



CS102A Java Program: Halma

Lab9 Group909

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Basic Functions

1.1 Initialize the Halma Game

1. Initialize 2 Players and 4 Players chessboard.
2. Display current player and current mode.
3. Restart the game for multiple times.
4. Randomly determine who plays first.

*Bonus-1: Quick restart

1.2 Load and Save a Halma Game

We choose to use .sav file.

1. Save and load the game. (By clicking the button)
2. Save and load the game for multiple times.
3. Decide whether the save file is valid. If not , the game can not be loaded.

Examples:

- 3.1 Wrong player number.
- 3.2 Wrong chess pieces number.
- 3.3 Index out of bound.
- 3.4 Someone has already won this game.

*Bonus-2 Drag the .sav file to load the game.

1.3 Play the Halma Game

1. Move the pieces following the basic rules.

Examples:

1.1 Simple move to 8 directions. 1.2 Simple jump.(Jump once)

1.3 After entering opponent's camp, the chess piece can not go out.

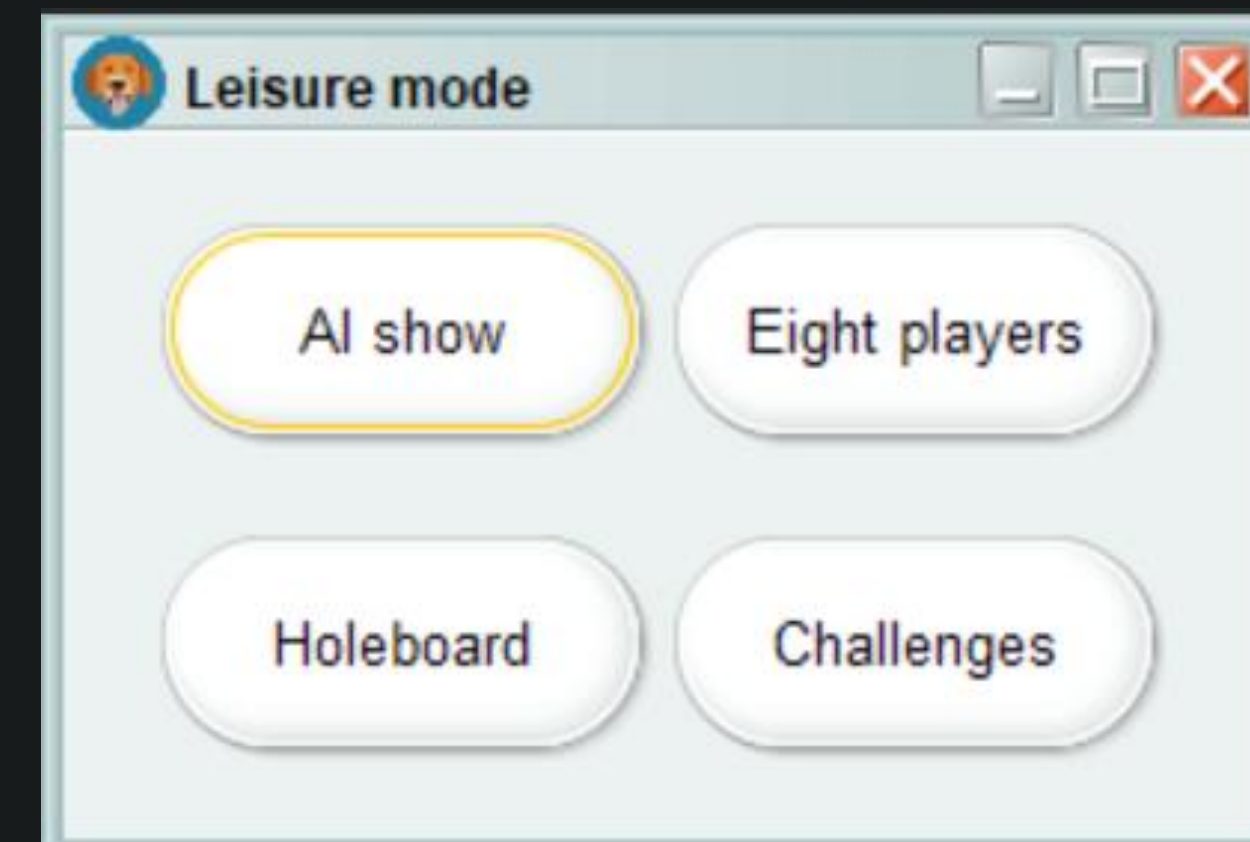
2. End the game when there is a winner.(Or someone loses the game)

*Bonus-3 Complicated jump is supported.(Jump many times in one move)

*Bonus-4 Additional rules.(A player must move all own pieces out of camp in certain moves) (2p - 100 moves, 4p - 75 moves)

1.4 Graphic User Interface

1. Multi-functional Home Page.



2. More GUI settings will be mentioned in V&A effects part.



2

Advanced Functions & AI

2.1 Some Useful Reminders

1. Show Possible Moves.
2. Invalid move reminder.
3. Trace.(Show the source position of last move.)
4. About to Win.
5. Timer.(Count the duration of the game.)

2.2 Rankings and Relative Functions

1. When someone wins the game, it will ask you to input your name.

Details: Due to the principle of Rankings, the name is limited in 6 letters.

If you input null or name more than 6 letters...

Don't mind, it will ask you to input again.

2. The name and your move number will be recorded in a .txt file.

Rankings will sort the information according to move number.

2.3 Artificial Intelligence

1. Three different algorithms create three AI with different difficulty.

Easy Medium Hell

Different period of game, different algorithms:

At early stage, AIs will try their best to move chesses out of camp.

Then, they will try to move furthest to the opponent camp.

Last, they will lock the chesses at the right position and win the game.

2. Challengers can try to beat the AIs in Single Player Mode.

Reminders, saving and loading are all supported in this mode.

2.4 Intelligent Operations

1. Undo operations.

Supported in single player, 2p & 4p mode.

In 2p & 4p mode, you can undo your last move.

In single player mode, you can undo your last move and AI's last move.

2. Trusteeship and Tip operations.

Trusteeship: Use Medium AI to help you move your chesses until you choose to move by yourself.

