COMP3016 – Coursework 2 – Proposal

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Project Title

Bounding Box: 3D first-person platformer game

Description of Proposal

The proposed project is to produce a simple 3D first-person platformer video game, inspired by the game Jumping Flash! (Exact and Ultra, 1995). In the proposed game, the player's objective is to control their avatar to jump between platforms in order to reach a goal point; if the player fails to land on a platform, they are sent back to the beginning of the game. As the player is falling, their shadow appears on platforms below them to indicate where they will land. The player views the game from a first-person perspective; there is no visible avatar model. The game features a moving player-controlled character in a 3D environment with textured models, and static environment lighting and a dynamic avatar shadow. Audio is not planned at this point. The intention is to create a short, fun gameplay experience with simple, colourful 3D graphics. The first-person perspective is intended to make platforming more challenging for players, and more exhilarating by enhancing their sense of speed and motion.

Libraries and Resources

- Windowing and input library: GLFW (https://www.glfw.org/)
- Extension management library: Epoxy (https://github.com/anholt/libepoxy)
- GUI library: Dear ImGui (https://github.com/ocornut/imgui)
- 3D Asset loading library: Assimp (https://assimp.org/index.php)
- Maths library: GLM (https://glm.g-truc.net/0.9.9/index.html)
- GLSL language integration Visual Studio extension (https://marketplace.visualstudio.com/items?itemName=DanielScherzer.GLSL)

User Interaction

The user interacts with the game by controlling the movement and other actions of the game avatar, including its movement direction and distance, and when and how many times it jumps and in what direction. They also interact with a main menu in order to start playing the game after launching the game application and also to exit the application. Players input commands into the game using a keyboard and mouse.

References

Exact and Ultra (1995) *Jumping Flash!* [Video Game]. Sony Computer Entertainment.

Explanation of title: "Bounding" is a synonym for jumping; "Box" refers to the window through which the player views game world.