

Abstract

Currently the software maintenance process has become the main activity of the software developer industry. Code cloning is one of the reasons why maintaining software is difficult. Defects can also occur if the code cloning maintenance process is not done properly. In detecting a code clone that is done manually, the detection is done by comparing lines of code text one by one. Meanwhile, in the process of detecting code cloning semantically, code cloning detection is done by detecting the meaning or purpose of a method in the source code. IOE-Behavior is a method that uses the input, output and effects of a method to detect if there is a semantic cloning of code. In this study, a comparison measurement of the level of truth and the level of similarity of the system and manual detection results will be carried out, to determine the better detection results between the system and manual. The results of the detection of the system get 110 cloning methods and 81 non-cloning methods from 191 cloning candidates. The results of manual detection were obtained by conducting a survey to 5 participants, getting results of 104, 102, 104, 109, 107 cloning methods and 87, 89, 87, 82, 84 non-cloning methods. After measuring the comparison of the level of truth and the level of similarity between the results of system and manual detection, the average percentage of the truth level of system detection results is 61.54% and manual is 38.44%. The level of similarity measured by the Cohen's Kappa method got an average Kappa value of 0.715, the value states that the level of similarity between the system detection results and the participant detection results is a strong similarity (Substantial Agreement) based on the interpretation of the Cohen's Kappa index value.

Keywords: Code Clone, IOE-Behavior, Java, Input, Output, Effect, Method, Cohens's Kappa.
