

PAINTBALL FRENZY

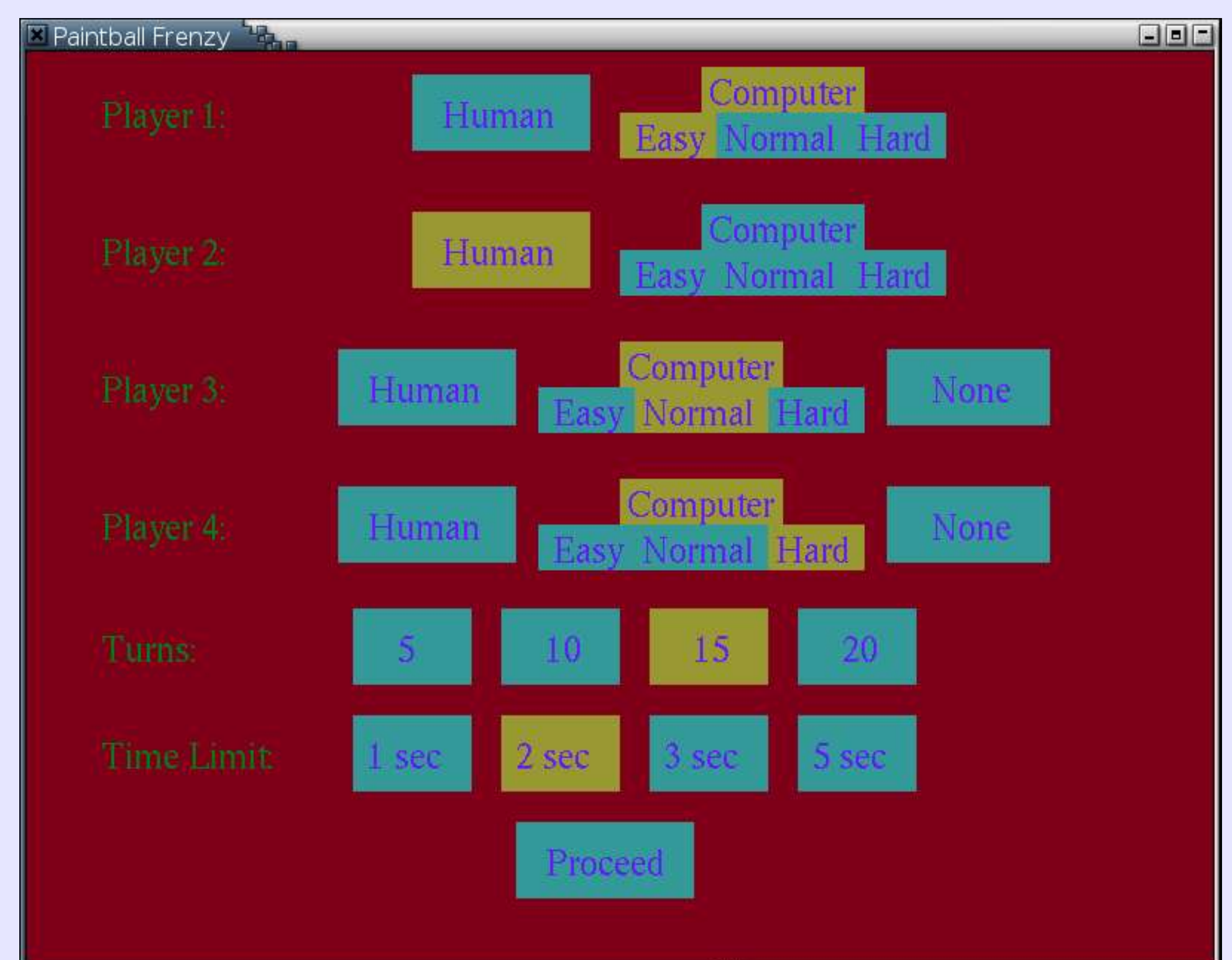
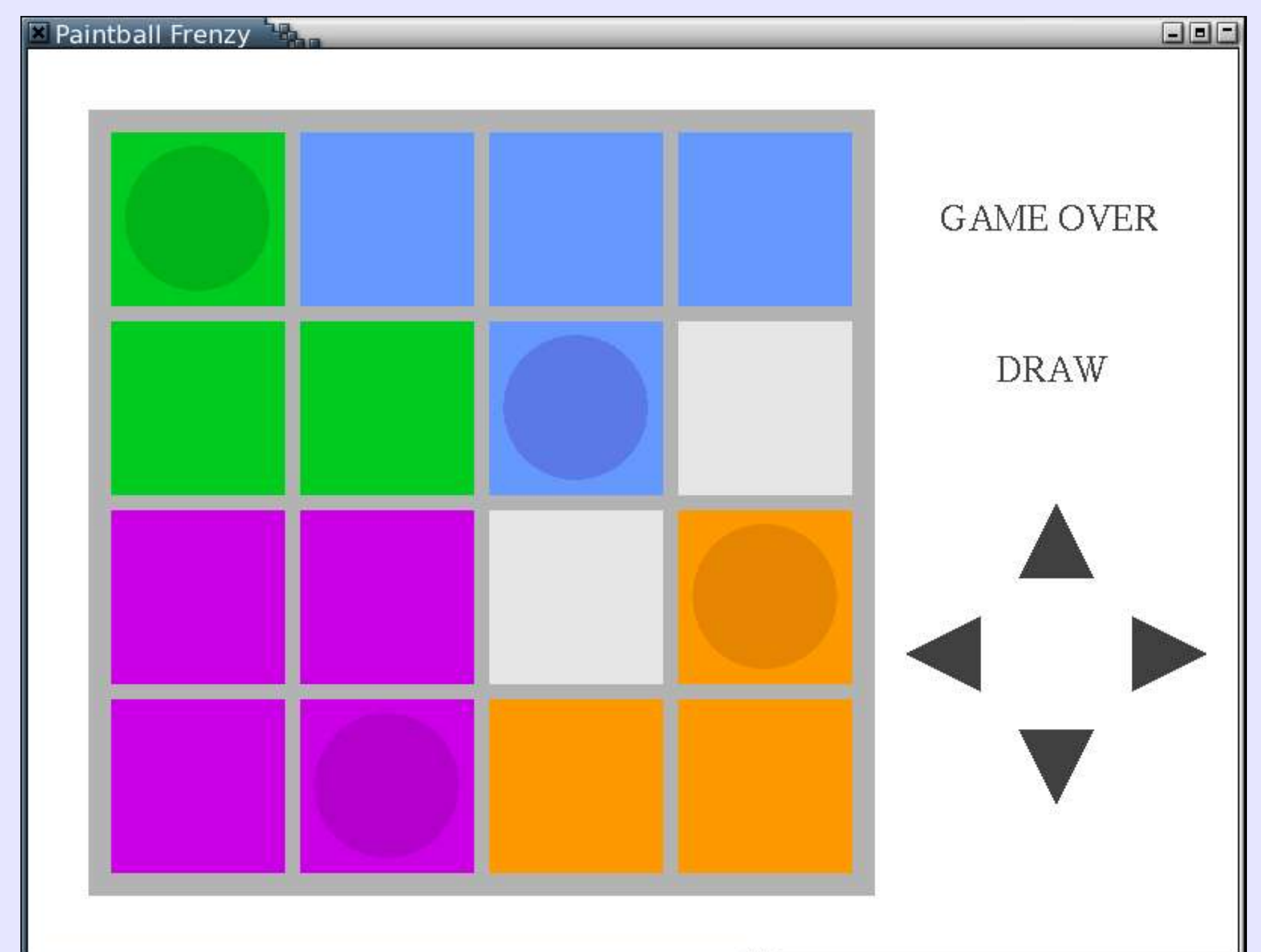