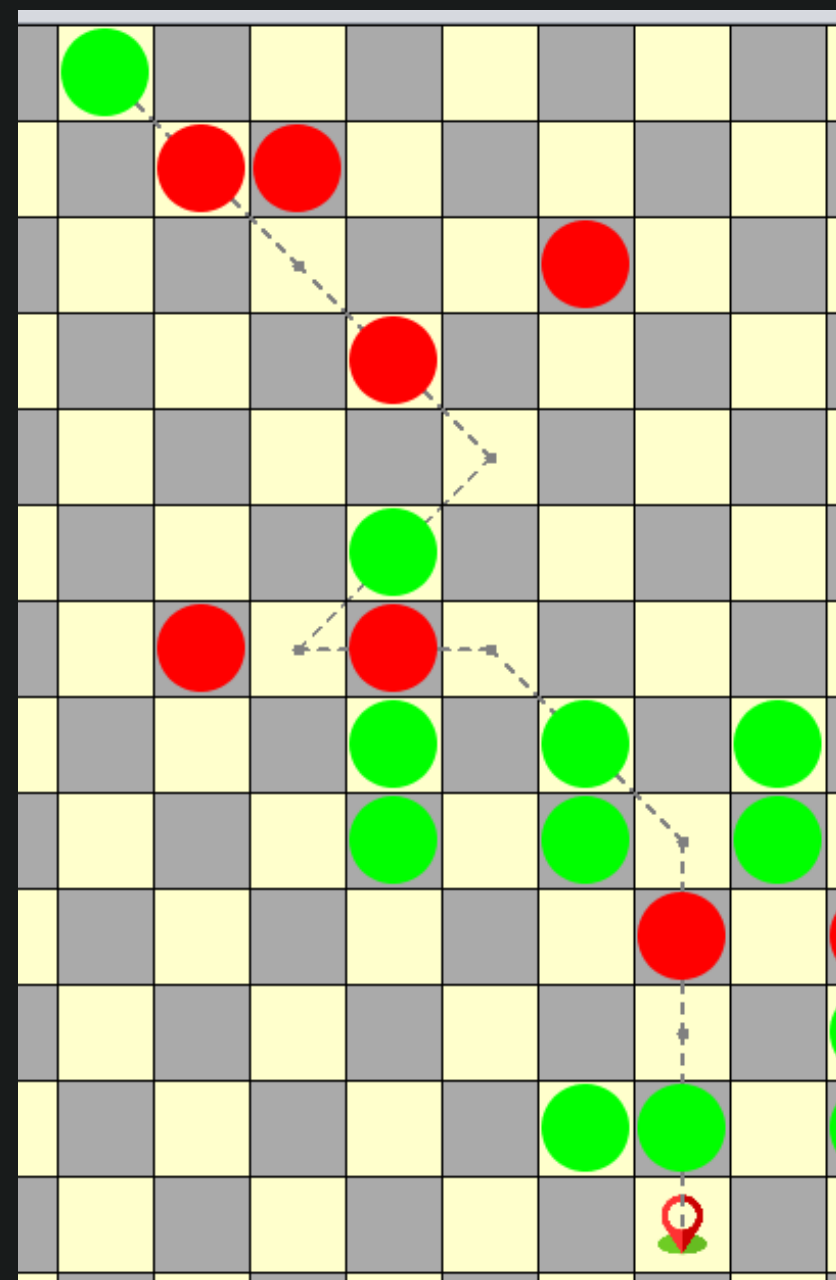
Tip: Use Hell AI to help you move one step.

3. Surrender.(Not allowed if the game is just initialized.)

4. Overtime Trusteeship.

2.5 Dynamic Display

1. When the chess need to jump to the destination, the move will show you the trace.
2. When the game ends, a replay chessboard will appear.



It will replay all the moves of this game.

Speed: 0.3s/move

2.6 Leisure Mode

1. AI Show.

Choose different AI for different color and watch an exciting AI vs AI game.

9 possible combinations and speed adjustment interface.

2. 8-players mode.

Reminders are all supported in this mode. Undo is also supported.

3. Hole Board.

Rules are changed in this mode, chesses can not be placed on hole position.

4. Challenges

Reminders are all supported in this mode. Undo is also supported.

Try to beat Hell AI in some particular and interesting situations.



