Gomoku

BSSE1003, BSSE1014, BSSE1029

Gomoku, also called five in a Row, which is an abstract strategy board game. We have built a gomoku game with 10x10 board.The game is AI based where a human can play against a computer. AI uses a min-max algorithm to find the best move against the human move. The player who makes five in a row will win the game.

Minimax with alpha beta pruning

Minimax algorithm has been implemented to find out the best move for the computer and the human. Alpha-Beta pruning algorithm has been used for reducing the game tree branches. The maximum depth of our game tree is 5.

Evaluation Function

At any particular game state we calculate or sum up the benefit any player can achieve by making a move at that cell. The weight of all the patterns matched at that state are added together to measure the move's benefit.

Heuristic Method

In a particular game state we have checked all the adjacent cells of an already occupied cell and matched if the pattern is the best one for the player whose turn it is.

About Game

- The game has been developed in C++ with the QT framework.
- On the user interface the user will click on an empty cell to make a move.
- The User can restart the game while it's running or continue with hand exchange after finishing a game.
- Winning combination has been highlighted with color change.