eSports: Summative Coding Assignment

Mr. Frey - November 25

Goal: To demonstrate the ability to code a MicroBit game that displays objects in motion and gives the player directional control of a character, detecting collision with boundaries and with objects that are rewards/penalties.

Note: *You may create a new game or use a game that you have already made. You may also use code that is posted on the course web page* ***if you modify it enough to demonstrate an understanding of the code****. For instance, if you implement the rotation code in one direction only, then that is not a significant change from the code already provided. Changing the names of variables is not a significant change that demonstrates an understanding of the code. In order for you to get credit for the rotation of a character, you need to write code that will rotate it in the opposite direction.*

Instructions:

Your game needs to

- setup up the start locations and vectors for each object/character
- move and display all objects on a clock tick according to their vectors
- give human control of character movement in multiple directions
- detect collision with boundaries
- detect collision with rewards
- detect collision with penalties
- End the game and indicate how the player performed (win/lose/score)

Day 1:

1. Create variables for the coordinates and vectors of each object
2. Setup the values for each variable at the beginning
3. Set the vectors in your button controls
4. Set the clock speed
5. Erase all objects
6. Move all objects by their vectors
7. Display all objects

Day 2:

1. Add collision checks on the boundaries
2. Respond to each boundary collision (change vector, location, score, etc)
3. Add collision checks with other objects
4. Respond to those collisions with a reward/penalty

Submit pictures of your code

Due: November 28

Summative MicroBit Game Rubric

	Level 4	Level 3	Level 2	Level 1
Setup	Appropriate Names are all consistent Appropriate starting coordinates and vectors for each object Hide objects off screen	Appropriate names are descriptive and have no spaces Appropriate starting coordinates for 3 or more objects and at least one vector set	Names have minor errors – spaces, spelling, Appropriate starting coordinates for 2 objects	Names are not descriptive enough Appropriate starting coordinate for 1 object Copied from Mr. Frey
Input/Control	Sets vectors for 4 directions plus other actions OR Rotation in BOTH directions, plus move forward	Sets vectors for 4 directions OR Sets Vectors for 2 directions and an action	Sets vectors for 2 directions	Directly moves object coordinates in multiple directions instead of using vectors Copied from Mr. Frey
AI Control	Multiple objects demonstrate either 8 directions or Random 4-way direction or Heat-Seeker	Multiple objects with one having 4-way motion or Simple Random choice of 2-way motion	2-way motion	single motion Copied from Mr. Frey
Display/Motion	Multiple objects only erase at the top of the loop, move by proper vectors, and only display at the bottom of the loop and one of: Differentiated Speed Varied Clock Tick Jump Vector Varied brightness Blinking First Person View Large universe	Multiple objects only erase at the top of the loop, move by proper vectors, and only display at the bottom of the loop OR Multiple objects display motion by proper vectors and demonstrate one of: Differentiated Speed Varied Clock Tick Jump Vector Varied brightness Blinking	Multiple objects display motion by the appropriate vectors	A single object moves appropriately by its vector OR Multiple objects display motion but with some vector errors. OR Movement leaves a trail Copied from Mr. Frey
Collision Detection	Multiple objects properly detect 4 boundaries Collision with multiple rewards and penalties	One object detects 4 boundaries and all other objects detect at least one boundary Collision with a reward and Collision with a penalty	4 boundaries are detected Collision with 2 objects detected	2 boundaries are detected Collision with one object detected Copied from Mr. Frey
Collision Response	Score increase Score decrease Game end Bounce Stop Relocate Remove	Score increase Game end Relocate Bounce or Stop	Score problem Game end Minor error on change of coordinate/vector	Game ends with no score Major errors on change of coordinate/vector Copied from Mr. Frey
End Game	Displays Score or Animation Restarts game	Displays Score	Displays win/lose	Game ends but with no display Copied from Mr. Frey