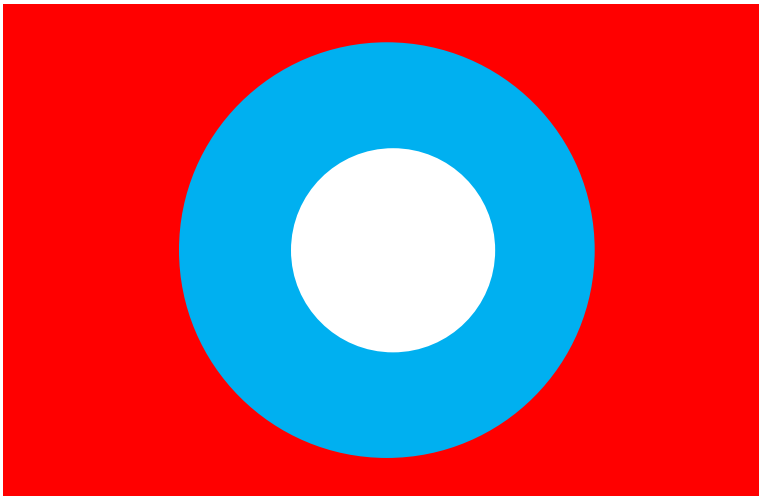
Hacettepe University
Computer Engineering Department
BBM 414 Computer Graphics Lab.
Experiment 1

Subject: OpenGL window and simple drawing
Submission Deadline: 28.10.2015 – 23:59
Advisors: Asst. Prof. Dr. Ufuk ÇELİKCAN, R. A. Öner BARUT

Tasks

You will need to perform the required steps below:

- Start with the given lab code to setup the structure of your code.
- Using Open GL, create a resizable window.
- Implement display function to draw the requirements below.
- Draw two concentric circles, one inside the other one, such that the radius of the outer circle is exactly twice the radius of the inner circle. The outer circle is colored blue and the inner circle is colored white. They lie on a red background. The end result is supposed to look like the figure below.



- The circles should be sized relative to the window, so if the window is made smaller, the circles should become smaller without getting distorted (and vice-versa).
- To draw the circles, you will have to approximate them by polygons with several edges (minimum of 16).

Notes and Restrictions

- Implement your homework using OpenGL 3.1 version or higher. All programming assignments must use the shader-based functionality of OpenGL: 1) no immediate mode 2) at least one vertex shader and one fragment shader. Therefore, you should not use any of the deprecated features of the API, e.g. glBegin, glEnd, glVertex3f, glTranslate etc. Otherwise your homework will not be graded.
- The assignment must be original work. Duplicate or very similar assignments will be regarded as cheating and are both going to be punished. General discussion of the problem is allowed, but do not share answers, algorithms or source codes. Using other resources (example source code, book, webpage etc.) is allowed as long as it is properly referenced.

- All rules and restrictions stated in the BBM414 syllabus apply.
- Style and appropriately commented code matter.

Submission

- You should submit entire Visual C++ project directory including source files, header files and the compiled executable in a zip file.
- You should also submit a report explaining the algorithm, description of functions, and any other implementation details that explain your code. The report constitutes 25% grade of the whole experiment.
- Submission file structure must conform the template given below:
- <student_number>.zip
  |--- project.zip
  |--- report.pdf
- You should upload your files via “Online Experiment Submission System” which is at http://submit.cs.hacettepe.edu.tr
- Do not submit any file via e-mail.
- No submission will be accepted after deadlines.