Complete 3D Solar System

Essential Requirements

- Project's implementation should be done using Modern OpenGL pipeline taught in the labs.
- Your project should have the following features:
  1) A well designed code is essential.
  2) A textured skybox for the project's environment. (Choose appropriate six faces of a space).
  3) Basic collision detection between **the camera** (1st person camera) and the **environment's walls** (i.e. the skybox).
     a. Use and manipulate a camera to move in the scene as discussed in the 6th lab "First Person Camera" lab.
  4) Scene lighting: a directional and point light sources are required.
  5) Load basic models planets as spheres with different materials for each sphere.
  6) Sun should act as a point light source.
  7) The camera should be able to see the solar system from all sides of the skybox.
  8) Apply shadow mapping: if taken in the last lab.

Bonuses

1) Build a scene-file reader.
2) Load more complex models (sphere, teapot, cone, torus, chairs, person, etc.).
9) Basic collision detection between the 3rd person camera and the **environment's walls** (i.e. the skybox).
3) Create at least one animation based on a key press that starts with the key press and ends after a certain period of time. (ex: jump)
4) Build a more complex environment.
5) Shadow mapping: if not taken in the last lab.
6) Sounds and text for each planet.

Helper image

Picture