**OO Design – Title of Project 2**

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1. **Introduction**

After looking at the structured analysis, we determined that a class should be designated for each of the UI frames. This allows us to interchange them and reuse the code from the main function of the original Gorillas game. For the Gameplay, we wanted to separate UI code and Process code between classes, this created a boundary class and a control class for the Gameplay. We also created entity classes for all of the unique entities in the Gorilla games that extend the class called Entities, since they all share “hitboxes” and positions. With this design, we can easily map Methods and functions from the original Gorillas game to our OO design as well as keep the existing Algorithms.

1. **System Requirement**

**2.1 Functional Requirement**

FN-IN-01: System shall allow the player to enter an angle and velocity from the keyboard when prompted

FN-IN-02: System shall allow the players to enter a name for themselves (default “Player 1/2”)

FN-IN-03: System shall allow the players to choose how many points to play to (default 3 points)

FN-IN-04: System shall allow the players to adjust the gravity (default 9.8)

FN-OU-05: System shall output an intro screen, after all the settings have been set and the player hits ‘V’, that shows the gorillas dancing and display player names, before game actually starts

FN-OU-06: System shall start the game play and skip the intro screen, after all the settings have been set and the player hits ‘P’

FN-OU-07: System shall place the gorillas on the second or third building from the edge of the screen from their respective side

FN-OU-10: System shall randomly generate buildings and random height and width until across the entire x-axis of the screen

FN-OU-11: System shall display the player names in the top left and right corners of the screen respectively

FN-OU-12: System shall display the current score in the bottom middle of the screen

FN-OU-13: System shall display wind strength and direction with an arrow in the bottom middle of the screen

FN-OU-14: System shall signal player’s turn by displaying the angle and velocity input options underneath their respective player name.

FN-OU-15: System shall display a rotating banana, being thrown by the gorilla whose current turn it is, at inputted angle and velocity.

FN-OU-16: System shall display a small explosion upon banana impact with a building and remove a small portion of the building

FN-OU-17: System shall display a large explosion upon banana impact with a gorilla and remove the hit gorilla from the screen

FN-OU-18: System shall have a gorilla dance after the opposing gorilla has been hit by a banana

FN-OU-19: System shall display a game over screen with score and player names once the set maximum score has been reached

FN-OU-21: System shall display a sun with a face when creating the buildings

FN-OU-20: System shall temporarily change the sun’s expression if it is hit by a banana

FN-PR-19: System shall calculate the inputted angle and velocity with wind and gravity to determine the projection and landing spot of the banana

FN-PR-20: System shall keep track of the player's scores and end the game once the set maximum score has been reached

FN-PR-21: System shall determine building height and width before drawing them

FN-PR-22: System shall determine gorilla placement before drawing the gorillas

FN-PR-22: The system shall allow for two players.

**2.2 Non-Functional Requirement**

NF-IN-01: The system shall not allow more games than the limit of 99 games.

NF-OU-02: The system shall remove all rendered graphics of an explosion after the explosion has passed.

NF-OU-03: The system shall not allow the user to scale the screen size.

NF-OU-04: The system shall not allow buildings to be built outside of the rendered screen.

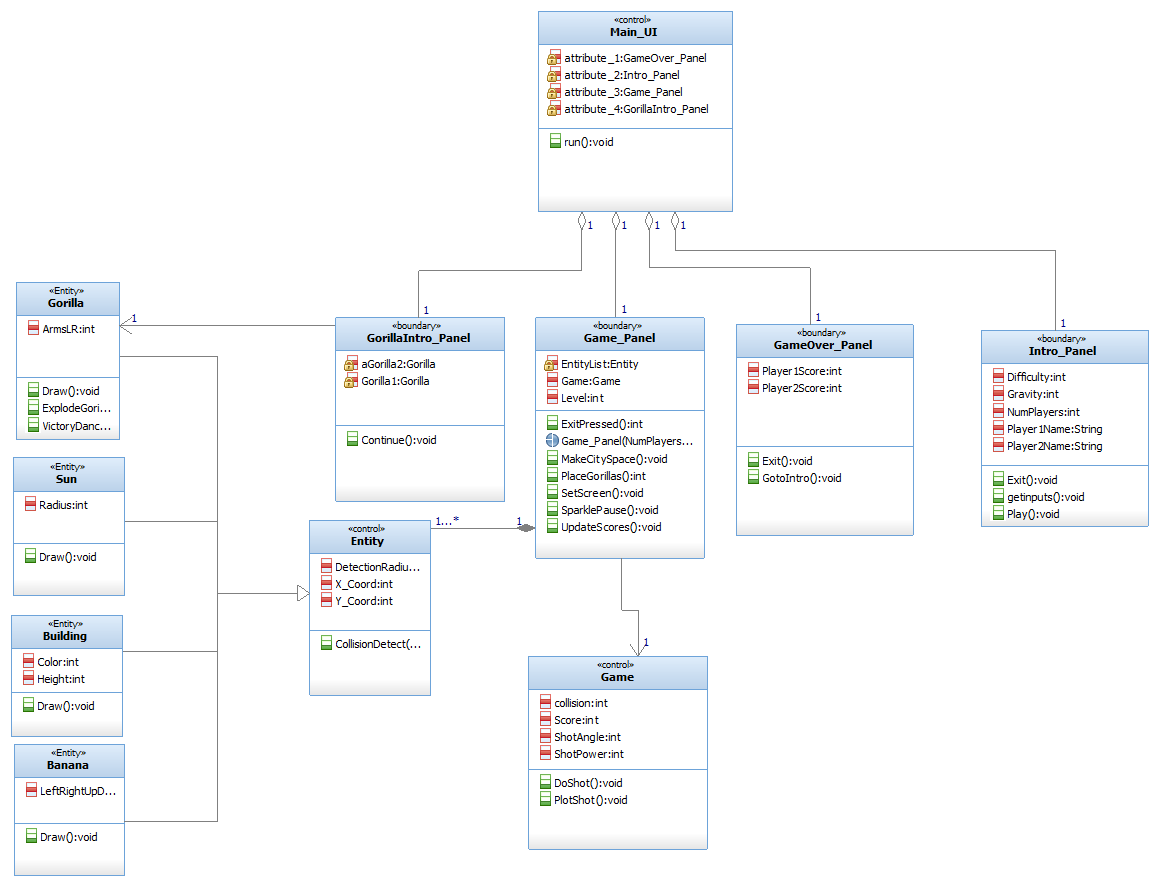
NF-OU-04: The system shall adhere to the max-height allowance for a building when constructing the terrain.

NF-PR-05: The system shall handle any unexpected errors.

NF-PR-06: The system shall use a JAR executable file.

NF-PR-07: The system shall not affect any files other than its own on the user's system.

1. **Class Diagram**

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