

Description of Advanced Features

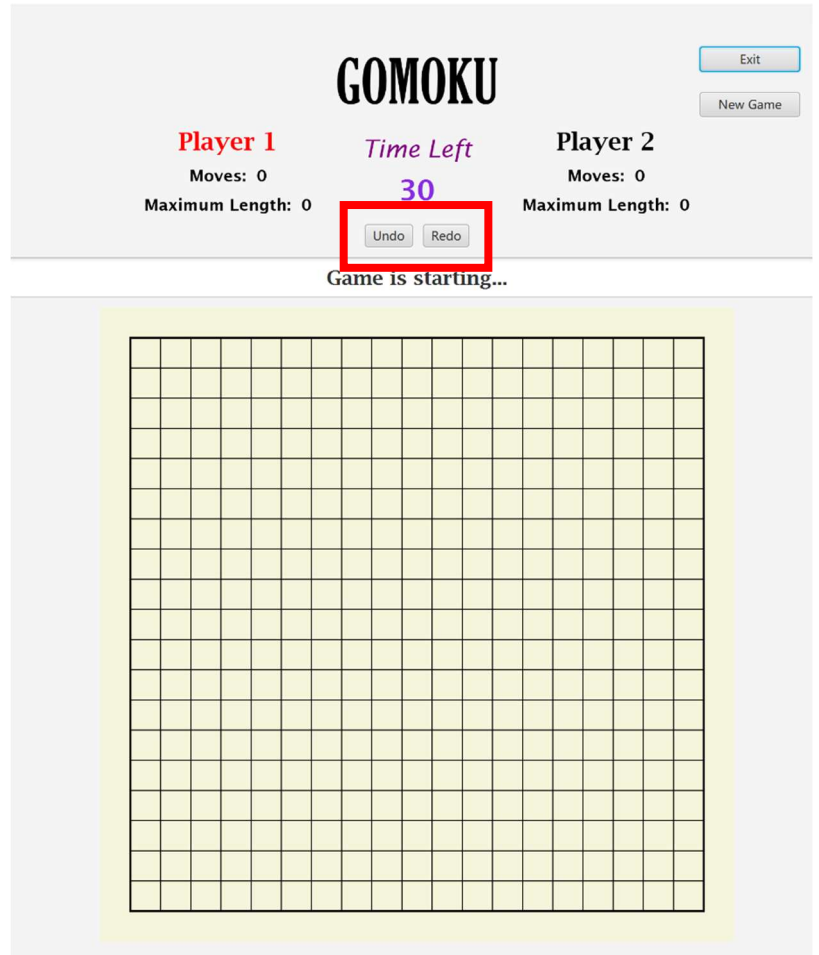
The *Undo and Redo* and the *Time Limit* functions of the Gomoku Game have been implemented in this project. The following are the instructions and descriptions of these advanced features.

1. Undo and Redo

As shown in the figure on the right, there are 2 buttons above the text field: the undo button and the redo button. During the game, if the player presses the undo button, the player's last move will be undone. If the player has already undone one or more times, if he or she hit the redo button, the last move undone will be retrieved.

Remarks:

- (1) The redo button would only function if there is one or more moves undone and the player decides to redo before any player make any move, otherwise an error message would be displayed on the text field.
- (2) The undo and redo functions can be accessed several times by clicking the corresponding buttons several times.
- (3) If there is no move that can be undone or redone, an error message would be displayed on the text field.



2. Time Limit

As shown in the right figure, there are some purple text displayed between the players' info regions, which is the countdown region.

The default time limit is 30s for

each move. A player would have 30s to make a move. If the countdown reaches 0, it means that time is out, and the player would lost his or her chance to place the stone this round, and the opponent would be able to make the move.



Remarks:

- (1) When the player enters the game screen, the countdown would NOT be activated. The countdown would only be activated as player 1 makes a move. Then the game officially starts, and the countdown mechanism begins.
- (2) When the game reaches an end, the countdown would stop.
- (3) If a player accesses the undo/redo function, then the countdown would start again from 30 seconds.