports faster and more accurate decision-making. Therefore, this research addresses the need for an insurance claim risk analysis system and contributes to improving claim data management efficiency within PT. Jasa Raharja Kupang.

Keywords : Risk Analysis, Data Mining, K-Means Clustering, ICONIX