1. Automated testing of Android apps: A systematic literature review (*Open Access*)

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Abstract: Automated testing of Android apps is essential for app users, app developers, and market maintainer communities alike. Given the widespread adoption of Android and the specificities of its development model, the literature has proposed various testing approaches for ensuring that not only functional requirements but also nonfunctional requirements are satisfied. In this paper, we aim at providing a clear overview of the state-of-the-art works around the topic of Android app testing, in an attempt to highlight the main trends, pinpoint the main methodologies applied, and enumerate the challenges faced by the Android testing approaches as well as the directions where the community effort is still needed. To this end, we conduct a systematic literature review during which we eventually identified 103 relevant research papers published in leading conferences and journals until 2016. Our thorough examination of the relevant literature has led to several findings and highlighted the challenges that Android testing researchers should strive to address in the future. After that, we further propose a few concrete research directions where testing approaches are needed to solve recurrent issues in app updates, continuous increases of app sizes, as well as the Android ecosystem fragmentation. © 2018 IEEE. (147 refs)
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