

Write-Up for Love & Hate (Sim)

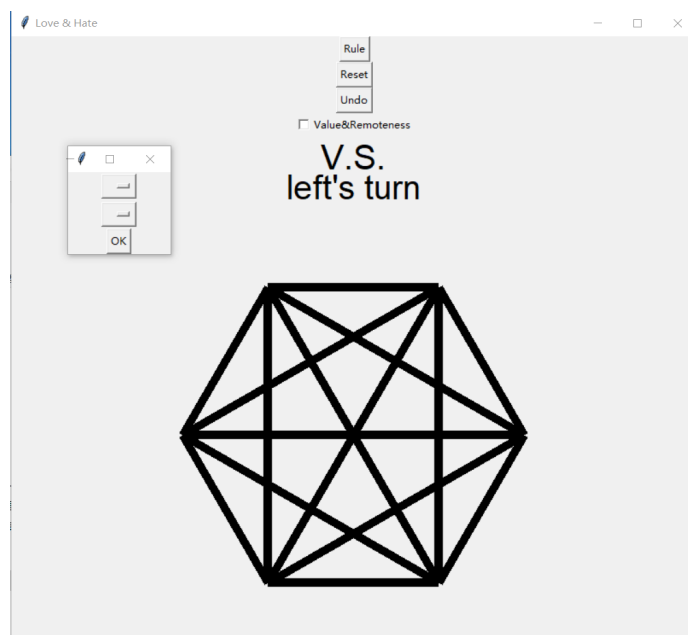
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About the Game——Love & Hate

- ✧ The game of Love & Hate (or Sim) is a game organized in a hexagon space, each player moves by coloring different lines between vertices.
- ✧ To win the game, players need to force their opponents to form a triangle (or more if they have to) using their colored lines.
- ✧ In other word, players should try to avoid form triangles by your own lines.

About GUI Interface

Our interface is written based on the python library tkinter.



As shown, you start the game selecting both sides to be human-player or computer-players, which are divided into DumbCom (play randomly) and PerfectCom (play perfect moves according to our database).

Once you start the game, you can click on lines to generate a new move when it is your turn, of course. You are also allowed to Undo your last move or Restart the game from scratch. If you forget about how

to play, feel free to click Rules to check them to better your performance.

In addition, we calculate every position that you could encounter in this game. So if you want to know how to win, click the Value&Remoteness to see the best move in every circumstance. Green for the win, Red for lose (if you want), and the wider a line is, the better the choice you'll make.

Some analysis of the Game

Positions: The total positions of the game, how many different patterns can the two players reach, is 175474, by symmetry. We calculate the result by get a particular situation, then mark every possible positions reachable by simple rotation as the same as the former one. Thus, after we mark every single position we have on the hexagon, we finally capture the answer.

Strategy: **Spoiler Alert** After we get all positions evaluated, we find that if your opponent play perfectly, you'll always LOSE if you go FIRST. So it is our suggestion to go next. Unfortunately, we can't get to any unerring strategy to send you to success. We'll say that it is OK to look up Value and Find some pattern.

How to install & play

<https://github.com/SaraGZ/Love-and-Hate.git>

Please note that com2com is not perfectly coded, the results go out all together but not one by one. We've tried adding time.sleep to the code but it seems like that doesn't work.

How we organize our project

Zhang Ge: Framework ; Analysis, part of GUI

Wei Zicheng: GUI design; Testing; Paper work

(Coding work for both)