

ABSTRACT

Video games, or simply games, have become one of the most beloved and lucrative forms of entertainment. Over time, game development has encountered various challenges, one of which revolves around creating diverse level layouts and challenges. These issues are addressed through the application of Procedural Content Generation (PCG) techniques. In this study, we employ the Cellular Automata method for PCG, specifically focusing on generating dungeon or underground level designs. The game development process itself utilizes the MDLC method by Luther. The primary objective of this research is to implement PCG methods in video game development, aiming to streamline the level creation process. The results reveal that dungeon levels can be produced in a timeframe ranging from approximately 0.08 to 0.3 seconds, significantly enhancing developers' efficiency in generating a wide array of level variations. Furthermore, it's observed that varying the fill percentage at values of 25%, 45%, or 65% significantly influences the level layout, ranging from almost empty spaces to small, disconnected chambers. Testing with different seeds at a 45% fill percentage successfully yields diverse level layouts.

Keywords: *Cellular Automata, Games, Levels, Procedural Content Generation.*