Technical Demo Final Project

Group Members

Uphendhra Nagarajan (1211808)
Mohamed Ibrahim Sheik Dawood Salahudeen (1219082)

Keyboard Controls

WASD To move Player

MOUSE to look around

Press M key for Magic Ability

Joystick Controls

Left stick in Joystick for input.

Right stick in Joystick for Camera move.

Press A button for Magic Ability

Topics Covered

Particle System

Added Particle System like Unity's particle system as reference. You can find the code in the Particle System folder.

Mesh Instancing

Added Mesh instancing for Trees, Pumpkins and Grass. You can find the script inside the Mesh Folder. And you can check MesInstance shader and grass instance shader for the shader implementation.

LOD

Added LOD for Tress inside the arena. You can find the code inside the Model.cpp class.

Occlusion Culling

Added Occlusion Culling using PhysX for all the models. You can find all the scripts inside the PhysX folder.

Threading

Added Threading for Softbody. You can find the scripts inside the Threading folder.

Softbody

Added Softbody cloth simulation for Flag. You can find the code inside the Physics Folder.

Fog

Added Fog like in Unity. You can find the script named Fogsystem.cpp for uniform values and look into the default shader.frag for Fog calculations.

PhysX

Added PhysX Collision, Rigidbodies and Trigger Events for all the objects inside the scene. You can find scripts inside the PhysX folder.

Audio

Added FMOD Audio system inside Project. You can find all the scripts inside the Audio Folder.

Animation

Added Player Animation and AI Animation with Blending. You can find all the code for Skeletal animations inside PhysicsSkinMeshRenderer.cpp

Off screen Effects (Post Processing)

Added Post Processing and Handled Multiple viewports. You can find the scripts inside PostProcessing folder and Framebuffer.cpp

Grass Vertex Displacement

Added vertex displacement for grass shader. You can find the grass shader code inside the Shader/Grass folder.

Volume Box for Post Processing

Added Volume box like Unity for Post processing. You can find the script inside the Postprocessing Bounds folder.

Raycast

Added Raycast for the camera so that it doesn't pass through the objects i.e. camera collision check for objects and panning the camera position near the player. You can find the code inside PhysXUtils.cpp.