Basic Information

Group Name:
TTake a Ride with AI
Yes the two Ts are intentional, if you take the capital letters you get: TTR AI. TTR being short for “Ticket To Ride”, the game we are creating.
Group Members:
Tris Stremmel
Jordan Korom
Vince Comaroto
Jacob Hartshorn
Alex Klugiewicz
Jacob Hartshorn

Minimum Viable Product

A coded up and playable version of the board game Ticket to Ride, with a few altered rules. This game will allow a “player” (human or AI) to draw cards, see the board, claim tracks, and will be confined to certain actions within each turn. The game will end when one player is unable to claim any track (due to running out of “trains”). For more information on our rules see “TTR_Rules” file. There will be two predetermined strategies that an AI will be programed to follow. These strategies will be the “Empty hand” and “Block” strategy, both of which are explained in the TTR_Rules file. It will be made so that the AI can play each other, with them using different strategies from each other, without human interference. While playing each other, each AI will generate a .csv file at each state that represents the state at that point based on what variables that AI can “see”. We will use these .csv files to create a “Double Transition Model” (DTM constructs a dynamic Markov Decision Process) which will model the AI’s decision making process. The DTM functions as a way for us to manually evaluate the AI. It is also the center of the research for the AI research group lead by Dr. Nguyen.

Stretch Goals

1. Make the AI choose randomly when it has two equally optimal moves it could make. This adds variance to the AI and makes it more human-like.
2. Support for more than two players.
3. Training a neural network ai to play the game.
4. Multiple “maps” or variations to the game board.
5. Have multiple options for the game. Such as being able to set the amount of colors used for the cards and tracks.

6. Implementing other simple AI to play the game. (Will expand upon when we know what other AI we may want to add)
7. Genetic Algorithms. If we can but it's a long shot.

Timeline

By the end of spring break we plan to have a playable version of the game. By april 17 we plan to have the AI strategies programmed and be able to make .csv files from the games they play. Because we are a large group we can work on several parts at once so it is likely we will have one or two stretch goals done by this time as well. By may 5th we plan to have the project completed. We will make final changes and prepare for the presentation from may 5th until the project is due.

Group Roles

Alex: Machine Learning Enth*u*siast (stretch goal 3 and 7). Python Apologist (min viable product).
Tris: DTM creation and AI strategy programming (min viable product). Other AI strategies (stretch goal 6). Git “expert”.
Jordan: TTR game creation (min viable product). Other AI strategies (stretch goal 6).
Vince: TTR game visuals and game assets (min viable product). Adding multiple options for the game (stretch goal 4 and 5).
Jacob: All around support programmer (min viable product). AI variance (stretch goal 1). Multiple players (stretch goal 2)