FLORIDA POLYTECHNIC UNIVERSITY

# Not So Simple Pac-Man

Dr. Bradford A. Towle Jr.

Game Design 2

## 1. Objectives

A. To use everything, we have learned to create a multiplayer Pac-Man Game
B. To practice dealing with game logic in collisions with networked games
C. To ensure we can animate characters on networked games.

## 2. Equipment

A. A good computer that can run Unity 2018 or above

## 3. Lab Preparation

A. Make sure you have a firm understanding of the last three labs we have done.
B. You should design out your solution for this game before coding.
C. You may want to use skeleton classes with comments to organize your code first.

## 4. Lab Instruction

A. Phase 1: The setup
    a. The game will be able to handle up to four players.
        i. (Don't worry about forcing this constraint right now, I will not test for it).
    b. The users will be able to enter their names
    c. The user will be able to select from three characters.
    d. The game can be either 2D or 3D, BUT the characters must be animated with walking and be facing the direction they are moving.
    e. The characters must also have an attack animation.
    f. (Hint: Look up override animator controllers for this step)
    g. The enemies do not need to be animated.
    h. Once everyone presses ready, the appropriate prefabs will be spawned, and the player option window will disappear.
B. Phase 2: The game
    a. The game will be a simple maze with different coins.
    b. The game will also have 5-10 bad guys (which can be cylinders) moving around on a nave-mesh.
        i. Bragging rights if they chase the characters when getting line-of-site.
    c. Regardless of what character is chosen, each player can move around the maze at the same speed.
    d. The player's name should appear above the correct character.
    e. The player's characters will try to collect the coins. Each coin will increase the appropriate players score by one.
    f. If the enemy collides with the character, it will restart in a different location and lose one on its score.
    g. The player may also press fire and fire a projectile (with attack animation) the direction they are facing.
        i. It should take 3 hits to kill a cylinder.

ii. The rate of fire should be every .5 seconds.

h. After all the coins are collected a score screen will appear with a list of the players and their respective score. (The game will should stop playing as well).

i. At this point the player can only simply disconnect.

j. (I will not grade on whether the server resets itself).

Hints:

- Remember, not everything needs to be synchronized. The animation can be done from the rigid body information AND when the user presses fire.
- Do NOT synchronize the shoot timer.
- Remember enemy movement, collisions, damage, and destruction all occur on the server ONLY
- You may use any code you have written or code we have gone over in class. **YOU MAY NOT USE HLAPI, or any third party network engine.**

## 5. Lab Rubric

| | Perfect | Logic issues but functional | Syntax errors or not attempted. |
|---|---|---|---|
| The player can enter their name and select a character. When everyone presses ready, the appropriate character (with the appropriate name) will be spawned/displayed on all the clients. | 10 | 5 | 0 |
| Players score will go up as they collect coins around the map. | 10 | 5 | 0 |
| The game will play UNTIL all coins are collected.<br>Correct score is displayed. | 10 | 5 | 0 |
| Characters are animated appropriately on all clients. | 10 | 5 | 0 |
| After three hits from any players, a cylinder is destroyed. All clients should be able to see the other bullets as well. If a player is hit they will teleport to a new location and lose one from their score. | 10 | 5 | 0 |
| Game is synchronized and does NOT desynchronize. | 20 | 5 | 0 |
| Total: | /70 | | |

## 6. Lab Report Requirements

No report is necessary for this lab. Please be prepared to demo with at least 3 clients.