

Assignment 3 – Festival Simulation

Group 36

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Festival Simulation:

In this assignment, we were tasked with simulating a music festival which includes 3 agents. 1 representing the guests, who are either thirsty, hungry, both or neither. The second agent represents the establishments in the festival, which includes places to drink or eat. Finally, the third agent is an information center that the guests resort to when they are hungry or thirsty to get directions to the appropriate establishment

How to run

Run GAMA 1.7 and import Festival.gaml as a new project. Press main to run the simulation. When running changing the number of guests, stores and information centers will change the number of those entities that will be present in the simulation.

Species

FestivalGuest Agent

This agent was responsible for taking care of themselves. They had a hunger and thirst rating, out of 1000 and starting randomly between 0-1000. If this value is more than or equal to 500 the agent is considered to be hungry or thirsty. Once that happens, the agent will head to the information center agent and ask where they can get replenished based on their needs. They will then head to the Store Agent and replenish the needed values. They will also be idle until they become hungry or thirsty again, as they have a reflex which increases their hunger and thirst levels.

Store Agent

This agent was responsible representing a restaurant or a bar, where the festival guest agents get directed and replenish their hunger and thirst qualities.

InformationCenter Agent

This agent has a list of all bars and a list of all restaurants. It randomly leads the festival guests to one of the appropriate stores available.

Implementation

I started by implementing the simple agents, which are the stores and the information center. The Stores are simple with 2 qualities. Color and food/bar status. Once the init function creates a number of stores, making the Information Center is composed of taking all available stores, asking whether they are bars or restaurants, and adding them to the appropriate list. Finally, the Festival guest comes. This was implemented by first giving it random values for hunger and thirst levels, and no target store or target point. When the hunger or thirst levels are over 500, a reflex is triggered which tells it to go to the information center, where it asks for the appropriate establishment. Its target store now becomes the appropriate establishment, which triggers another reflex that leads it there. Once its there it sets the quality in question to 0. It is then idle until the increaseValues reflex leads those levels to become over 500 again.

Results

The screenshot below shows the information center in the middle, the green agents are heading there to get directions to the stores. The hungry ones turn red once they get directions to restaurants, which are also red. And the thirsty ones turn blue once they get directions to bars, which are also blue.

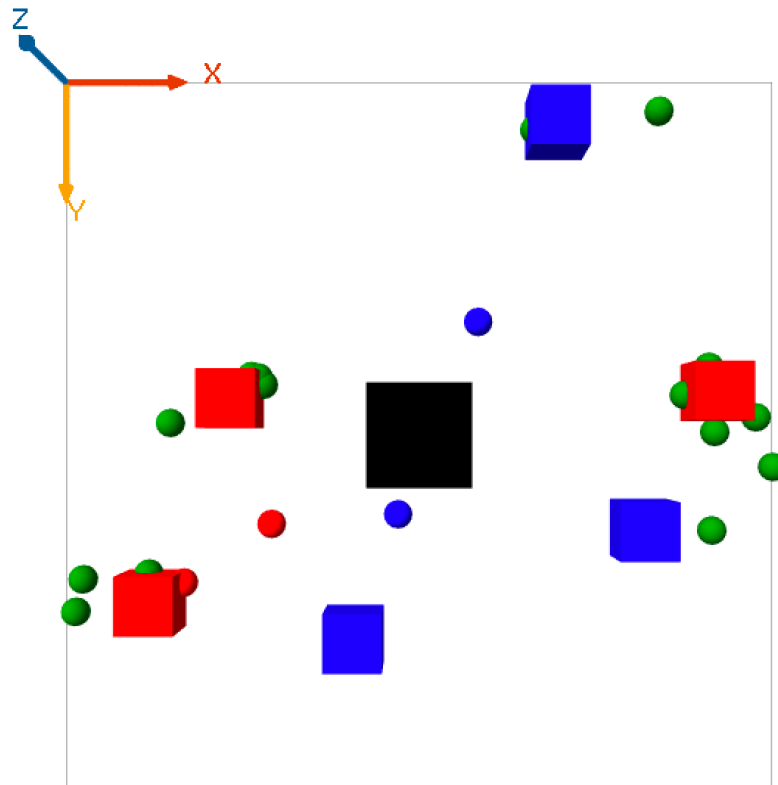


Figure 1: A screenshot of the final solution.

Challenge 1

N/A

Challenge 2

N/A

Creative implementation

N/A

Discussion / Conclusion

Overall the assignment without the challenges was quite simple and the level of logic and programming is quite low from what I am used to. However, the difficulty was presented in the fact that the Gama platform and syntax is not what I am used to. Limited debugging tools compared to powerful IDEs, such as IntelliJ as that is the one I'm used to, made spotting small issues harder. Nonetheless, considering the simplicity of the assignment it was still interesting to see how this platform can be used to simulate real life events like this.