3

Visual & Auditory
Effects

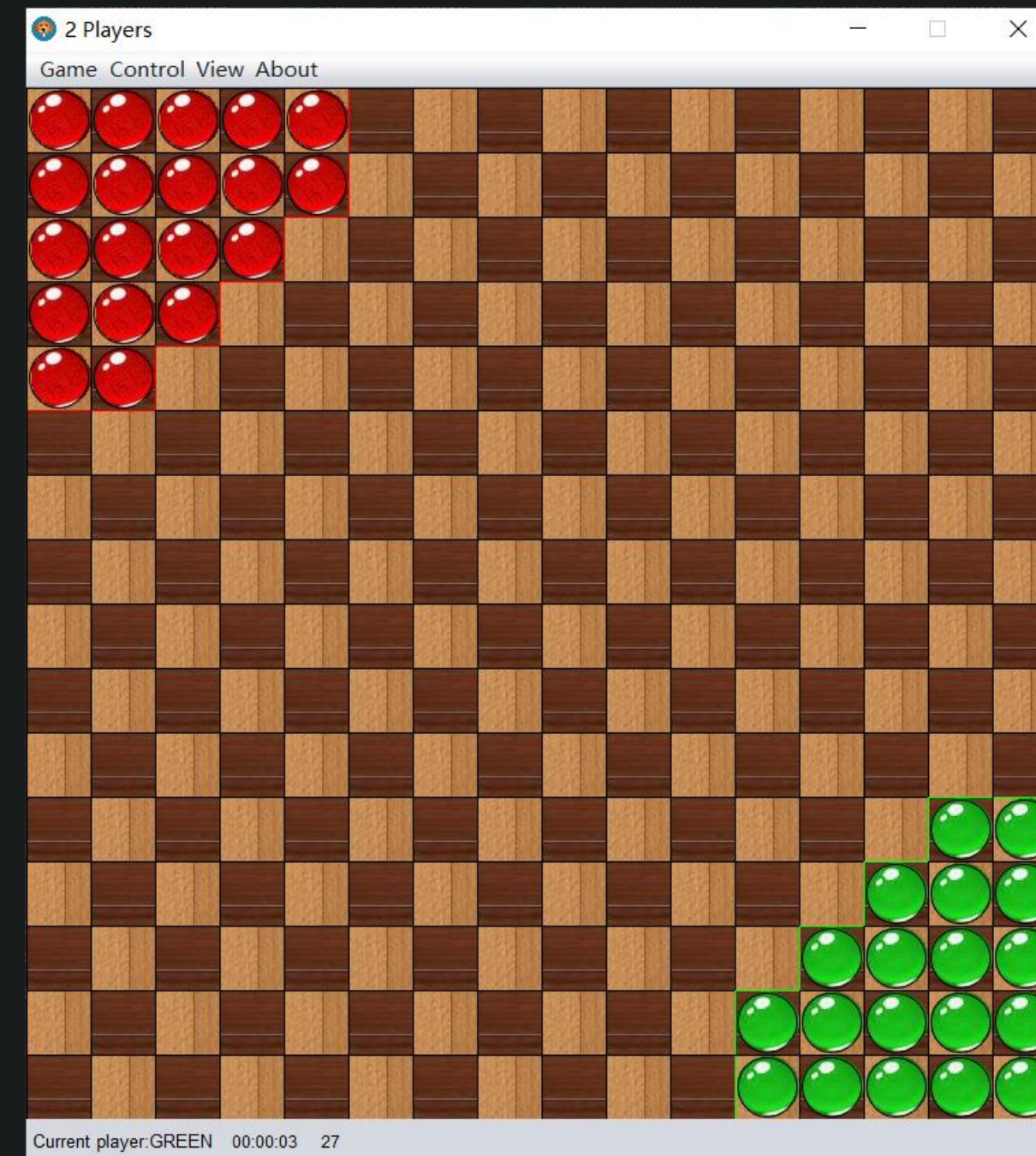
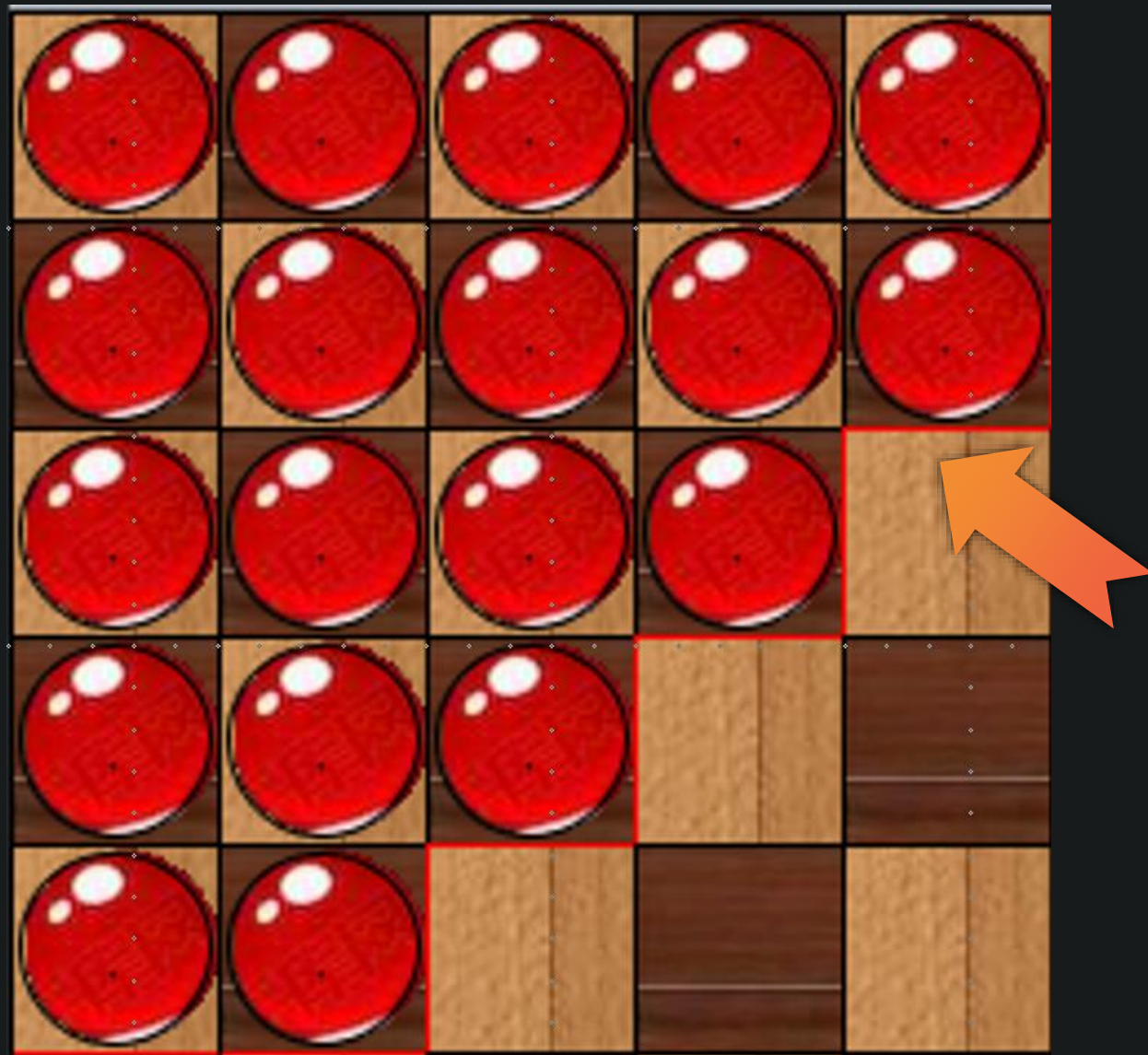
3.1 Sound Effects

We have variant sound effects in different interfaces.

