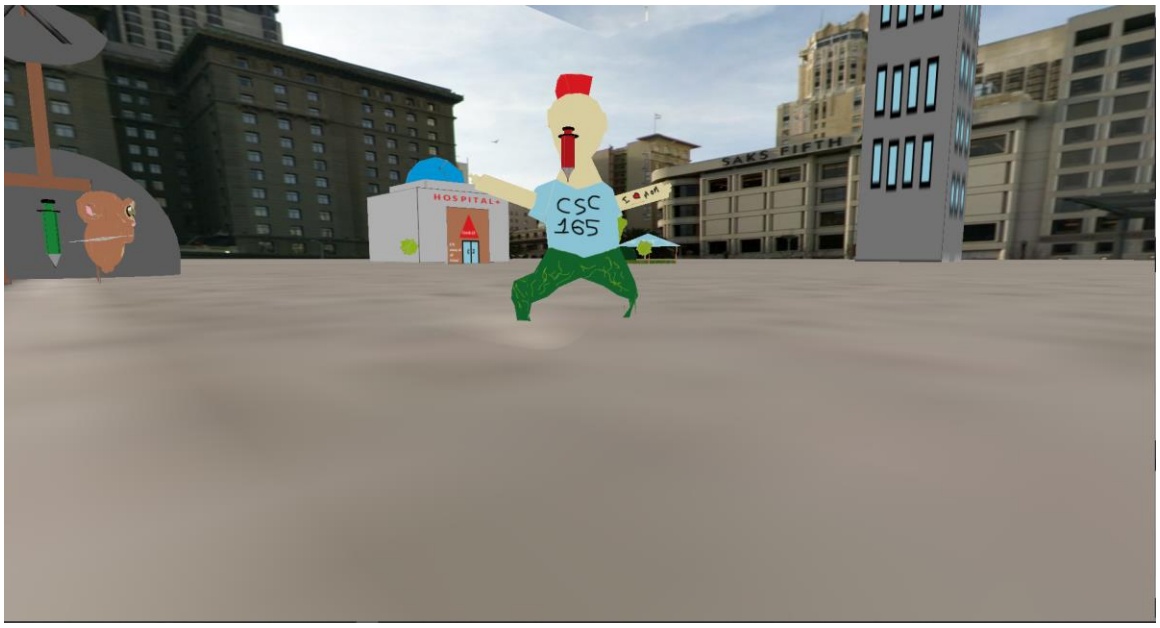
Player's Guide -Vaccine Rush

By Cameron Lim

1. Name of Game: Vaccine Rush
    a. Name of Members: Cameron Lim
2. Screenshot of Vaccine Rush:



3. How to run:
    a. Compile:

        javac vaccineRush\VaccineRush.java

    b. Run:

        java -Dsun.java2d.d3d=false -Dsun.java2d.uiScale=1
        vaccineRush.VaccineRush

    c. Networking (Only to run server, integration into game does not work. Will discuss further down in document):
        java -Dsun.java2d.d3d=false -Dsun.java2d.uiScale=1
        Network.NetworkingServer 1600 UDP

4. Special Device Requirements: None

5. How to Play:
    a. Vaccine Rush is a game that involves collecting various vaccines and returning them to the hospital for points. Come in contact with the vaccine to pick up the vaccine and carry it back to the red flag located through the hospital doors. Red Vaccines = 100 points, Blue Vaccines = 250 points, Green Vaccines = 500 points, and Orange Vaccines = 750 points. Flags will be randomly respawned at other vaccine locations to prevent camping one vaccine. You can throw and place germs as a way to defend or attack! (In theory if I got NPCs to work…) Don't come in contact with the Covid-19 germ or you will be sent to quarantine and lose one of your three lives. Good luck!

6. Controls:
    a. Keyboard:
        i. W\S – Move Character forwards and backwards.
        ii. A\D – Turn character left and right.
        iii. Q\E – Turn camera **and** character left and right.
        iv. Left\Right Arrow – turn camera left and right.
        v. Up\Down Arrow – turn camera up and down.
        vi. +\- (on Keypad) – Zoom in/Zoom Out.
        vii. Spacebar – Cough Germ.
        viii. Left Ctrl – Place Germ.
        ix. N – toggle God mode.
        x. Escape – Quit.
    b. Controller:
        i. Left Joystick – Move Character
        ii. Right Joystick – Move Camera
        iii. RT\LT – Zoom in\Zoom Out
        iv. RB\LB – Turn Character

v. A – Cough Germ
vi. B – Place Germ
vii. Click Left Joystick – Quit

7. Scripting:
    a. This game uses scripting to setup both the skybox and the terrain within the game world. I used scripting for this for easy access to modify and spawn them without changing a lot of code to do so.

