Game Development
Homework Assignment#7

Points: 25
Due: 11/22/2024 11:59 PM

This homework assignment is modeled along the lines of Project Realm Rush. Please use the project as reference to help you answer the assignment.

Important: Each of the questions in the homework assignment have been demonstrated in-class. If you have any questions, please watch the recordings for a demonstration of the procedure.

1. Create a new unity project, Homework_Seven.

2. a) Describe Grid Snapping and Incremental Snap in Unity. **[2 pts]**

   b) Implement Grid Snapping and Incremental Snapping in the unity project you created. Set both grid snapping and incremental snapping to be of 10 units. **[3 pts]**

3. a) Explain the ExecuteAlways attribute in Unity. **[1 pt]**

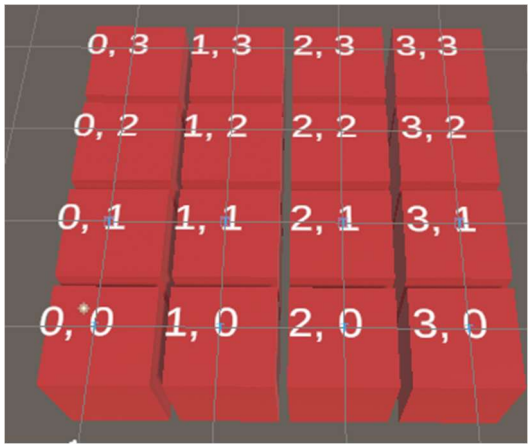
   b) Implement the ExecuteAlways attribute as you work on parts (c) and (d) within a C# script to ensure that the script executes only in the scene (edit) mode but not in the game mode. **[2 pts]**

   c) Create a Unity object named Tile that comprises a cube, and text (using Text Mesh Pro). The text on the cube should point to the X-Z coordinate label of the cube i.e. the position of the cube along the X and Z axes in the grid. For instance, it should read (2, 3) when the cube is placed at the X and Z coordinates of 2 and 3 respectively and change accordingly as the cube is moved around. **[3 pts]**

   d) Ensure that the name of the game object, Tile, shows the coordinate label in the hierarchy window. If you have multiple tiles, each tile should show its coordinate label as its name. Use the screenshot below as reference to understand the task better. **[2 pts]**

e) Now, expand the behavior of part (c) so that the tile shows the coordinate label even while in the execute (game) mode. **[1 pt]**

f) Make a prefab of the game object, Tile. Create a 4 x 4 grid using the prefab starting at the grid location (0, 0). It should be functionally similar to the grid shown in the screenshot. Cosmetic details such as color of tile, and font size of text are your choice. **[2 pts]**



4. a) Create a Unity game object named Enemy that comprises a cube. **[1 pt]**

   b) Implement the behavior of Enemy so it moves along the waypoint path of (0, 0) -> (1, 0) -> (2, 0) -> (3, 0) -> (3, 1) -> (3, 2) on the 4 x 4 grid you created in 3(f). Make sure to implement the behavior using a coroutine. **[3 pts]**

5. a) Explain the behavior of the linear interpolation (LERP) function in Unity. Be sure to explain each of the input parameters of the LERP function. **[2 pts]**

   b) Implement the LERP function on the Enemy game object to ensure it moves smoothly along the waypoint path shown in 4(b). **[3 pts]**

Deliverables:

- The Homework_Seven Unity project with the required specifications.
- For question#2 (a), 3(a), and 5(a), the answer needs to be written in a word (or similar) document.

Submission: Please upload the Unity project and word documents to a version control system of your choice, such as Git (or similar) and share the link on Blackboard.
Alternative Submission: If you are unfamiliar with version control systems or experience trouble, you may zip your deliverables, and upload directly to Blackboard.