

ANDROMIGRATE: ANDROID API CHANGES AND MIGRATION TOOL

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Abstract

Android is a mobile development platform which is largest used mobile operating system in the world. One of the main reasons to having a large number of users and applications is that Android keep on updating their APIs and other security levels and releasing API changes frequently. Every API version comes with valuable changes in the Android development context and those changes can be Security enhancements changes, Connectivity features, Accessibility services API, UI changes, updated libraries, Deprecated libraries, Added libraries and Limitations in libraries. Since Google made the restriction on API level and developers are forced to target the latest API, they have to spend more time on the migrating and have to check for the code changes which will be more time consuming.

AndroMigrate systems are built with the aim of automating Android migration and abstracting the complexities involved in Android API migration mapping instances. This dissertation is a result of the project to build an auto migration system. The developed system, *AndroMigrate*, works by making use of android documentations and the instances structured in a rule-based approach. The mapping combinations are setting with the algorithm and the instances mapped to the relevant migration changes are evaluated. Finally, the migration changes applied to the source code.

AndroMigrate provides migration mapping instances which can be used in the source code. The decision-making mechanisms used throughout the system and selecting mapping instances are produced by this dissertation. Compared to the existing systems, where there is no any automated system with easy plugin solution to solve the migration mapping instances problem as *AndroMigrate*. It works with 44 different mapping instances and support n to n mapping instances. It is available as plugin and interactions with user is facilitated through Android studio IDE plugin which is more comfortable for android developers to use.

Keywords: Android API, Mapping Instances, code migration, migration tool.