

## ABSTRACT

Process mining is a discipline that bridges data science with business process management to evaluate operational efficiency based on *event logs*. One of the popular open-source software tools used in this field is PM4Py (Process Mining for Python). Despite its strong analytical performance, PM4Py is code-based, presenting a steep learning curve for non-technical users. This study aims to develop a web-based process discovery application that utilizes PM4Py as the core processing engine to provide easier accessibility for users. The software development method employed is the ICONIX Process, which covers Requirements, Analysis/Preliminary Design, Detailed Design, and Implementation stages. The application is built with a decoupled architecture using the Django framework on the back-end and NuxtJS on the front-end, implementing Alpha Miner, Inductive Miner, and Heuristic Miner algorithms. Testing was conducted using Black-Box Testing for functional validation and Proof of Concept (PoC) using two standard case studies (Purchasing Example and Running Example). The results indicate that the developed application is capable of performing *event log* upload (XES/CSV), filtering, process model discovery, visualization (Petri Net and Directly-Follows Graph), and model quality evaluation (fitness, precision, generalization, simplicity) accurately and validly. This application is expected to serve as an efficient and user-friendly process mining solution alternative without requiring programming expertise.

**Keywords:** *Process Mining, Process Discovery, PM4Py, ICONIX Process, Web Application.*