1. A comparative study of smartphone and smartwatch apps

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Abstract: Despite that our community has spent numerous efforts on analyzing mobile apps, there is no study proposed for characterizing the relationship between smartphone and smartwatch apps. To fill this gap, we present to the community a comparative study of smartphone and smartwatch apps, aiming at understanding the status quo of cross-phone/watch apps. Specifically, in this work, we first collect a set of cross-phone/watch app pairs and then experimentally look into them to explore their similarities or dissimilarities from different perspectives. Experimental results show that (1) Approximately, up to 40% of resource files, 30% of code methods are reused between smartphone/watch app pairs, (2) Smartphone apps may require more than twice as many as permissions and adopt more than five times as many as user interactions than their watch counterparts, and (3) Smartwatch apps can be released as either standalone (can be run independently) or companion versions (i.e., have to co-work with their smartphone counterparts), for which the former type of apps tends to require more permissions and reuse more code, involve more user interactions than the latter type. Our findings can help developers and researchers understand the ecosystem of smartwatch apps and further gain insight into migrating smartphone apps for smartwatches. © 2021 ACM. (31 refs)

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