A Comprehensive Approach to Evaluating Software Code Quality Through a Flexible Quality Model

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The rapid growth of the software engineering sector has led to a detrimental effect on the quality of software being developed. Code quality is crucial in determining the overall quality of software however, it is often observed that quality management programs primarily focus on internal processes within organizations, while the importance of code quality lacks proper attention despite the existence of quality standards for software products and processes. Due to its dynamic nature, the concept of quality poses a challenge in terms of precise definition, however, this paper addresses this issue by providing a comprehensive definition for code quality that considers all its dimensions, thus laying the foundation for conducting research related to quality. Code quality encompasses factors such as readability, scalability, performance, and adherence to industry standards. High-quality code is easy to understand, modify, and test, making it more reliable and less prone to bugs. By considering the multitude of challenges that currently exist and acknowledging the criticality of code quality, this study proposes an approach for assessing code quality, and a comprehensive quality model that considers the most critical code quality attributes and their relevant metrics along with corresponding threshold values specifically use in the contemporary software industry.

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