1. Click to choose a chess
2. Move a chess
3. During chess game
4. When there is about to be a winner
5. In the Home page

3.2 Visual Effects

1. Change the chess pieces' appearance with elegant pictures.
2. Change the chessboard with pictures.
3. Camp Line.





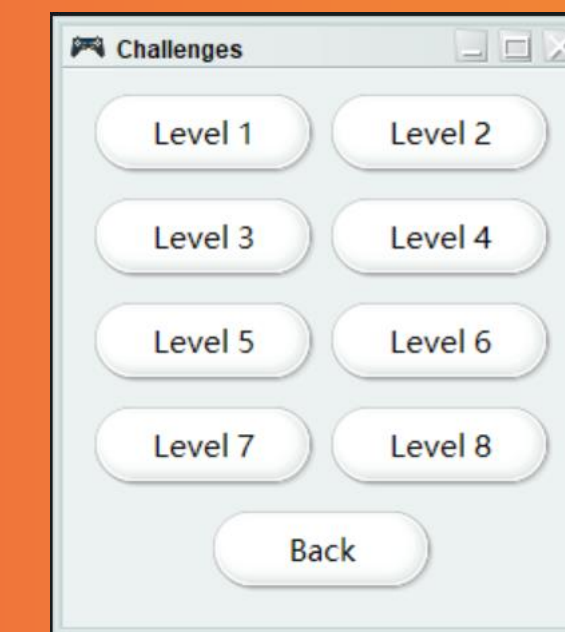
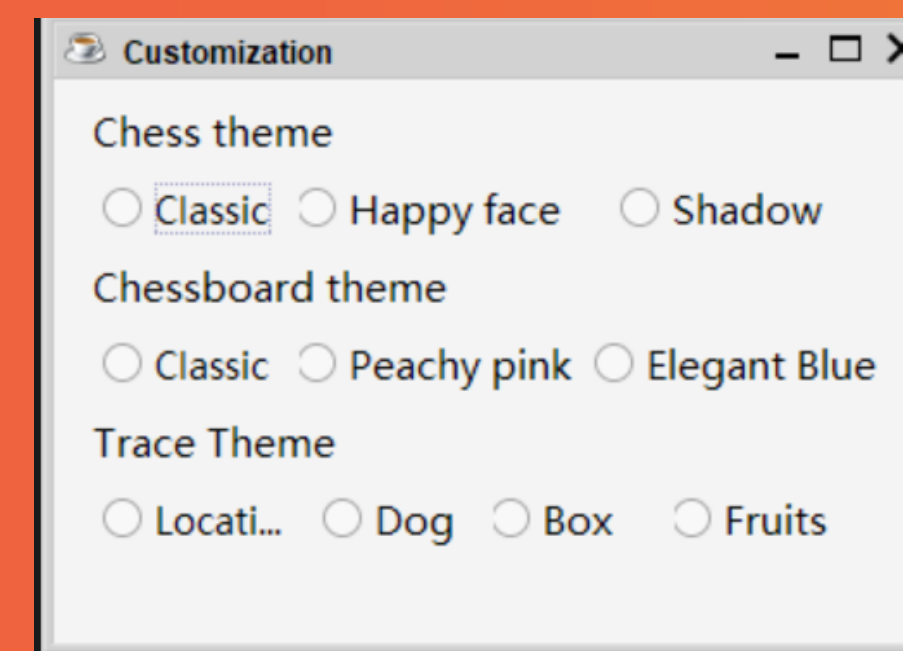
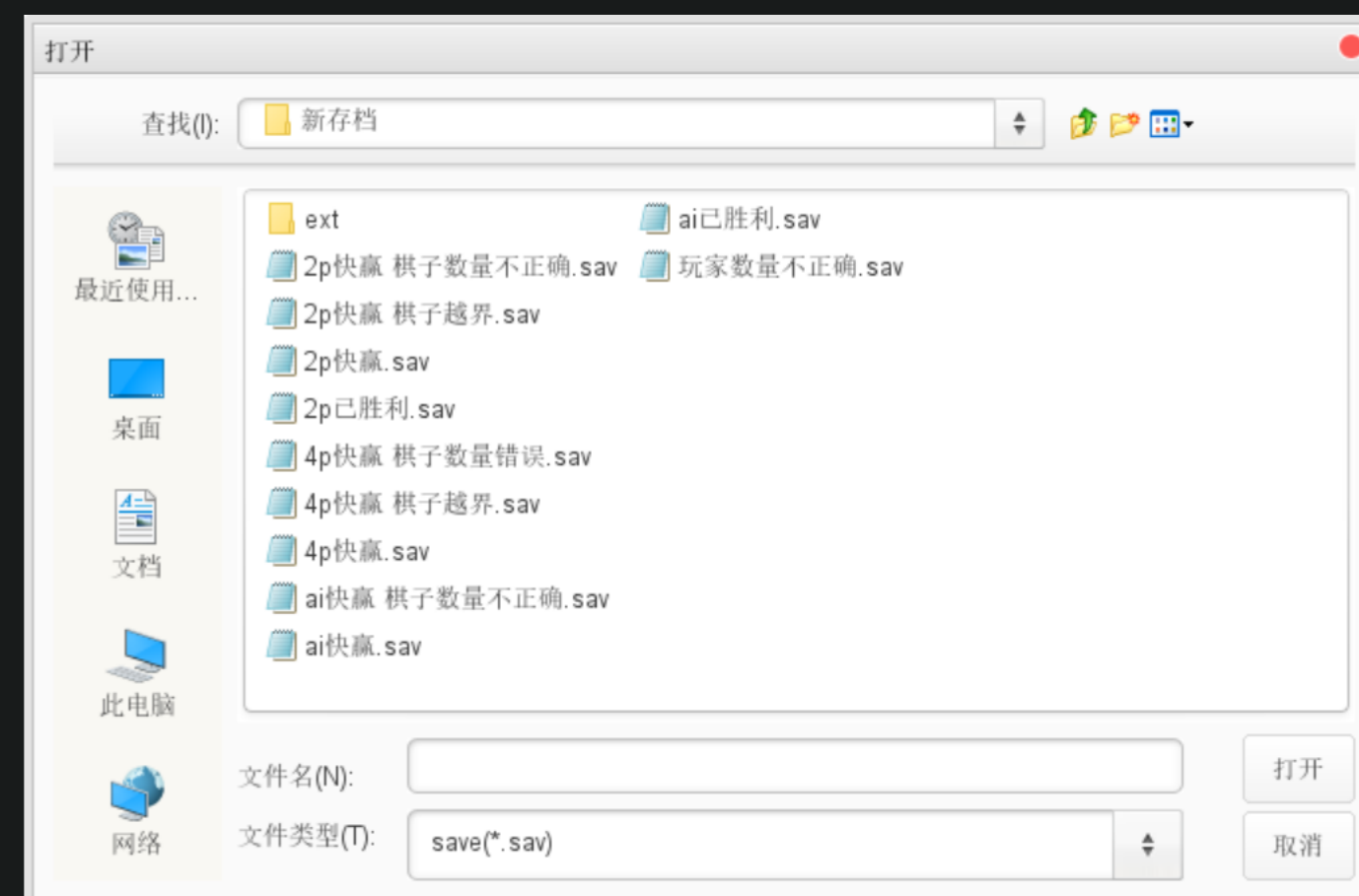
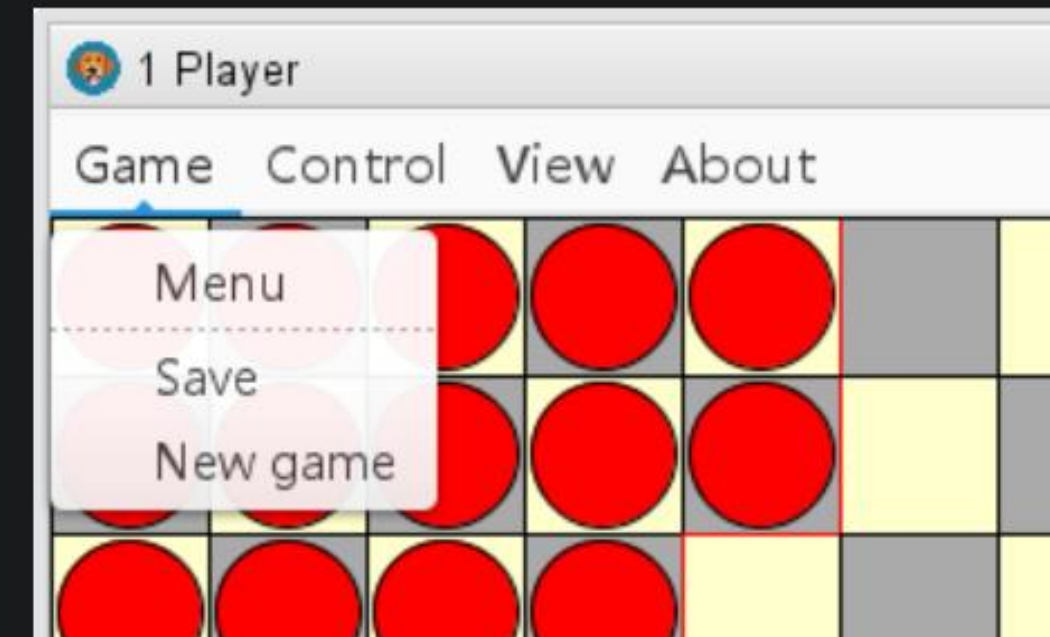