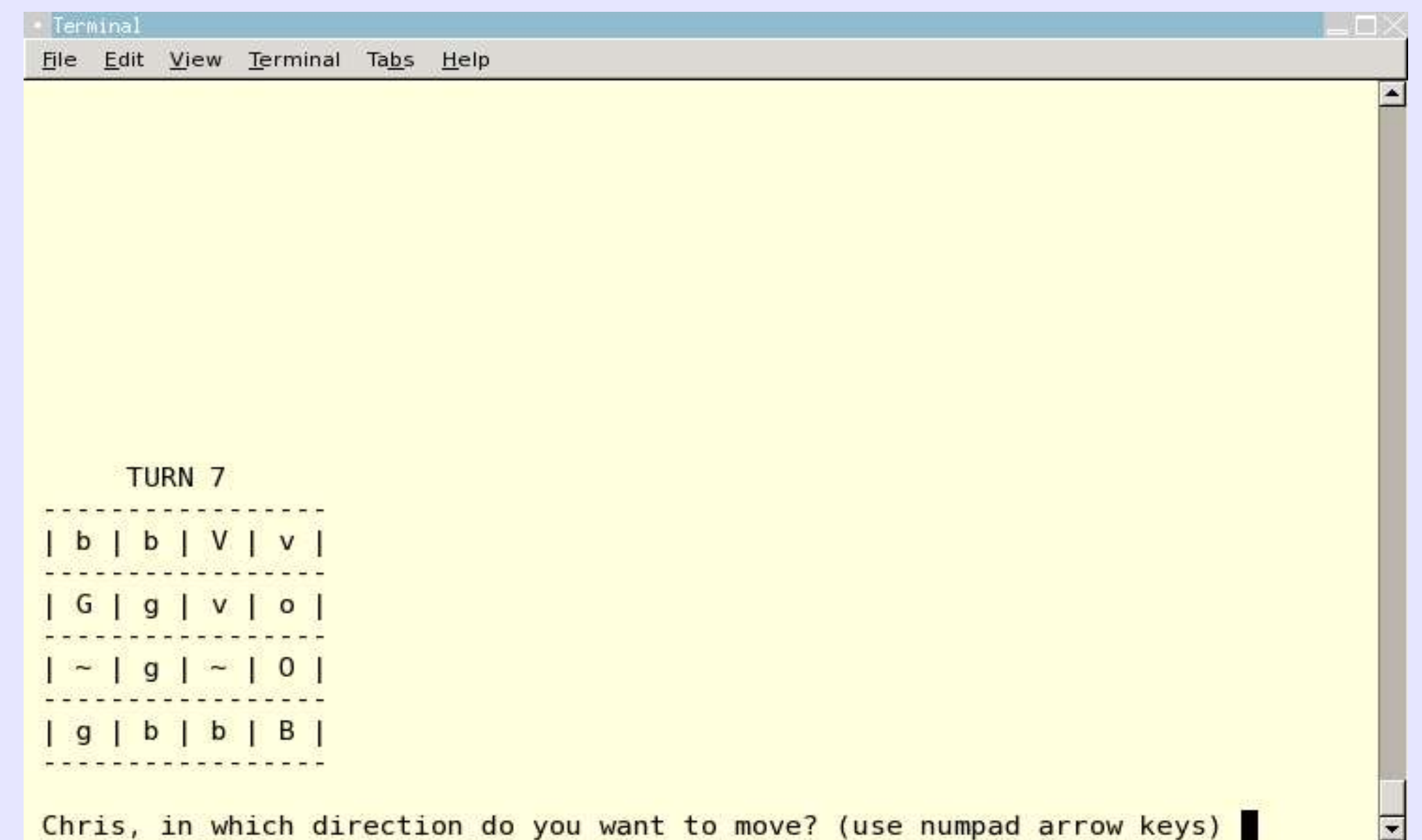
Turn-based Graphical Game With a Minimax AI Agent