8. No changes to network protocol.

9.
    a. Genre: Adventure
    b. Theme: Diseases\Outbreaks
    c. Dimensionality: 3D World on the ground (planet earth)
    d. Activities: Exploration, Combat (Theoretically)

10. Game Requirements Satisfied:
    a. **External Models**:
        i. All models and textures in this game were designed by me using Blender and MS Paint.
        ii. List of models:
            1. Main Character (mohawkman.rkm)
            2. Monkey NPC (morgan.rkm)
            3. Hospital Building
            4. Quarantine Tents
            5. Radio Stations
            6. Skyscraper
            7. Germs
            8. Vaccines
            9. Flags
    b. **Scripting**:

i. Skyboxes – Skyboxes were implemented using a JavaScript to create the skybox.
ii. Terrain – Grass terrain was created using a JavaScript.
iii. Both in the setupScene() of VaccineRush.java

c. **Skybox and Terrain**:
i. Skybox – The world is surrounded by a skybox that is supposed to represent a busy New York city street.
ii. Terrain – Grass terrain was created **under the quarantine tents** as a "timeout" zone.

d. **Lights**:
i. Positional Light – attached to the **player avatar** for a slight flashlight effect.

e. **3D Sound:**
i. Three 3D Sound objects were implemented:
1. Clap Sound – Placing a Germ makes a clap sound (Left Ctrl).
2. Cough Sound – Coughing up a germ will play a cough sound (Spacebar).
3. Traffic Background Sound – Cars honking, street noise, etc.

f. **HUD:**
i. Player HUD is implemented to show time, score, lives, and current state of holding a vaccine at the bottom of the screen.

g. Hierarchical SceneGraph:
i. Picking up the vaccine is done using a Hierarchical SceneGraphs. The flag becomes the child of the avatar node which is a child of the root node.

h. Animation:
i. Clap Animation – On player avatar when you place a germ (Left control)
ii. Cough Animation – On player avatar when you cough a germ (Spacebar)
iii. NPC Monkey Walk Animation – I did not get NPCs to work but I made the animation for them to walk. To test it, please look at the NPC Monkey and press spacebar.

i. Physics:
i. The germballs that are coughed up are physics objects using JBullet. The world has a physics world also set up.
ii. The avatar is also a physics object.

11. Game requirements not satisfied:

- **a.** Networking:
  - **i.** I was having troubles with networking from the beginning and unfortunately I was not able to get it to work. I got the NetworkingServer to run separately, successfully; however I was not able to actually implement it into my game to make it a two player game. I left all my network code in the folders.
- **b. NPCs:**
  - **i.** NPCs were also an issue for me to integrate especially with the networking not working properly. Unfortunate, because it takes the difficulty out of the game I was hoping to create. Sorry about this.
- **c. One Light**

12. Any technique beyond the requirements: None I believe.

13. All contributions to this project were done by me, Cameron Lim.

14. List of Items I created:

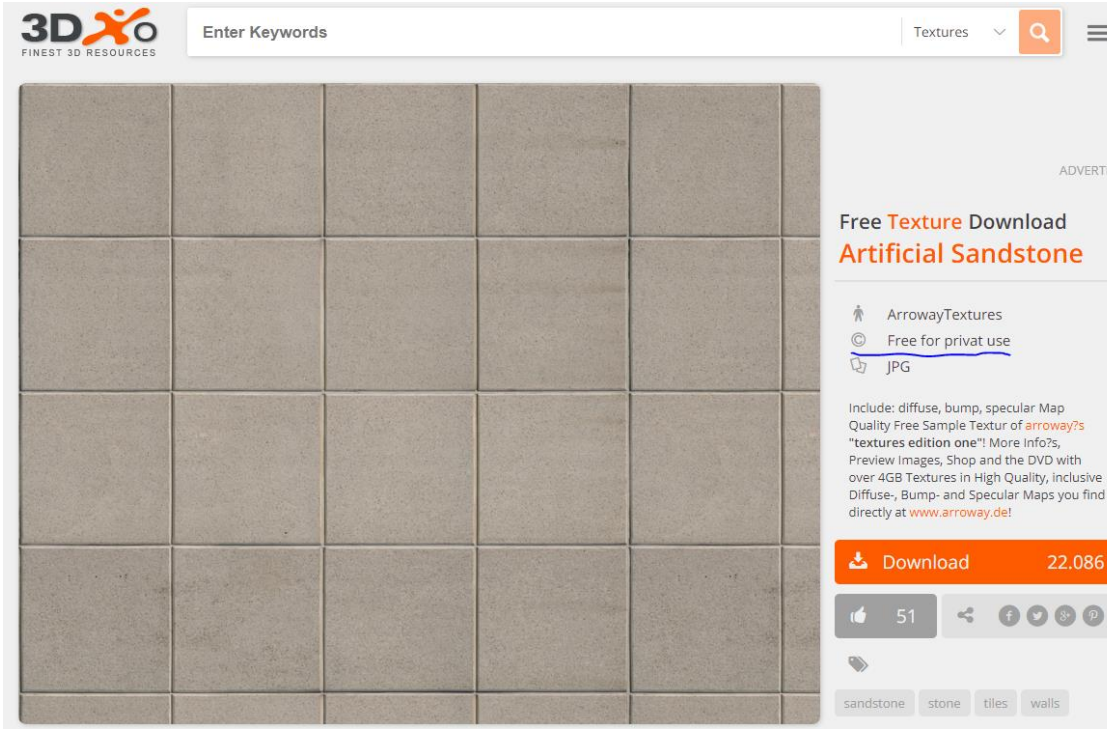
1. Main Character (mohawkman.rkm)
2. Monkey NPC (morgan.rkm)
3. Hospital Building
4. Quarantine Tents
5. Radio Stations
6. Skyscraper
7. Germs
8. Vaccines
9. Flags

15. List of outside resources:

- **a.** Urban Skybox (**Creative Commons License**) - https://opengameart.org/content/urban-skyboxes

b. Tile Texture (Free for Private Use) – https://www.3dxo.com/textures/3003_artificial_sandstone

i.



16. **Tested on 5029 ECS-Fallout.**
    a. **Network not working, so only one computer.**