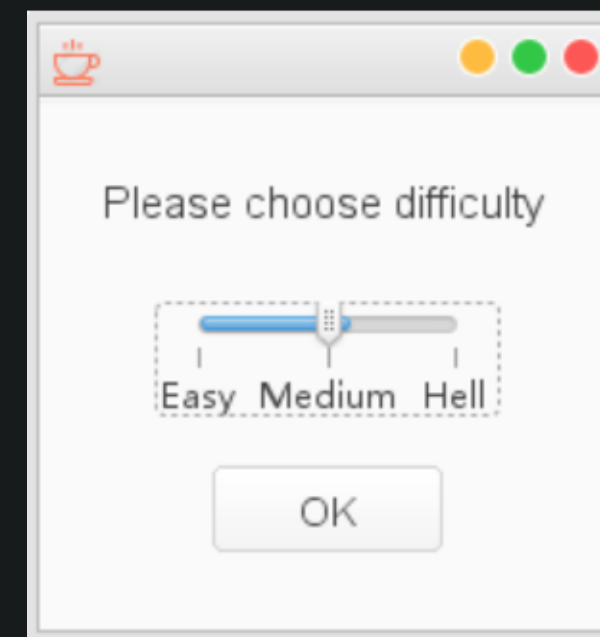
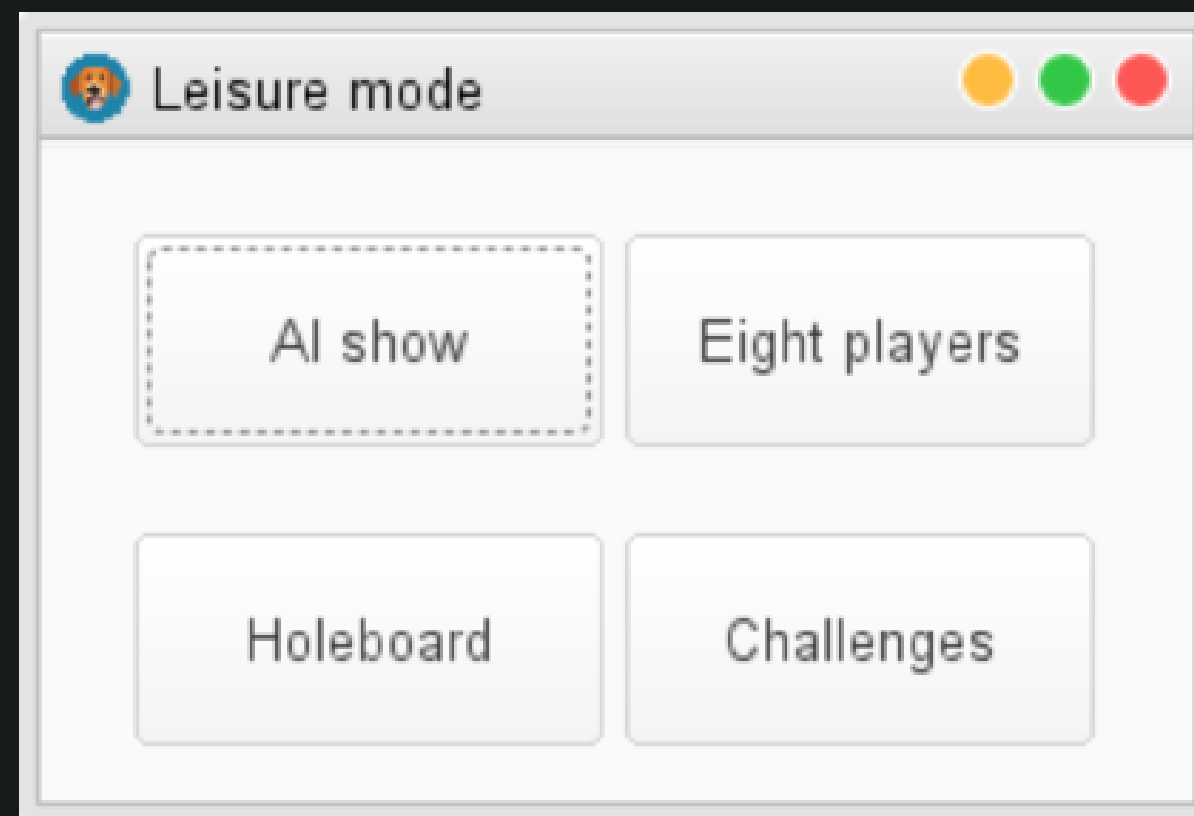
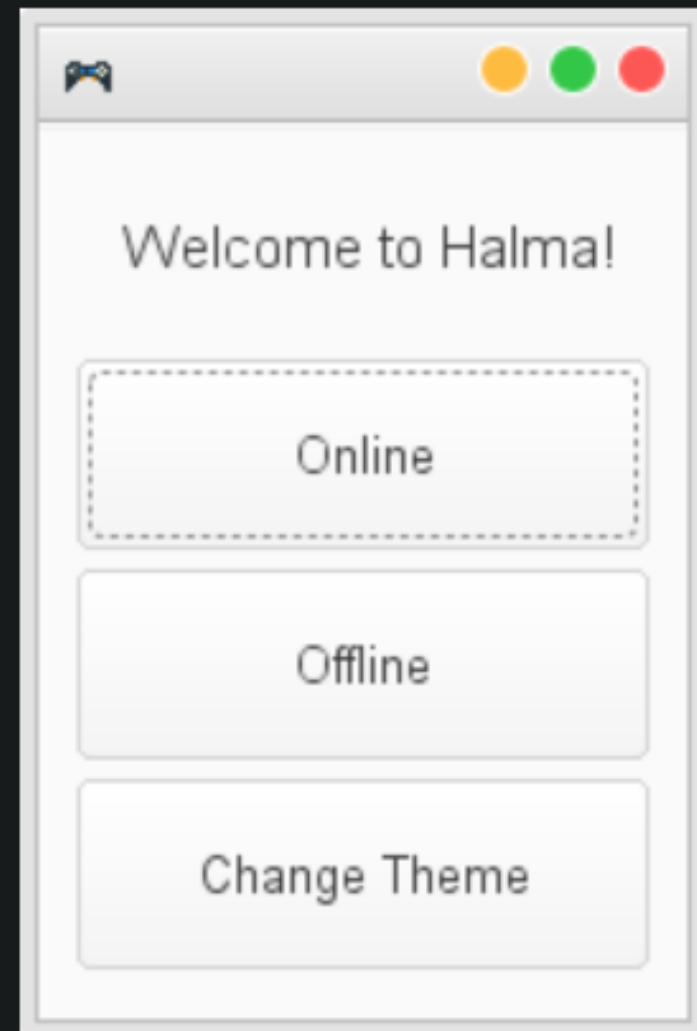
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Different picture files

