ABSTRACT

make a computer game as a learning tool must consider the level of difficulty based on player ability, so the motivation the players can still be maintained. It required calculations to determine the level of difficulty and challenge level of games automatically. Learning games can adjust the difficulty level according to the response the game player.

Gaussian distribution and box muller’s method applied to determine the level of difficulty the game automatically. Gaussian distribution is used to determine the distribution of difficulty levels the game by adding and reducing the level of difficulty for the type of questions that are difficult, moderate and easy. Box Muller method is used for generating random numbers. Calculations performed to generate 10 questions of 30 questions with mean (μ) and standard deviation (σ) specific.

From the research results obtained about the frequency of occurrence of 10 attempts using Gaussian Distribution and Box Muller Muller, for μ = 3 and σ = 1 the frequency of occurrence tends to 10 easy questions, for μ = 5 and σ = 1 the frequency of occurrence 10 problems tend to the medium matter, and for μ = 7 and σ = 1 the frequency of occurrence will tend to 10 difficult questions. The results of an experiment to raise and lower level of difficulty that game more dynamic and monotony of every player capabilities, if the player with average ability early in the game on a door choose the difficulty level is μ = 6 with values of 60, because either the value of the door-2 level of difficulty is raised about the value of μ = 6 with 80, because the value is good then the door-3 levels of difficulty is increased μ = 8 with the value 85 and if the player with ability below average early in the game on a door choose the difficulty level is easy μ = 3 with a value of 20, because the value is less then the door-2 reduced the level of difficulty about μ = 2 with a value of 50, because of considerable value then the door-3 levels of difficulty is raised μ = 5 the value of 70.

Keywords: Gaussian distribution, Box-Muller, Player, Mathematics