Car Game

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About the Project:

This project is a 3D Car Racing Game developed using C++ and OpenGL. It demonstrates key concepts from computer graphics including animation, real-time rendering, camera movement, and object interaction.

The game features:

- **Animation**: Continuous motion of the player's car, road, and obstacles to create a racing effect.
- **Keyboard & Mouse Input**: Players use the keyboard to control the car and camera, while the mouse adds interactive control.
- **Textures**: Road, car, and obstacles are textured to enhance realism.
- **Collision Detection**: Collision between the player's car and obstacles is detected and handled.
- **Camera Movement**: Players can move the camera view in four directions to explore the scene.
- **Lighting**: Light sources are used to enhance the visual depth and realism of the game.

This project integrates foundational graphics techniques such as transformations, input handling, lighting models, and real-time updates in a game setting.

Keyboard Controls:

- **← / → Arrow Keys**: Move the car left or right
- **W / S**: Move the camera **up** or **down**
- **A / D**: Move the camera **left** or **right**
- **R**: Change **road color**
- **U**: Change **car color**
- **I**: Change **obstacles color**
- **O**: Apply/set the chosen colors

Mouse Controls:

- **Right-click**: Stop the movement of the car

Game Objective:

- Control your car to avoid obstacles and stay on the road.
- Use the camera controls to view the environment from different angles.
- Use color-changing keys to customize the game visuals during gameplay.

Additional Notes:

- The camera system allows better visibility of the racing environment.
- Pressing **Right-click** freezes movement — useful for pausing or observing the scene.
- You can change and apply colors live during gameplay using keys **R, U, I, and O**.