CMPE 360/CS561
Fall 2023
Project 09
Three.js

The assignment is due by 23:59 on Friday, 29 December 2023

For this assignment, **you can complete the project group of two people or individual**.

If you choose to work with a partner, you may divide the work however you wish, but both partners must understand and be responsible for everything that is submitted. Beyond working with a partner, all usual collaboration policies apply.

You are expected to document your code well. Do not wait for the last days to start your homework. We suggest you read the whole assignment before starting your work.

Homework

The goal of the homework is to create an art gallery museum scene using Three.js.

Your scene content will be about art gallery museum, and your scene must include at least the following technical elements:

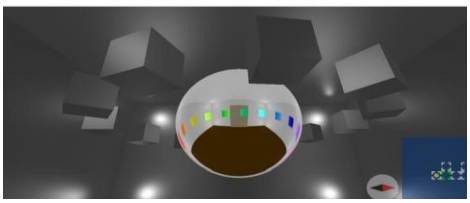
- Includes at least **8 objects** (sculptures, drawings tables.. etc), some of which are hierarchically related.
- Uses at least **three types of geometry** (cubes, spheres, planes, extrusions, etc.), at least two of which is a model loaded from an OBJ file.
- Has multiple lights.
- Has a skybox.

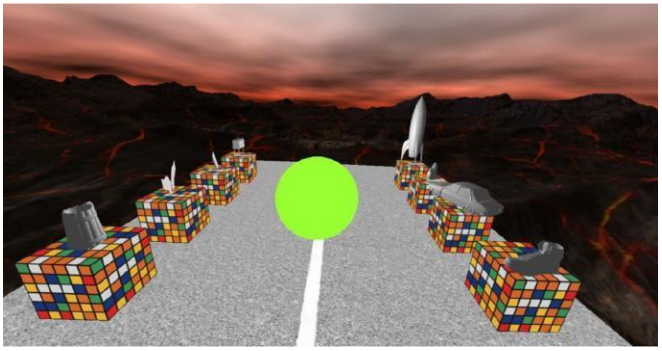
- Uses texture mapping on something other than the skybox.
- Has controls for the camera (here you can just copy the keyboard handler from the example files). Your camera will visit the art gallery museum around the objects.
- Has at least **three features** that are **animated**.
- Uses shader effects on at least one object. The shaders should be different from the examples that we have covered, e.g. bump mapping, shading, etc. You are free to obtain sample shaders or create your own by using online repositories, e.g. https://shaderfrog.com .

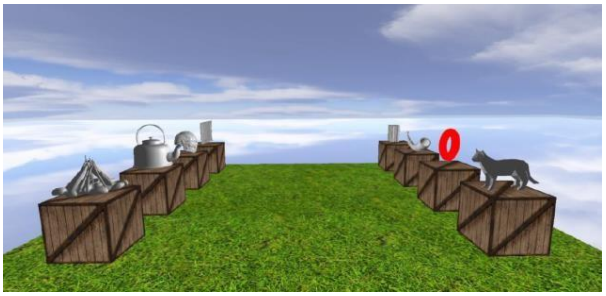
For learning more interactive you can see threejs tutorial http://threejs.org/ which give you many interactive examples: https://threejs.org/examples/. **We highly recommend this useful tutorial that will help you to learn better.**

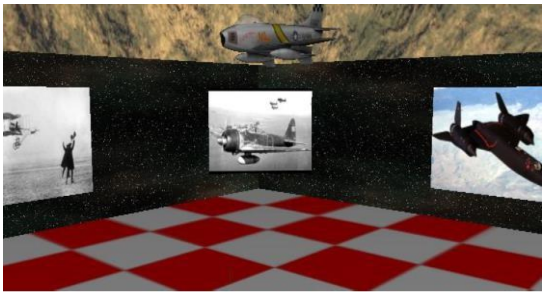
You will create a scene that concept's art gallery museum and there will be some objects according to art gallery museum concept.
Have some fun with it. Turn a zip file containing your code and all needed assets (except three.js itself) so that we can un-zip it and post for everyone else to check out.

