

Abstract

National Examination is an important part of education that is used to measure or evaluate learning outcomes nationally. In order to get good result of evaluation, it takes an exam package that is accordance with the standards and specifications which have been determined by the team. National exam package is made into several types in which the question for each type is different but has similar level in difficulty level, discriminant level, and indicator, as well as the working time is relatively the same. To solve the problems of question package creation, Genetic Algorithm is very appropriate for use because it can solve a complex optimization problem and solved difficult conventionally. In order to obtain more optimal solution, used fuzzy set to select the appropriate questions to be included in the search for solutions.

This final project is describing about the implementation of Genetic Algorithm and Fuzzy Set in UN questions package type creation. From the test results can be seen that by using the Genetic Algorithm can be created a number of question packages which have a specification close to the specification which have been determined by the question maker. By using fuzzy set for selecting the appropriate questions before inserting it into the evolutionary process of Genetic Algorithm, the solution obtained is more optimal reflected by the quality (fitness value) obtained.

Keywords: Genetic Algorithm, fuzzy set, UN, question package type