Evaluating Performance of Clone Detection Tools in Detecting Cloned Cochange Candidates

**Abstract-** Code reuse by copying and pasting from one place to another place in a codebase is a very common scenario in software development which is also one of the most typical reasons for introducing code clones. There is a huge availability of tools to detect such cloned fragments and a lot of studies have already been done for efficient clone detection. There are also several studies for evaluating those tools considering their clone detection effectiveness. Unfortunately, we find no study which compares different clone detection tools in the perspective of software maintenance (e.g., detecting co-change candidates during software evolution) -- the most important aspect of clone detection. In this study, we wanted to explore this dimension of code clone research. We implemented six promising clone detection tools to identify cloned and non-cloned cochnage candidates from six C and Java based subject systems and evaluated the performance of those clone detection tools in detecting the cloned cochange fragments. To select those clone detection tools and subject systems, we considered related works and popularity index of programming languages. The findings of this study not only can play an important role through the future use of clone detection tools in the perspectives of software maintenance but also it can enrich a new dimension of code clone research.