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TEAM PROJECT: MEHDI BOURADA

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CSC 4301 (01) – Intro. to AI

Bust The Ghost Report

The goal of this project is to construct a game using the Unity game engine to implement the "Bust the Ghost" game. We've made an 8 x 20 grid in which a ghost will be placed at random according to a predetermined distribution. At the start of the game, we likewise employed a uniform distribution. Furthermore, when someone clicks on a specific grid, a color will show indicating how far away the ghost is from you, while the probability of all grids is changed. The color red is used to choose the grid with the ghost. Orange is a cell or two away. Yellow is around three or four cells distant. Green, on the other hand, is 5 or more cells distant. With more clicks, the probability will change to show you where the ghost is most likely to be. The user, on the other hand, will lose the game if he clicks too many times. Before going over the limit, the user must locate the ghost.

In terms of the scripts used in the project, there are four primary ones.

Game.cs: This file contains the code for generating the grid size as well as all of the game's key routines. Many vital functions are included in this script, including Place ghost is a program that picks a random grid and places the ghost in it. Probability of a Group It takes the arguments for the ghost's position and then returns to the grids to display the likelihood. Examine the Input Grid This function makes use of The Bayesian equation is a mathematical formula that can be applied to any situation. The following is the equation we used:

- P(Ghost_t)=P(Ghost/Color_t)=P(Ghost_t-1)*P(Colour/Distance from Ghost).
- P(Ghost_0)= P(Ghost/Color_0)= P(Ghost) the prior probability.

As a result of utilizing this equation, we can see that as we go closer to the ghost, the probability increase, and as we get further away, the probabilities decrease.

Tile.cs: This script contains the grid's variables.

WinLose.cs: This is where you'll find the code for triggering the winning and losing events.

ProbabilityText.cs: This is the code that changes the likelihood once you select a grid, giving you an indice on where the ghost will appear.

To summarize, we learned how to use a probability-based agent to induce the position of the ghost in this project. According to the current grid clicked, the lesser the likelihood, the further the ghost is located. As a result, by following the higher probability, the user must find the ghost before exceeding a set number of clicks. Because the likelihood of the ghost being revealed is 1, the user must click the "Bust The Ghost" button to celebrate his victory.