Abstract

As the core of software product line disciplines is constructing new product member by composing the existing software product line architecture rather than building from scratch. In particular, the composing or applying the existing software product line architecture is to identify and reuse the existing software artifacts of the product line. This method, software reuse, is a crucial concern in today's world of complex software products and is one of the major goals of software engineering research. This research thus introduces the mining UML-based SRD repository to cover all important modules and the related infrastructure of the software product line systems. Also, the research presents the supporting in collecting UML-based software artifacts and identifying the potential reusable software artifacts of software product line systems for reuse in the new software systems. In particular, the research focuses on analysis of the social network technique to identify the potential reusable software artifacts in software product line repository. We apply a graph to show the social network which relate UML model elements created from the software artifacts, particularly UML use case diagrams. The mining process of reusable software artifacts was proposed. With the current version of the tool, we have performed two experiments to achieve the research objectives. For the future work, we intend to further develop the tool in order to fully support the visualization of social networks in order to facilitate and automatically identify potential reusable software artifacts to new software projects. We also plan to gather more data from the projects in order to develop statistic evaluation of comparison between small or medium-sized and large-sized software projects. Multiple software projects and different application domains will be included in the software repository to have more information to support in identifying the potential reusable software artifacts.