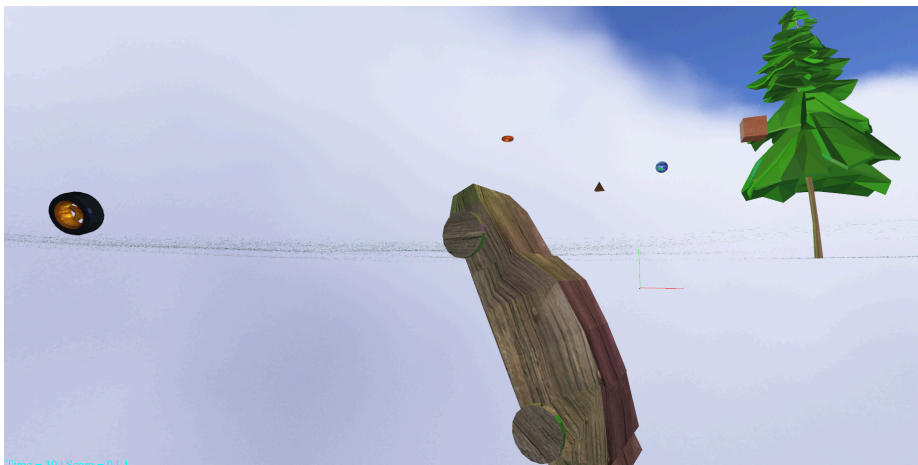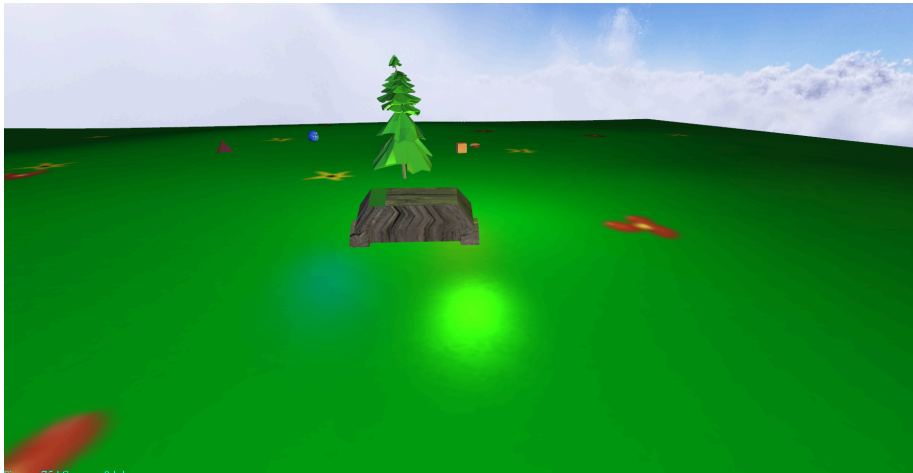Connor Yep
Professor Gordon
CSC 165-01
10 April 2025

<center>Lab 3 Final ReadMe</center>

1. **Info**
    1.1. *Peculiar Deathrun*
        Connor Yep,
        CSC-165, Section 1.
2. **Running Program Screenshot**

3. **Instructions for Compilation and running**
    3.1. In order to start the game server, navigate to the game main directory and run the following in terminal:

3.2. In the same directory, the following can be run in order to join an existing server or to play single player, if no server is found.

```
\Lab 3\yep_connor> ./compile; ./run
```

4. **How do play the game**
   4.1. So, bad news. The only thing you can do at this moment is move around and bump the one tire around. No things happen. No scoring.
   4.2. I will continue to work on this between now and presentations, because I wanted to finish and had great plans, though my time this semester was incredibly tight. I understand if no further grade will be received, this is simply for my own satisfaction (though passing the class would be neat).

5. **Movement Keybinds**
   5.1. **Keyboard**
      5.1.1. **W key**: Car forward
      5.1.2. **S key**: Car backward
      5.1.3. **A key**: Car turn right
      5.1.4. **D key**: Car turn left
      5.1.5. **Left Shift**: Sprint, speeding up all movement actions
      5.1.6. **M key**: Toggle central world axes visibility (visible beneath map)
      5.1.7. **Spacebar:** toggle physics
      5.1.8. **1 Key**: toggle physics visualization
      5.1.9. **Mouse movement**: controls orbit camera
      5.1.10. **U Key:** Zoom out
      5.1.11. **O Key:** Zoom in
      5.1.12. **I Key**: pan up
      5.1.13. **J Key**: pan left
      5.1.14. **K Key:** pan down
      5.1.15. **L Key:** pan right
   5.2. **Gamepad**
      5.2.1. **Left Joystick:** Controls car movement
      5.2.2. **△ / Y:** Toggle central world axes visibility
      5.2.3. **Right bumper:** Sprint
   5.3. **Gamepad**
      5.3.1. **Right Joystick:** Controls orbit camera

6. **Lighting in the game**
   6.1. 3 lights above the small floating objects of differing colors (R G B)
   6.2. Global ambient light
   6.3. White light attached to camera

7. **Changes to Network Protocol**
   7.1.

