Abstract

Most educational institutions in Indonesia still use manual methods in recording student attendance which is prone to errors and data manipulation. This research aims to conduct software requirements engineering for the development of Presentia, a web-based digital attendance system that supports IoT integration and multi-tenant models. The methods used include requirements elicitation through semi-structured interviews with product owners, requirements analysis, modeling using the Unified Modeling Language (UML), and validation through the walkthrough method. The research resulted in 125 functional requirements categorized based on user groups (Students, School Staff, School Admin, and Superadmin) and 5 non-functional requirements which include performance, security, usability, and privacy aspects. Requirements modeling was conducted using UML, including use case diagrams, activity diagrams, class diagrams, deployment diagrams, as well as Entity-Relationship Diagram and system architecture design. Validation of requirements involved an internal team of developers and external parties. The results of the analysis show that UML is able to represent needs comprehensively and help ensure alignment with stakeholder desires. Hopefully, this research can be used as a reference for the development of similar systems and encourage further research related to the requirements engineering and modeling process of multi-tenant systems.

Keywords: ***requirements engineering, requirements modeling, Unified Modeling Language (UML), attendance system***
