1. On the Evolution of Mobile App Complexity

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Abstract: Android developers are known to frequently update their apps for fixing bugs and addressing vulnerabilities, but more commonly for introducing new features. This process leads a trail in the ecosystem with multiple successive app versions which record historical evolutions of a variety of apps. While the literature includes various works related to such evolutions, little attention has been paid to the research question on how quality evolves, in particular with regards to maintainability and code complexity. In this work, we fill this gap by presenting a large-scale empirical study: we leverage the AndroZoo dataset to obtain a significant number of app lineages (i.e., successive releases of the same Android apps), and rely on six well-established, maintainability-related complexity metrics commonly accepted in the literature on app quality, maintainability etc. Our empirical investigation eventually reveals that, overall, while Android apps become bigger in terms of code size as time goes by, the apps themselves appear to be increasingly maintainable and thus decreasingly complex. (0 refs)
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Uncontrolled terms: mobile app complexity - Android developers - bugs - addressing vulnerabilities - multiple successive app versions - code complexity - large-scale empirical study - app lineages - Android apps - maintainability-related complexity metrics - app quality - historical evolutions
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