NTUST: 2023 Advanced Computer Graphics
Final Project：Stereoscopic render and interactive scene

Date Due：2023. Dec. 22th Fri. PM11:55, and upload to Moodle2. (around 2.5 weeks)

Description：

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1. Write a program (prefer javascript, but python, C/C++ and other languages are acceptable) to import glTF/obj and an equirectangular image (panorama) then do stereoscopic render (Side-by-Side) and “interactive scene”.
2. Scene requirement (3 items):
   - Import MarioKartStadium.glb and the car as the main scene.
   - Download a “360 HDRI” image and import as the background texture (choose any kind of background by yourself, clear blue sky is preferred)
   - Import: TrackCenter.xyz
     (Note: MarioKartStadium.glb and TrackCenter.xyz are the same data with midterm)
3. Render requirement (2 items)
   - Camera: set a stereo camera above the Car (either right or left lane) to have a chase view.
   - Light: carefully at least one light which has “diffusion” and “specular” properties.
4. Interaction requirement (choose one of below items)
   - By mouse wheel: allow users to control “forward” and “backward” effects for the camera (always along the track)
   - By keyboard: allow users to use “up” and “down” keystrokes for “forward” and “backward” effects for the camera (always along the track)
   - By sidebar on GUI: allow users to use a slide-bar of GUI for “forward” and “backward” effects for the camera (always along the track)

   NOTE: yon did NOT need to animate it automatically
5. You need to submit 3 items, and try to make better user-experience effect as possible:
   (1). Source code in javascript (or python, C/C++/C# et. al., with simple comment,
   (2). **Optional:** Execute file (including all necessary dynamic link files), if you are using python, no need to provide.
   (3). A two-page document to describe how you did this.
6. Reference Grade: Correctly import objects (40%) and correctly render as Side-by-Side image (40%). Able to have the interactively control by mouse / keyboard or slide-bar (20%).

Hint:

- This final project will be 25% of the course grade in this semester. Please accomplish all necessary requirements as possible.
- Hint: Chase view will look like this following figure (at rear and above the car):

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