This homework is for the practice of 3D rendering, 3D model loading, illumination, 3D hierarchical transformation, and user interaction.

You will implement a WebGL program to render a scene that contains 1 ground, at least 3 objects on the ground, and one point light.

Scene:

- 1 point light: you should set a point light and draw a small cube or sphere at its location. (let us be able to see where it is)
- 2 different objects from the external 3D models (do not use mario and sonic in the quiz. Try something new)
- 1 multi-joint object created by yourself (at least a two-level joints): this object consists of at least 1 cuboid, 1 pyramid, and 1 sphere(or cylinder). If your object in homework2 meets the requirement, the object here can be the 3D version of your homework2 object.
- 1 ground (e.g. a big flat cuboid): And, you should put all above three objects on this ground correctly.

Illumination:

- You should implement a correct and nice-looking local illumination (ambient+difusse+specular and phong shading) for everything in your scene (the ground the 3 objects)

User Interaction:

- Mouse to rotation the whole scene: Users can use the mouse to arbitrarily rotate the entire scene (the point light should be rotated with the whole scene as well)
- Zoom in and out: Users can zoom in and out by either the mouse scroll wheel or a slider.
- Control your multi-joint object: You should allow users to control and move the object on the ground. When the object is moving, its joints should move automatically. (for example, if your object is a robot, when the object is moving, the joints of its arms or legs should automatically rotation. Of course, you should make the joints rotation make sense)

Submission:

- You have to submit your program to moodle before the deadline. Otherwise, late submission penalty will be applied.

- You have to put all files (index.html, js) in a folder, zip the folder, rename the zip file to your student ID (e.g., 407470888s.zip), and submit this zip file to moodle. Ensure that TA can unzip your zip file and drag index.html to the browser to run without any extra work. If you do not follow this rule, your homework will be penalized.
- **You have to schedule time with TA to demonstrate your homework (you will not receive any points if you don't):**
  - Please book a 5 minutes time slot here before moodle submission deadline: https://tinyurl.com/y6smnadz
  - You are welcome to bring your laptop for this demonstration. **If you will not bring your laptop, make a note when you book the time slot.**
  - make sure you arrive on time
  - TA office: Room 109 Applied Science Building.
  - TA email: 60847071s@gapps.ntnu.edu.tw
  - **If you submit the homework late, you still have to email TA and book a time for demonstration again. Otherwise, you will not receive any points.**