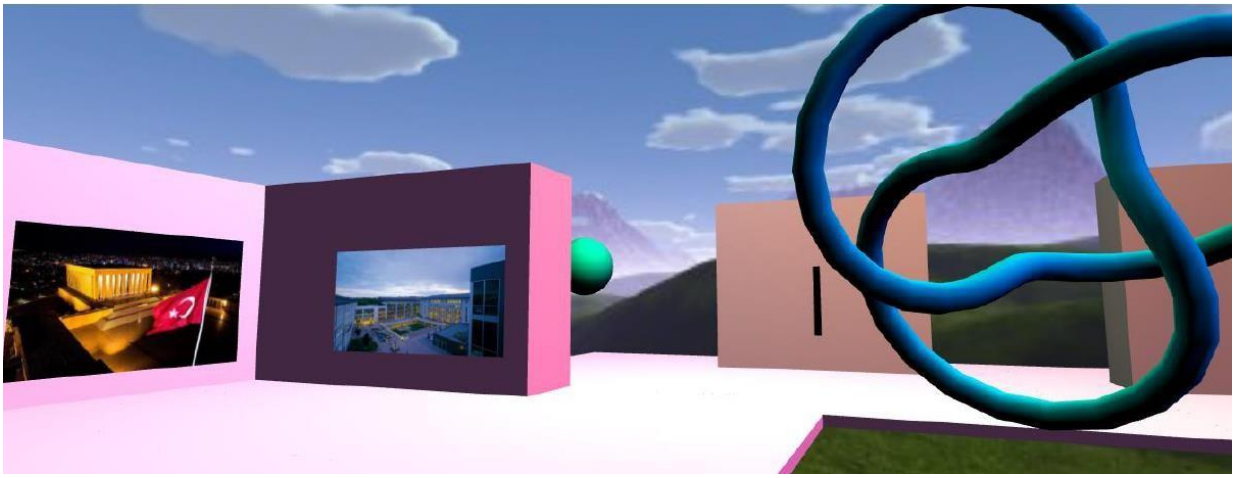
Note: be creative and describe art gallery museum story.
Also, the examples below are from what students did in last year's CMPE360 course











SUBMISSION

IMPORTANT NOTES: Do not start your homework before reading these notes!!!

1. This assignment is due by 23:59 on Friday, 29 December 2023.

2. You should upload your homework to **LMS** before the deadline. You should upload files **(Project09 Files Submission Part)**and any additional files (.html and .js files as a zip folder) and **pdf report (Project09 Report Submission Part) separately.**

   - Please follow the instruction and prepare a **pdf report** (maximum 3 pages) that includes all parts. Please make sure answers are numbered as below.

     PART 1

     Explain your process detailed what you did. You must clearly state:
     - What each person in your group did
     - Add screenshots of objects you use
     - Write geometry types (cubes, spheres, planes…etc) you use

     PART 2
     - Add multiple lights, skybox and texture mapping and explain your process.
     - Which features are animated, explain your process
     - Write shader effects you used explain your process
     - Add two screenshots with different camera views of your scene when you finish your work.
     - Please record a video for your art gallery museum and copy the drive link to your report.

3. If necessary, you may define additional data members and member functions.

4. The submissions that do not obey these rules will not be graded.

5. To increase the efficiency of the grading process as well as the readability of your code, you must follow the following instructions about the format and general layout of your program.

6. Do not forget to write down your id, name, section, assignment number or any other information relevant to your program in the beginning of your files. Example:

```
//---------------------------------------------------------------------
// Title:
// Author: Name Surname
// ID: 2100000000
// Section: 1
// Project: 2
// Description:
//---------------------------------------------------------------------
```

7. Since your codes will be checked without your observation, you should report everything about your implementation. Add detailed comments to your classes, functions, declarations etc. Make sure that you explain each function in the beginning of your function structure. Example:

```
setVariable(char varName, int varValue)
//---------------------------------------------------------------------
// Summary: Assigns a value to the variable whose
// name is given.
// Precondition: varName is a char and varValue is an
// integer
// Postcondition: The value of the variable is set.
//---------------------------------------------------------------------
{
   // body of the function
}
```

Grading Rubric

PART 1	Points
Add screenshots of objects (8 objects)	16 points
Write geometry types (at least 3) geometry you use.	9 points
PART 2	
Add multiple lights, skybox and texture mapping and explain your process.	10 points
Which features are animated, explain your process.	10 points
Write shader effects you use explain your process.	10 points
Files and any additional files (.html and .js files) (with detailed comments)	20 points
Creativity of scene	10 points
Add two screenshots with different camera views of your scene when you finish your work.	5 points
Please record a video the all options and copy the drive link to your report	10 points