The purpose of this project is to create an innovative and enjoyable graphical game and program a minimax AI agent that performs optimally.

Paintball Frenzy is a unique turn-based game of my creation. The game is played on a four by four grid layout that is initially a neutral grey color. Two to four players that are either human or computer controlled possess one colored paintball that originates at one of the board's four corners. The players take turns moving about the grid one horizontal or vertical space at a time. Players also have the option to jump over one player's paintball in an adjacent space. There is a time limit that each player must choose their move before. Whenever a paintball moves into a space on the grid, that space becomes the color of that paintball. Whichever player has the most colored spaces at the end of the turn limit wins the game.

My final project was the creation of this game Paintball Frenzy. First, I had to invent the game and all of its particularities and balance issues. Of course, I had to program this game's framework, first with a standard terminal display and keyboard input, and later with graphical gameboard display and mouse controls.

Additionally, I had to program several artificial intelligence agents for my game including an agent that moves randomly and an agent that searches through all of the possible game-choice options several turns ahead and chooses the best one. To design the agent that moves intelligently, I researched the minimax algorithm and used it to search through all the possible game-choice options and choose the best one. Combining all of these aspects together yielded a fully enjoyable and informative senior research project.



IN THE END...

I produced a game that is enjoyable, aesthetically pleasing, and polished. I also created an AI Agent that performs intelligently and is efficient.

Christopher Goss, Computer Systems, TJHSST, 2004-2005