

Cmput 355 Assignment 4 Report

Group name: I did not work in a group, hence I just named my project “Asma”.

Members of the group: Asma Omar

Student Id:

Contributions: I worked on all the code, (UI using openGL and C++), tips, collected data and made the video.

Code reuse: None

Description of the puzzle/game: Hex is an abstract strategy board game in which two players attempt to connect their respective sides, opposite sides, of a hexagonal board first. In this game the players are blue and red.

URL of the best description of the game: [https://en.wikipedia.org/wiki/Hex_\(board_game\)](https://en.wikipedia.org/wiki/Hex_(board_game))

Summary:

- **Original Goals:**

- Make a hex player that makes the best moves to compete in the 2020 Olympiad.
- Learn how to use openGL for graphics.
- Implement some pathfinding algorithms.
- Make a user-friendly board.

Achieved most of my goals except for the path finding, my player wasn't making the best moves to result in a win. Therefore I switched to making a tutor/visualizer using the same board I made originally for the player.

Most satisfying part: rendering images (hexagonal board) on the screen using openGL, and the user friendliness of the program. Tutee can simply left click on the tiles/hexagons they want to place a stone and it is filled, red and blue taking turns.

Most disappointing part: the incomplete implementation of the pathfinding.

Future work: Complete pathfinding implementation so that the player is able to make the best moves and to implement end game conditions.

Data measuring the performance of the program

I had two of my sisters with no prior hex knowledge to read through the tips file and practice playing hex on the board I made. They were both taking turns, blue/red, and playing on the same board. After that they were able to play fairly well against the AI but they still need to practice. The program helped them get started.

Stand on Quality of the project: I am content with the quality of the project but I also think I could do better by finishing the pathfinding implementation that I originally planned to work on. This is my biggest goal for future work.

DIARY.

Why I picked this project: I was interested in learning more about the rules of hex and I wanted to learn OpenGL. I wanted to work on a non-trivial board game to better my understanding of the other games.

MONDAY, NOV. 9th

- Spent almost two days of reading week learning about OpenGL and implementing the board, accepting user inputs (mouse clicks) and making the UI pretty.
- Hours spent: ~ 15 hours

MONDAY, NOV. 16th

- Worked on pathfinding.
- Couldn't complete pathfinding in time.
- Switched to making a tutor/visualizer instead of a player.
- Finished putting together the tips and added some notes on the board to specify which sides the tutee has to connect.
- Asked my sisters (the tutees) to play hex online with no prior knowledge.
- Asked my sisters to read through the tips and try out the board.
- Got my sisters to play an actual hex game online.
- Hours spent: ~ 12 hours

MONDAY, NOV. 23rd

- Recorded information from my tutees, whether they thought the program helped them understand hex better.
- Recorded a video of the program in action.
- Wrote this report.
- Hours spent: ~ 3 hours