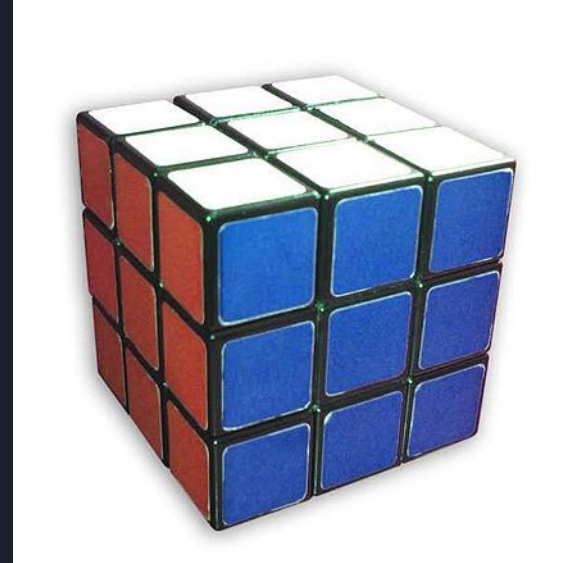




CG 2021 HW1

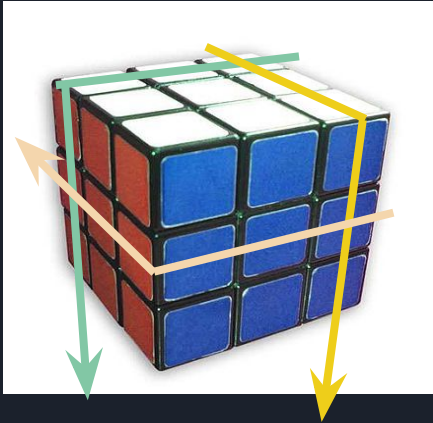
Rubik's cube

- In this assignment, you are required to write a program based on the provided template that implements several visual effects using glad, glfw, and glm.
- [What's Rubik's Cube](https://en.wikipedia.org/wiki/Rubik%27s_Cube)

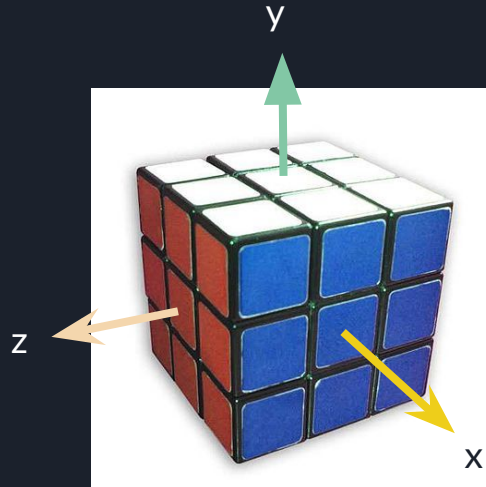


https://en.wikipedia.org/wiki/Rubik%27s_Cube

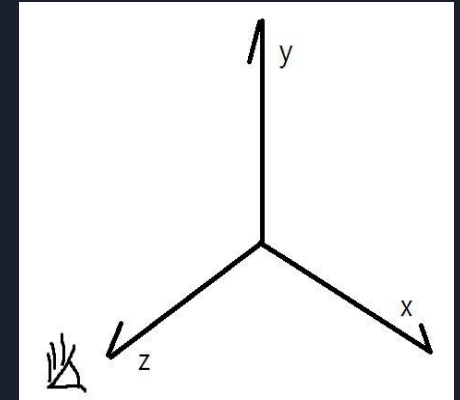
Rubik's cube



layers in a Rubik's cube



x-, y-, z-axis around the cube



Camera default position
(We modified it at template)



Spec

- Implementation(85%)
 - Viewing transformation(15%)
 - front: $\langle 0, 0, -1 \rangle$, up: $\langle 0, 1, 0 \rangle$, right: $\langle 1, 0, 0 \rangle$
 - Projection transformation(15%)
 - **MUST** use perspective projection
 - Near: $0.1f$, far: $100.0f$, fov: $\pi/4$
 - Displaying Rubik's cube(10%)
 - **MUST** use 6 colors
 - **MUST** display an unscramble cube



Spec

- Implementation(85%)
 - 9 layers rotation(45%)
 - Rotate 3 layers around X, Y, Z axes respectively(18%)
 - Rotate other 6 layers(3% / layer)
 - The cube rotate around X, Y, Z axes respectively(9%)



Spec

- Report(15%)
 - Implementation(HOW & WHY)
 - Problems you encountered
 - Don't paste code without any explanation
 - File name: `report_<your student ID> .pdf`
- Bonus(10%)
 - Ex: auto scrambling
 - Other creativity



Hint

- Read the TODOs in the template
- Read comments to get more hints & ideas
- Before you ask question on E3, make sure you have Googled it



Notes

- Deadline: 10/25 23:59
 - You need to upload hw1_<your student ID>.zip and report_<your student ID> .pdf respectively
 - hw1_<your student ID>.zip (root)
 - src
 - include
 - You can use script/pack.ps1 (PowerShell) or script/pack.sh (Bash)
 - Incorrect submission will -5 points
- No plagiarism, -10 points per day after deadline
- No demo required this time
- HW 2 will be announced at 10/26



Other notice

- 2~3 people a team for final presentation
 - The form will be announced later



Reference

- viewing.ppt on E3
- <https://www.khronos.org/registry/OpenGL-Refpages/gl2.1/>