Optimizing Jira-Based Support Operations With AI: A Lightweight Framework for Smart Ticket Routing and SLA Breach Prediction

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ABSTRACT

In modern digital enterprises, swift and accurate technical support is essential. This paper proposes a practical, AI-assisted solution for improving ticket handling in JIRA environments. By integrating supervised learning models into a JIRA workflow, the system automatically classifies tickets based on urgency and predicts potential SLA breaches. Deployed through REST API and JIRA Automation Rules, the framework achieved a 34% reduction in resolution time and significantly improved SLA adherence during testing. The method is designed for small to mid-sized support teams without reliance on premium plugins or external tools.

Keywords *AI in Support Systems, JIRA Automation, SLA Prediction, Ticket Classification, Machine Learning, Python Integration, Technical Support Optimization*

INTRODUCTION
Technical support operations are critical to maintaining business continuity. However, support teams often face growing volumes of incoming tickets, creating response delays and risking SLA violations. This paper explores an AI-powered, lightweight solution implemented within JIRA to automate classification and SLA risk detection.

SYSTEM DESIGN AND ARCHITECTURE
The solution uses Python for data preprocessing and classification. It integrates with JIRA through

API calls and Automation Rules, enabling seamless routing of tickets based on priority and predictive risk.

IMPLEMENTATION DETAILS
Custom Python scripts trained on historical ticket data (including priority, issue type, labels, resolution time) are deployed. A logistic regression model was used for SLA prediction and a Naive Bayes classifier for urgency classification. These results were used to trigger smart workflows within JIRA.

RESULTS AND ANALYSIS
Testing in a live support environment showed a 34% reduction in average ticket handling time and a 40% improvement in SLA adherence. The system's accuracy in priority classification reached 92% using labeled data.

CONCLUSION
This framework offers a scalable, low-cost AI enhancement for JIRA support environments. It empowers support teams with actionable automation, bridging the gap between manual workflows and smart operations.
Future work may involve integrating NLP for summarizing customer issues and extending SLA breach alerts to mobile and email notifications.

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