Computer Games Exercises: 2024s s05 (non-physics)

https://www.umm.uni-heidelberg.de/miism/

Contents

Answer header 1

G13: Scene planets 1
- Preparation . . . 1
- Task . . . 2
- Questions . . . 2

Answer header

Please put the author information in the header of all code files.

- `name (Name)`
- `coauthor list`

G13: Scene planets

Preparation

Read the documentation further under *Getting started* and *Manual*:

- *Your first 3D game*
- *Math - Matrices and transforms*

Task

Read the source code of the provided game "`Planets`" and extend the game.

- Add four actions for the keys "`Left`", "`Right`", "`Up`" and "`Down`" and assign the corresponding keys (NOT physical keys) to them.

Implement the following functions by script only.

- Use the keys "`Left`" and "`Right`" to rotate the "`CameraPivot`" around the y-axis left or right.
- Use the keys "`Up`" and "`Down`" to shift the "`CameraPivot`" along the y-axis up or down.
- Hide the "`Ground`" at the beginning of the game.
- Add the object "Earth" as the child of the "`Sun`" with all required child nodes.
- Set the scale of "Earth" to 2 and its color to blue.
- Make the "Earth" orbit the "`Sun`" with the radius of 20.
- Add the object "Moon" as the child of the "Earth" with all required child nodes.
- Set the scale of "Moon" to 1 and its color to yellow.
- Make the "Moon" orbit the "Earth" with the radius of 5.
- Set the orbital speed of the "Moon" 20 times faster than the orbital speed of the "Earth".

Questions

Write the corresponding answers in the script file.

- How are the objects organized in this game?
- How is the global motion of the "Moon" realized in this game?