AGENT BASED PROGRAMMING PROJECT

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1. OVERVIEW

- This is the project the Agent Based Programming Unit
- PLEASE zip all your files together and send them as ONE attachment. See the class web page for PROJECT SUBMISSION INSTRUCTIONS.

2. PROJECT DESCRIPTION

The purpose of the project is to demonstrate your understanding of agent-based programming. You will do this using NetLogo. One of the key aspects of agency is the notion that an agent exists in an environment and that it responds autonomously to conditions and events in its environment. In NetLogo, you have hopefully learned how to make an agent (turtle) respond to "patches".

For this project, you will create or modify an environment, and create or modify agents to act within and respond to that environment.

You have two options:
1. You can modify an existing simulation IN A SIGNIFIGANT WAY!
2. You can create your own program (minimum requirements are listed below).

3. Grading

The project will be marked out of 100 points.

The project has 2 parts (like most of your other project):
1. A document describing the program you are going to write OR modify. (20 points)
2. Your program itself (80 points).

If you are going to write your own program:
1. Your document should describe:
   a. The problem or situation being modeled.
   b. The environment.
   c. The agents
   d. How the agents interact with the environment and each other.
   e. How you could make your simulation more realistic.
2. Your program should contain:
   a. COMMENTS!
   b. Multiple types of agents (either patches and turtles, or multiple turtle breeds)

    c.   Variables.

    d.   Interaction between the agents (turtles to turtles or turtles to patches).

NOTE: Here are some problems that you might consider attempting to model:

1. *Model a chemical reaction.*
2. *Model a famous battle (fun with 3D settings).*
3. *Create a game that has lots of agents ("Zombie Outbreak").*
4. *Create a simulation of any of the 3 "RoboCup junior challenges".*

- *Have a group of robots (turtles) playing soccer*
- *Have a robot follow a line or navigate a maze*
- *Have a group of robots make music, draw a picture, etc...*

<u>If you are going to modify an existing program:</u>

1. Your document should describe:
    a. The problem or situation being modeled
    b. The environment
    c. The agents
    d. How the agents interact with the environment and each other
    e. What SIGINFIGANT change you are going to make to the model
2. Your program should contain:
    a. COMMENTS, which clearly delineate what you have added to the program.
    b. New variables and/or new interface components (sliders, displays, etc.)
    c. Modified turtles and/or patches!
    d. At least two significant new additions to the FUNCTIONALITY of the model.