Programming an Adaptive Artificial Intelligence Utilizing Past Pattern Recognition

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The objective of our design project is for the AI to learn from past successes and failures and to adapt them to future games, utilising past pattern recognition. We began this project by researching topics about artificial intelligence. Past pattern recognition stood out to us a way of training an artificial intelligence. Mancala was the board game of choice for us, as we believed it had a large numbers of possible turns, as well as being complex enough for us to get a good benchmark for our artificial intelligence. We then programmed the Mancala board in C#. We used Visual Studio 2013 as our IDE of choice, and used Dropbox as a way to backup and transport our files. We wrote an automated script that made backups of our project. Designing the artificial intelligence was, as expected, the hardest part of the project, and it also took us the longest time. We chose past pattern recognition as the basis for our artificial intelligence. After programming the artificial intelligence, we then moved onto testing. We tested the artificial intelligence against another artificial intelligence, starting with a learning base of zero moves, as well as with a high amount of turns in the library to start. We concluded that the artificial intelligence grew more efficient overtime and that past pattern recognition is a very dynamic method for the artificial intelligence to learn mancala.

Awards Won: