

**Faculty of Engineering & Technology**

**Electrical & Computer Engineering Department**

**ARTIFICIAL INTELLIGENCE**

**ENCS3340**

**AI PROJECT**

.**Report 2**

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**Section**: 2

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# **About our program :**

The provided code is a Java implementation of a game called Magnetic Cave. The game is played on an 8x8 board, where two players take turns placing their bricks on empty cells. The goal is to create a sequence of five bricks either horizontally, vertically, or diagonally.

The game supports two modes: playing against an AI computer or playing against another player. The AI computer utilizes the minimax algorithm with alpha-beta pruning to make intelligent moves. The depth of the algorithm determines the lookahead of the AI.

The code includes methods for initializing the board, displaying the board, validating moves, checking for a win, making moves, evaluating the board state, and switching players. The **`evaluateBoard()`** method calculates a score based on the number of bricks in rows, columns, and diagonals. The score is used by the AI to determine the best move.

The `play()` method orchestrates the gameplay. It prompts the user to select the game mode and the starting player. Players make moves alternately until a win or tie is detected. The game ends with a display of the final board and the winner.

Overall, the code provides a functional implementation of the Magnetic Cave game with an AI opponent. It demonstrates the use of algorithms and techniques for creating a game-playing AI.