جامعة الأخوين

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AL AKHAWAYN UNIVERSITY

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CSC 4301

Project : Bust the ghost

Team members:

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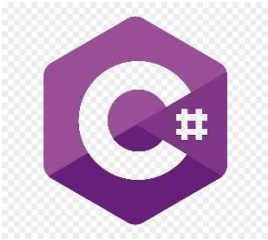
Introduction:

Bust the ghost goal is to get a color either yellow, red, green or orange depending of how far is the ghost from the clicked cell. The ghost is placed in one of the cells according to a prior distribution ghost over a location P. The sensor reading tell us how close a square/tile is to the ghost:

- On the ghost: red
- 1 or 2 away: orange
- 3 or 4 away: yellow
- 5+ away: green

Technology used:

Unity is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005 at Apple Inc.'s Worldwide Developers Conference as a Mac OS X-exclusive game engine. The engine has since been gradually extended to support a variety of desktop, mobile, console and virtual reality platforms. It is particularly popular for iOS and Android mobile game development and used for games such as Pokémon Go, Monument Valley, Call of Duty: Mobile, Beat Saber and Cuphead. It is considered easy to use for beginner developers and is popular for indie game development.



C# is a general object-oriented programming (OOP) language for networking and Web development. C# is specified as a common language infrastructure (CLI) language. In January 1999, Dutch software engineer Anders Hejlsberg formed a team to develop C# as a complement to Microsoft’s NET framework. Initially, C# was developed as C-Like Object Oriented Language. The actual name was changed to avert potential trademark issues.

Code description:

The class Game has the following attributes:

The ghost, tile, w: width,l:heigh, proba, color and R_dic…
First, we initiate the game by given a tile, weith and a heigh plus a random position of the gostand a probability and proba = new double [w, l].
-We have **init_proba()** that initialize the probabilities depending on the grid for example in a grid of 10 , each node will be 1/10.
-**Random_Gost_ Position ()** to specify the position of the ghost.
-Update_proba: a function that take two parameters the clicked tile and a tile. This function run on each click.Fist, we got the vector of the clicked tile as a values of the probabilities: probabilities[x, y].we got the ghost distance so that we can find the color of the current cell. Then we update the proba and finally we normalize.
-Distribution (): a function that got the distance from the ghost as a parameter and return the color (dictionary<color,double>).

- If distance from the ghost is 0, we return R_dict (red)
- If distance from the ghost is 1 or 2, we return O_dict (orange)
- If distance from the ghost is 3 or 4, we return Y_dict (yellow)
- If distance from the ghost is superior to 5, we return G_dict (green)
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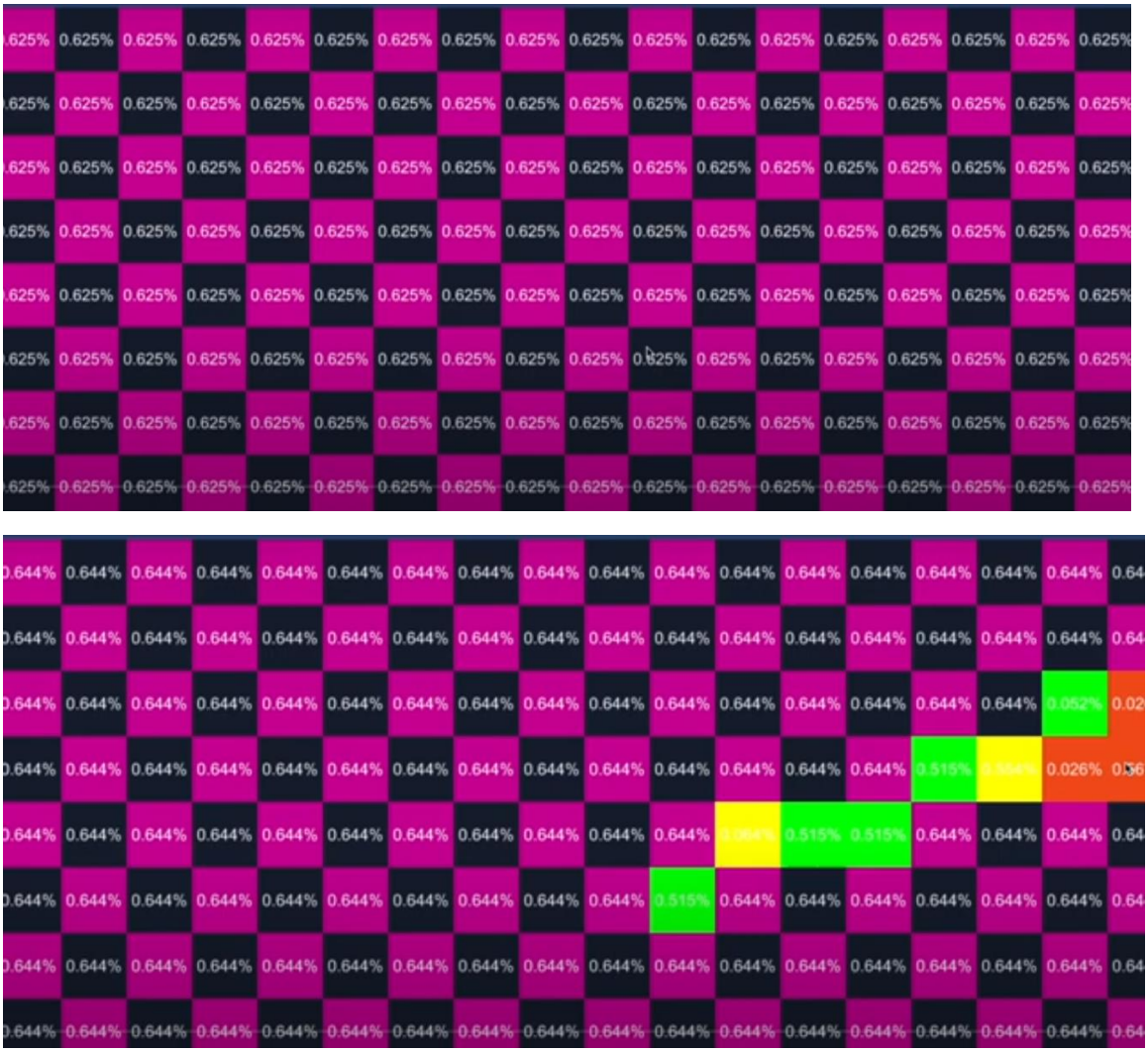
The class Tile has the following methods/functions and attributes:
Color _baseColor, _offgive_color, renderer, latestClick, TextMesh proba.
Give_proba() is the function that calculate the percentage and convert the percentage to a probability.

Screenshots:



Conclusion:

This assignment was so helpful to understand the concept of probabilistic reasoning and conditional independence. Also, having a real example that should be build from scratch is interesting and challenging at the same time, but more important than typical probabilistic reasoning exercises.