**Assignment #5: Balance of Power II**

Waldorf has finally found peace and happiness within a tranquil setting. This all changed when the glitches showed up. Now Waldorf must cleanse the world of these glitches to avoid being thrown back into the chaos of the multiverse!

Remember the final question from the midterm exam? In this assignment, students must create a tranquil setting for Waldorf to live within. The students must generate a terrain and populate this terrain with a variety of technical elements discussed within the course. That’s not all! Students must also add the glitches, basic 3D primitives that are invading the world. Finally, Waldorf should be given some form of movement within the world with functionality to use physic forces to push these objects out of the world. Can Waldorf save his tiny world before it is too late?

**Objective:**

* Apply full range of knowledge obtained in this class using Unity components
* Gain experience working and creating a 3D terrain with objects
* Implement basic physics within the game world

**Required Resources:**

* None - Students must create this project from scratch
  + May use the Waldorf prefab from other projects

**Project Structure:**

* Students are required to present a clean and clear structure for their project
* Students MUST have a starting screen listing their implemented features, controls, and anything relevant about their project

**The Components:**

* Students are free to use ANY Unity supplied components
  + This includes from built-in packages
  + This also includes from Unity Asset Store
    - Must be free
    - Must be supplied by Unity
  + Students should ensure that no additional materials are needed to build project when they submit or the project will NOT be graded

**The Requirements:**

* Create a world for Waldorf to live in
  + MUST have a terrain
    - Terrain must use height maps
    - Terrain must be textured
    - Terrain requires trees or other basic scenery
  + MUST have lights
    - World requires skybox with ambient lighting (no defaults)
    - World requires a directional light
    - Must have at least two additional different types of lights exhibited in some manner in the world
  + MUST have world objects
    - These objects should highlight technology concepts we discussed in class
    - Minimum of 10 unique objects are required
      * No more than 2 similar objects types may be used
        + For example, only maximum of two distinct particle systems
    - Objects must be beyond a “basic” level of complexity
      * So primitives or “no effort” unity components do NOT count
    - Valid technical elements:
      * Soft bodies
      * Advanced lighting/shadows
      * Post processing effects
      * Advanced audio
      * Controller support (with feedback)
      * Particle systems
      * Advanced object lighting
      * Vertex/Pixel shaders
      * Behavior Patterns
      * Personality System
      * Pathfinding
      * Obstacle Avoidance
      * Physics Animations (ragdolls, IK chains, etc.)
      * And more!
* Create the Glitches
  + MUST have at least 3 unique Glitch enemies
    - Use different primitive
    - Controlled via physic forces
  + May be procedurally generated or manually placed into the level
  + MUST react to physic forces
  + MUST be able to be “knocked” out of the level in some manner
  + Clearing the world of Glitches should have some form of victory
    - I.e. there needs to be a “win” condition
    - Implementation is up to the students
  + Must have some method of loss (i.e. a time limit)
    - Implementation up to the student
  + Glitches may have a behavior which can count towards your world objects OR they can be simply controlled via physics
* Create Waldorf
  + Does NOT have to actually be Waldorf
  + Must have some FPS style control assigned
    - So I need to control the camera in some way to navigate the map
    - May use built in Unity solutions
  + Requires two physics actions
    - Left mouse action - Fire a light force “bullet”
    - Right mouse action - Fire a heavy impact force “grenade”
  + Implementation is up to the students
    - I just need to move around the map and clear the Glitches from the world

**Submission:**

* Completed Unity Project
  + Only “Assets”, “Packages”, and “Project Settings” folders
  + Naming convention for project folder: gat240\_studentid\_5
  + Submit as zip: gat240\_studentid\_5.zip
  + Please TEST your submission to ensure it runs properly

**Rubrics:**

* **Terrain – 10%**
* **Lights – 5%**
* **World – 50%**
  + Up to a 10% deduction for poor level design applies
* **Glitches – 15%**
  + Up to a 10% deduction for poor “game” (win/loss condition)
* **Waldorf – 10%**
* **Cleanliness – 10%**
  + Clean project structure
  + Clean code structure
  + Followed naming conventions
  + Explained complicated code

**Notes:**

Chapters 7 & 9 in the book can help a LOT in finding solutions. Pretty much everything else is available in Unity with information through the online Unity documentation.