10

Different themes

3.3 User Interfaces





This is the end of the three parts

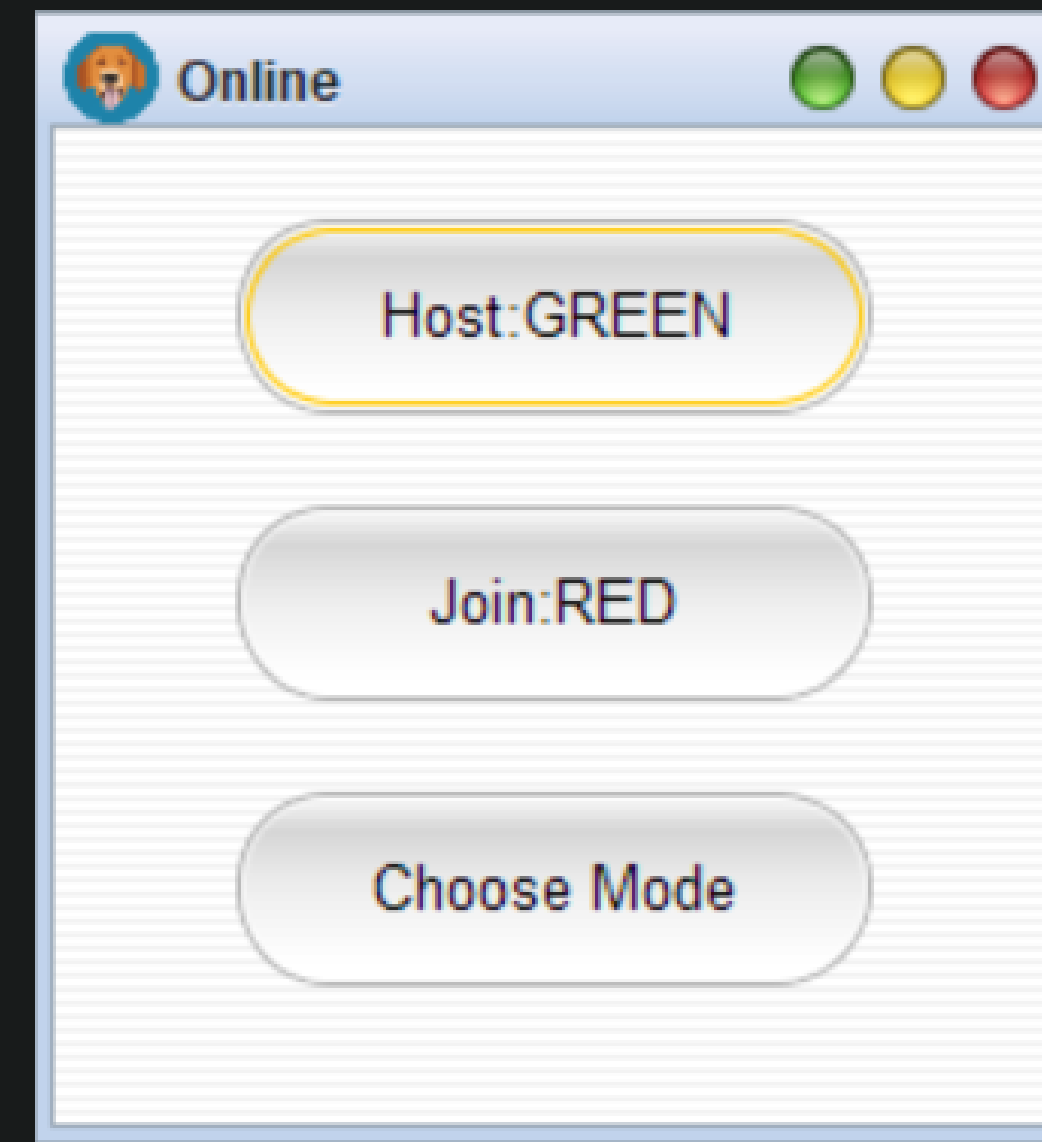




One
More
Thing

Playing in LAN

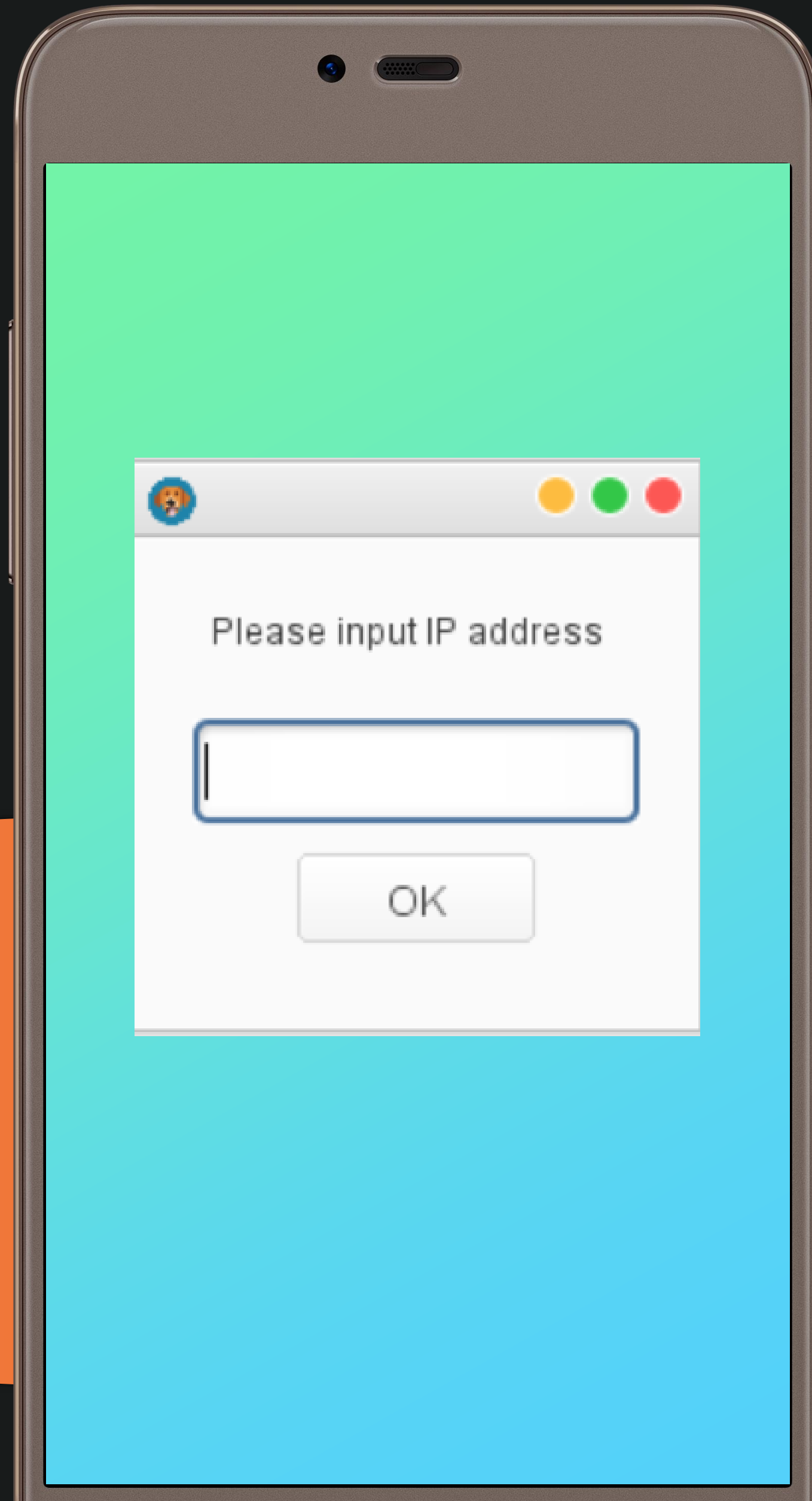
Players can play with different computers under a same Internet



Building connection

Host:

