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AI-Powered Bug Triage and Assignment Systems for Reducing Resolution Time in IT Projects

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Abstract: *Efficient bug management is a critical factor in the success of IT projects, as delayed resolution of software issues can significantly impact project timelines and overall quality. Traditional bug triage processes rely heavily on manual intervention, where project managers or team leads examine, prioritize, and assign bugs. This manual approach is time-consuming, inconsistent, and often prone to errors, resulting in prolonged resolution times and reduced team productivity. This study proposes an AI-powered bug triage and assignment system that leverages machine learning and natural language processing to automate the classification, prioritization, and assignment of bugs. By analyzing historical bug data and developer expertise, the system intelligently assigns issues to the most suitable team members, optimizing workload distribution and improving response times. Experimental results demonstrate that AI-driven bug triage significantly reduces resolution time, enhances assignment accuracy, and boosts overall efficiency in software development projects. The system not only streamlines the bug management process but also supports continuous learning, enabling adaptive improvements over time. This approach represents a transformative step toward data-driven, efficient, and scalable software project management.*

Keywords: AI, Bug Triage, Machine Learning, Issue Resolution, Software Project Management

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