Abstract

Development of Android Apps is inherently challenging as difficulties arise in tracing bugs and crashes due to GUI based event driven work flow, contextual scenarios and diversified sources of inputs working together. In order to alleviate developer’s challenges in this regard, a state of the art contextual stress testing framework of Android apps named MobileMonkey is proposed. This framework facilitates developers to analyze Android apps using automatic stress inputs and contextual scenario generation with an inherent aim to invoke bugs or crashes, devised by a systematic and strategic execution of static analysis in a cohesive manner, which in essence, provides developers with plenty of insight regarding what went wrong based on data-intense crash logs, traceable trajectories of execution and replayable as well as replicable scripts. We evaluated MobileMonkeys effectiveness in comparison with industry standard Android app stress testing tool on 30 Android apps, 15 of which are heavily utilized real world android apps. The results demonstrate that MobileMonkey consistently performs better than the industry standard tool for stress testing in a diverse range of scenarios. Additionally, MobileMonkey is created to be resource friendly, horizontally scalable and non reliant on specific versions of
Android Standard Development Kit, thus automatically becoming a better choice for being integrated as stress testing framework at any stage of Android app development.

References


Index Terms

Computer Science

Information Systems

Keywords

Android, Software Testing, Stress Testing, Contextual Testing