Step-by-Step Guide to Using aframeinr

1. Install R and RStudio (if not already installed)

- Download and install R from CRAN.
- Download and install RStudio from RStudio.

2. Install Required Packages

Open RStudio and run the following code to install the required packages:

```
#Install packages
install.packages(c("sf", "glue","rgl", "dplyr", "httr", "units", "jsonlite"))

#Install devtools if you haven't already
install.packages("devtools")

#Install aframeinr from GitHub
devtools::install_github("SCT-lab/IVE-R")
```

- Run the code in the console to install the packages.

3. Define Area of Interest

Use following code to define area of interest based on a central point (Amersfoort) and a buffer distance (m):

```
library(aframeinr)

# Define area of interest
bbox=define_aoi(5.387200, 52.155170, 100)
```

4. Get 3DBag Items

Get 3DBag building data within the defined area of interest and extract coordinates:

```
# Get 3DBag building data and extract coordinates
coords=get_3Dbag_items(bbox)
```

5. Plot 3D Buildings and Change inputs

Plot the 3D Buildings visualization within the bbox area using coordinates

```
# Plot 3D buildings
plot_3Dbag_buildings(coords)
```

- Run the code and see the result without making any changes.
- Change the coordinates to another location in The Netherlands (Continental) using Google Maps or OpenStreetMap to select new coordinates and run the code.
- Modify the buffer distance parameter and run the code (note that a very high distance may take a long time).

6. Save 3D Model

Save the 3D model as a GLB and OBJ files with a default color (blue):

```
# Save 3D model as glb and obj files with a default color (blue)
save_model("inst/","buildings", coords)

# Save 3D model as glb file with a specific color
#save_model("inst/","buildings", coords, "gray")
```

- Run the first line of code to save the model with the default color.
- Uncomment the second line and run it to save the model with a different color (you may change the color of the buildings).

7. Create VR HTML for A-Frame

Create a 3D model for A-Frame (generates an HTML file with an A-Frame framework using the GLB model.

```
# Create 3D model for A-frame
create_VR("inst/buildings.glb", "output.html")

# Create 3D model with specific position, scale, and rotation values
#create_VR("inst/buildings.glb", "output.html", position = c(0, 2.5, -3), scale
= c(0.01, 0.01, 0.01), rotation = c(-75, 0, 0))
```

- Run the first line of code and see the result without making any changes.
- Uncomment the second line, modify the position, scale, and rotation values for your "3DBag buildings" model, and run the code.
- Download another 3D model in GLB format, save it in a directory, change the file path in the code, and run it again.

8. Set VR Environment

Set the VR environment (valid values: none, default, contact, egypt, checkerboard, forest, goland, yavapai, goldmine, threetowers, poison, arches, tron, japan, dream, volcano, starry, osiris) with / without the optional parameters skyType and skypeColor:

```
# Set VR environment
set_VR_environment("output.html", "tron")

# Set VR environment with sky type as color
#set_VR_environment("output.html", "tron", skyType = "color", skyColor =
"pink")

# Set VR environment with sky type as gradient
#set_VR_environment("output.html", "japan", skyType = "gradient", skyColor =
"#FFDD99")
```

- Run the first line of code without making any changes and modify the environment value.
- Uncomment the other lines one by one, modify the sky type and sky color, and run the code.

9. Rotate VR Model

Rotate the GLB model clockwise with the default speed:

```
# Rotate the GLB model clockwise with default speed
rotate_VR("output.html", TRUE)

# Rotate the GLB model clockwise/counterclockwise with a specific speed
#rotate_VR("output.html", TRUE, speed = 0.0002, clockwise = 0)

# Stop the GLB model rotation
#rotate_VR("output.html", FALSE)
```

- Run the first line of code without making any changes.
- Uncomment the second line, modify the rotation speed and direction, and run the code.
- Uncomment the last line to stop the rotation and run the code.

Feedback: Your input is invaluable for making ‘aframeinr’ better for everyone.
https://forms.gle/zjQpsXBEb2JgD7588