Wait for connection

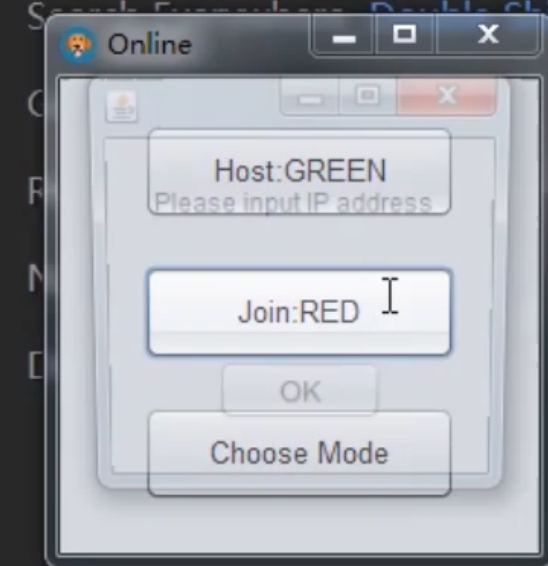
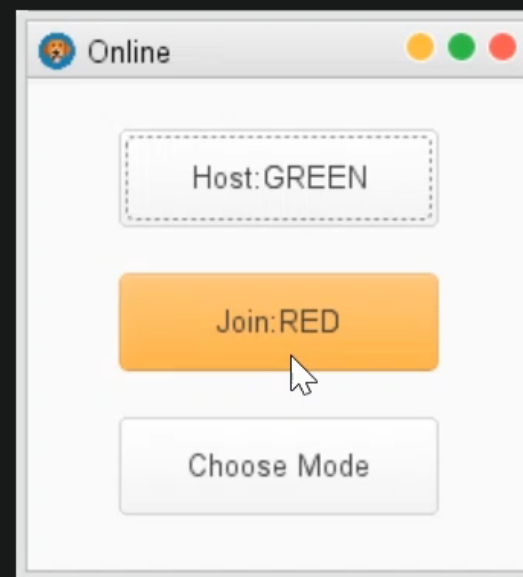


Client:

Input the address of
host to connection

Real time display

www.BANDICAM.com



12141012GREEN12141012GREEN

Conclusion

Beautiful

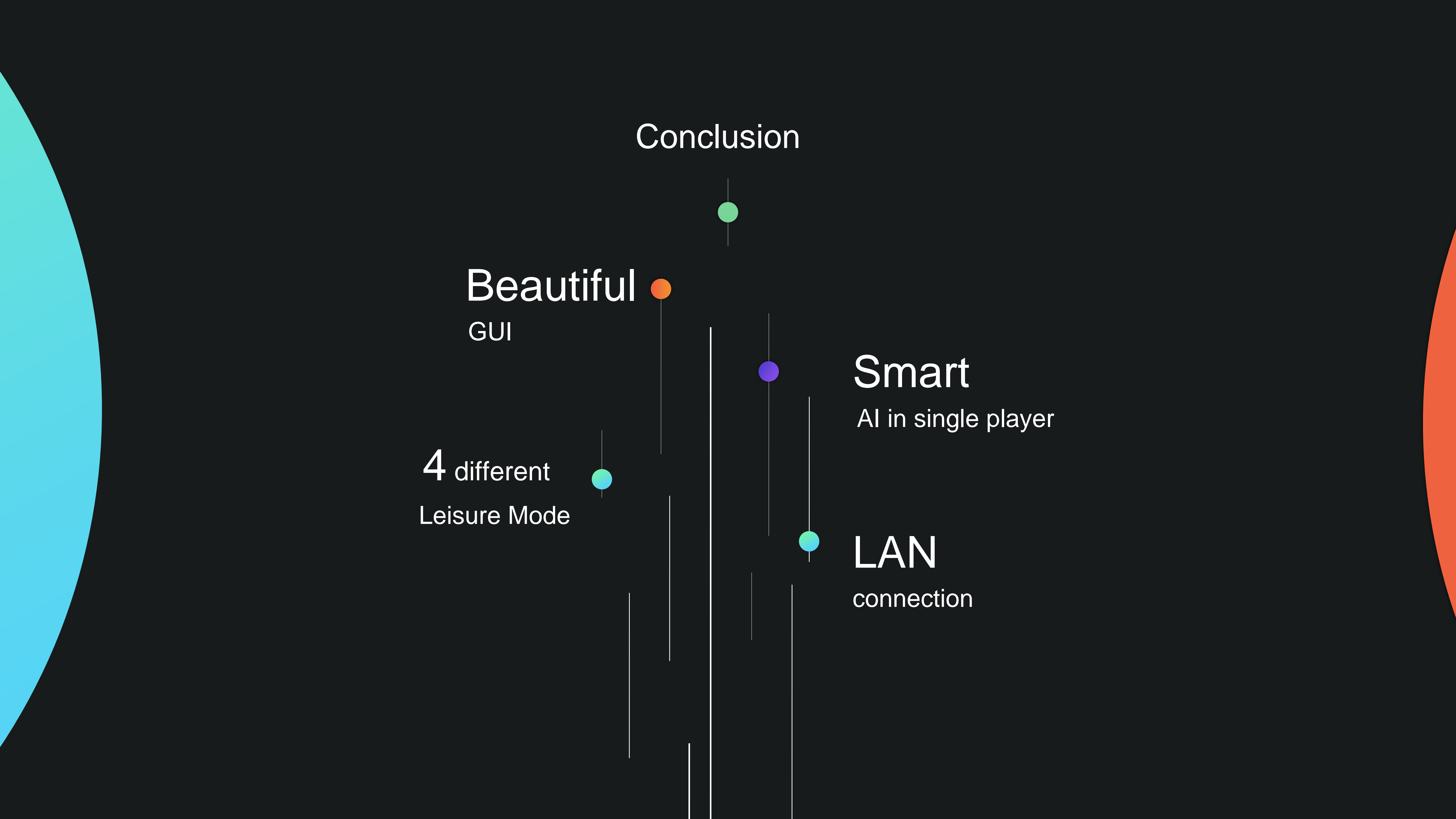
GUI

4 different
Leisure Mode

Smart

AI in single player

LAN
connection



1. Quick restart.(New Game)
2. Drag .txt file to load the game.
3. Complicated jump is supported.
4. Additional rule.
5. Show possible moves.
6. Invalid move reminder.
7. Show trace position.
8. About to win reminder.
9. Timer.
10. Enter name when game ends.
11. Rankings sort the information.
12. 3 AIs With different difficulties.
13. Single player mode.
14. Undo operation.
15. Trusteeship operation.
16. Tip operations.
17. End game replay.
18. AI Show.
19. 8-players mode.
20. Hole board.
21. Challenges.
22. Show trace and mark the process.
23. Overtime Trusteeship.
24. Surrender.
25. Sound Effects.
26. Change pieces with pictures.
27. Change Chessboard with pictures.
28. Different themes.
29. Camp line.
30. Dialogue and reminders design.
31. LAN connection, real time display.
32. Communicate with others on Internet.



End