

CMPUT 355 Fall 2020 Project Report

1. Name of my group: Void

2. Zexin Cai, 1597864 (I do not have a group, this is a solo work)

3. Since I do not have a group, this is a solo work done by myself start from zero. This means that all parts of this project are done by me alone.

4. All the code is written by me.

Link to GitHub: <https://github.com/caizexin1/355Assignment4>

Link to video: <https://drive.google.com/file/d/13avk9CF5VB4dL2HKhAinSpIvkm2chhiJ/view?usp=sharing>

5. This is a visualizer for Gomoku. The user can use the mouse to play this game on the visual interface. At the same time, here are some simple introductions to tell users some information about Gomoku and how to play this game. Currently only supports player vs. player.

More information about Gomoku: <https://en.wikipedia.org/wiki/Gomoku>

6. For this game, my initial goal is to complete all the functions I can think of. It should include a perfect user interface, game introduction, player vs. player mode and player vs. computer mode. Also, I want to design an algorithm to make computer players more challenging. Since my group is not available, I completed this project independently. I achieved almost all goals except the player vs. computer mode. I think the most satisfying part is the visual interface. It is simple, but very convenient. This interface is very user-friendly because I think I can understand how to play this game just by looking at it, even if I have never touched it. I can play this game with other people by simply clicking the mouse. On the other hand, the disappointing part is that I didn't complete all the functions I wanted to make before. I work independently, without a team or other help, so I did not complete the algorithm for computer players on time. If I can complete this mode, I think this game will be more fun for single players. Players can play this game by challenging the computer and improve their game skills. If I continue to work on this project in the future, I will first consider completing these unfinished parts. I hope that I can design a sufficiently good algorithm by myself to make a sufficiently challenging computer player. This can help experienced Gomoku players to improve their game level. At the same time, it should also have computer players of different difficulty. In this way, it allows both novices and experienced players to be interested in this game. Moreover, it would be great if it can also achieve real-time online player matches.

7. Feedback for visualizer:

(a) From friend Min Dan: the screen is simple, the game rules are simple and easy to understand, and the game looks good. It is very suitable for two people to relieve boredom.

(b) From brother Suhang Cai: very good, it has everything needed for a Gomoku game. If I have free time, I will try to play this game with my friends. If I can play single player mode, I believe it will be better.

(c) From classmate Zhengzhao Chu: this game is great for two people to pass the time. The interface is also very friendly to new users, so I quickly learned how to play it and I did not find any bugs.

8. As far as my current work is concerned, I am happy with the quality of my project. First, the interface is simple and beautiful. Secondly, the operation of playing the game is very simple, so it is user-friendly. Finally, after a series of tests, I did not find any known errors, so it is effective.

Diary of my individual work on the project

After I learned about the requirements of Assignment 4, I thought of the game Gomoku for the first time. I think this game is very interesting and can develop people's thinking. When I was very young, I liked playing all kinds of board game. Especially, in my free time, I often play Gomoku on paper with my friends. Since then, being able to write a small game manually has become my dream. This is also one of the reasons why I am interested in computers. I am almost familiar with Go, Chess, Gomoku and other board games, but I have never written a similar game by myself. This is why I chose Gomoku in this project.

Oct. 26 – time spent: 4 hours

This is the first week of the project. Since this is my solo work, I will complete all parts of this project by myself. First, I reviewed the basic knowledge about Gomoku, and then I studied the various logics needed to implement the game. Finally, I decided to use Pygame to implement the visual interface of Gomoku, so I spent a lot of time installing and learning how to use Pygame.

Nov. 2 – time spent: 3 hours

This week, I learned some key functions in Pygame in order to complete my project. Then, I made the basic framework of the game visual interface. It includes the main menu, click the mouse to switch between different interfaces and unfinished game interface.

Nov. 9 – time spent: 3 hours

This week I got some material related to coding a visualizer of Gomoku. I got some background pictures from the Internet, and I made the Gomoku pieces by myself because I did not find suitable materials as pieces. I applied the required background to my program and created a help interface to help novice players learn how to play Gomoku.

Nov. 16 – time spent: 6 hours

This week I started writing the complete game process. I completed all the functions from the beginning of drawing the board to the end of the game. At the same time, add replay, regret, and exit game functions as needed. Then, comments were added for all the required parts. After that, I changed some pictures to get a better interface and corrected the problem of partial picture distortion.

Nov. 23 – time spent: 3 hours

This week I first tested all the functions of this game. I found some errors and fixed them. Then I optimized part of my code to make it relatively easy to maintain and update. Finally, the display of some interfaces has been optimized to make it look more user-friendly. In addition, due to the nature of my solo work, I do not have enough time to complete the player vs. computer mode.