8. **Changes to TAGE**
   8.1. Added **move(float spd)**, **yaw(float angle)**, **globalYaw(float angle)**, and **pitch(float angle)** to GameObject.java
   8.2. Added **move(float spd)**, and **yaw(float angle)** to Camera.java

8.3. Added **CameraOrbit3D.java** to tage package.

8.4. Added **shiverController.java** to tage nodeControllers package.

8.5. Edited **InputManager.java** to support input action type ON_RELEASE_ONLY, though it is not currently used.

8.6. Updated javadocs.

9. Statement of Game Information

9.1. **Genre:** multiplayer survival thriller

9.2. **Theme**: desert, apocalypse,

9.3. **Dimensionality:** 3D, third person, surface physics game

9.4. **Activities:** Exploration, driving vehicles

10. Where each project requirement is visible

10.1. **External models:** The main avatar, the tire, and the tree are custom models. The tire and tree have sensible textures and UV unwrapping. The car/avatar has a placeholder texture.

10.2. **Networked Multiplayer:** When multiple clients join a game, separate car avatars will be visible, with a gray brick texture. There is no way to edit their avatar on game creation.

10.3. **Skybox and Terrain**: The skybox is visible in the surroundings, and the terrain is the grassy field which the game takes place upon.

10.4. **HUD**: The HUD is visible in the bottom left and details the time passed, and score (though score is not used currently).

10.5. **3D Sound**: The car makes engine rev noises, uniquely for driving forward vs backward. There is background music audibly apparent.

10.6. **SceneGraph**: The game objects are linked to physics objects using the scenegraph. The lights and the skybox are rendered using the scenegraph.

10.7. **Animation**: There's animation for the car wheels uniquely for driving forward and back. Yes, it rotates incorrectly.

10.8. **NPCs**: None working.

10.9. **Physics**: The avatar/car and nearby tire model are linked to physics, the ground plane is collidable as well, allowing the objects to slide around.

11. <u>Unsuccessfully implemented requirements</u>

11.1. There are no **NPC**s, and thus no working AI. Most of the code is there, just broken.

11.2. **Animation** is *technically* working, but the rotation is incorrect, lots of difficulty with rage exporter.

11.3. **Character Select** is not operational, and by extension broadcasting unique avatars is not operational.

11.4. **HUD** works, but only displays time elapsed.

11.5. I had **terrain** following enabled, but since making the avatar a physics object, gravity does the following now.

11.6. The overall **game quality** is honestly nowhere near my aspirations, and likely your expectations. My condolences.

12. Techniques beyond requirements

12.1. Mouse camera movement.

13. Contributions of each team member

      13.1. **Me**: did everything

14. **Asset List**

    14.1. **Animations**

      14.1.1. **Car Chassis.rkm, Car Chassis.rks, driveBackward.rka, driveForward.rka**: all by me in blender

    14.2. **Default assets**

      14.2.1. Everything in this directory from tage

    14.3. **Models**

      14.3.1. Car Chassis Blockout.obj, car Wheels.obj, Demon Ball thing lol.obj, Slender Silhouette Sweetgum Tree.mtl.obj, Tire.obj

      14.3.2. Everything made by me in blender

    14.4. **Dolphin_HighPoluUV.jpg** - from HelloDolphin.zip

    14.5. **Sounds**

      14.5.1. All sounds by me

    14.6. **brick.jpg** - texture obtained from pexels.com, source: Pixabay, copyright free. https://www.pexels.com/photo/brown-brick-wall-207142/ link to visible free use.

    14.7. **rocc.jpg** - texture obtained from pexels.com, source: Life Of Pix, copyright free. https://www.pexels.com/photo/gray-rock-8892/ link to visible free use.

    14.8. **boom.jpg** - texture obtained from pexels.com, source: Pixabay, copyright free. https://www.pexels.com/photo/black-smoke-coming-from-fire-417070/ link to visible free use.

    14.9. **Floor.jpg** - texture obtained from pexels.com, source: Engin Akyurt, copyright free. https://www.pexels.com/photo/black-and-white-carbon-pattern-2092075/ link to visible free use.

    14.10. **LilyWater.png** - custom texture that made by me in photoshop

    14.11. **goofySunset.png** - custom texture that made by me in photoshop

    14.12. **Best texture image ever.png**: made by me

    14.13. **Height map WIP**: made by me

    14.14. Game crosshair.png - made by me

15. **Source and evidence of permission for extra assets**

    15.1. none

16. **Tested RVR-5029 Machine**

    16.1. Tested on ECS SPACEQUEST and ECS TEKKEN. Works.

17. **Extra Notes**

    17.1.