

*For the programming task you have to use C++
A pull request has to be made for the solutions(C++ code and generated images).
The pull request is in your repository from the github classroom assignment:*

<https://classroom.github.com/a/zh9ighUI>

For questions and help refer to the course's discord server:

<https://discord.gg/kkr83dZS>

Or the course's e-mail:

raytracingcourse@chaos.com

Task 1:

Implement functionality to transform the camera vector (0, 0, -1) by **panning** the camera by 30 degrees (rotating the vector around the **Y**-axis by 30 degrees).

Task 2:

Generate an image where the camera is **not** at (0, 0, 0) and the triangle is visible:

```
CRTTrinagle tri {  
    CRTVector(-1.75, -1.75, -3),  
    CRTVector(1.75, -1.75, -3),  
    CRTVector(0, 1.75, -3)  
};
```

In the images for the following tasks, one or more triangles (with vertex positions of your choice) must be visible:

Task 3:

Implement a camera representation with functionality for executing some or all camera movements: **dolly**, **truck**, **pedestal**, **pan**, **tilt**, **roll**. Generate an image before and after the movement.

Task 4:

Add functionality for performing different combinations of camera movements (example: first **pan**, then **tilt**, then **truck**, etc.). Generate an image before and after the movements.

Task 5:

Generate images/frames for a short clip with animated camera movement. Each frame should manipulate the camera in some way (example: 72 frames and **pan** the camera by 5 degrees on each frame). You can present the animation in the form of:

- Separate .ppm files (which may require many resources)
- Separate jpeg/png files (converted from .ppm, using software like Gimp, ...)
- A video file, assembled from the sequence of images, using software like Blender, Adobe Premiere, etc.