

# Exercise 4

Tasks for the next Lab Class:

- Finish the movement of the various elements of the game.
- GLSL 330 shaders programming in order to perform the lighting and shading of the scene using the concepts of materials, directional light sources, pointlights , spotlight, Phong-Blinn reflection model and Phong shading. Thus:
  1. Set the suitable materials for the various elements of the game, namely, the frog, the cars, the buses, wood trunks, turtles, crocodiles, road, river and margins.
  2. Create the global illumination of the scene by using a directional light source. This light source must be turned on or off via a button ('N' key) that alternates between day and night mode.
  3. Create a total of six candles (PointLights) distributed on the road sides and river margins which partially illuminate the game. This illumination must be sufficient to be able to play, but do not need cover the entire gaming area. These light sources should be activated or deactivated via a button ('C' key) that turns on and off all six lamps. It's strongly advised to consult page 376 of the book OpenGL RedBook 8th Edition, available in Support Material/books of the page Course
  4. Create one spotlight located on top of the frog head. This spotlight indicates where the frog is facing, and should be turned on or off through the 'H' key. Consult the Spot Light shader example in <http://www.lighthouse3d.com/tutorials/glsl-tutorial/>
- Improve the graphic quality of your models. You may use modeling tools and loaders to the Modern OpenGL. As suggestion, consult the the Assimp tool tutorial about using it with OpenGL 3.+: <http://www.lighthouse3d.com/cg-topics/code-samples/importing-3d-models-with-assimp/>