Advanced Physics
Assignment 5

To be submitted in pairs of two students

Dice

In the Cyclone engine, create the following simulation, demonstrating your ability to create your own colliders based on those present in the Cyclone engine.

- A number (minimum 3) of dice, that can be randomly thrown onto a surface
- Make at least one 6-sided die (additional variations like 4- or 8-sided are allowed but are much harder to create)
- The main challenge is to make sure that the corners of the dice are in some way chopped off (with either planar or curved corners remaining), so that they will roll more like real dice
- Show the shape of the chopped-off dice by rendering it approximately so
- Find a way to render each side of a die differently (either with colors, dots, numbers, or anything else having clear visually discernable features
- Of course, the dice will need to fall and roll on a ground plane
- Implement some user input to make the dice roll (minimally, you need a button to reset the simulation to a new randomized state from which the dice will fall as if they were thrown from a human hand)

- Bonus: implement a way to grab the dice with the mouse cursor, using the grabbing location as anchor point

Important:
- You can use the standard GLUT visualization also used by the author
- You are not allowed to use the sample code as a starting point for your assignment, you have to build your own project from scratch
- Take care to document your code: make sure there are enough comments for me to see the steps you have taken to solve the assignment!
  (You are allowed to include a small report (max. 1 page) if you prefer not to write long portions of comments in the code, although the latter is recommended)

Deadline: 27-3-2014 23:59
.zip with source code and Windows or Mac binary,
via VLO Dropbox -> Stephan van der Feest

Attn.: Include both your names and student numbers: Any claims of cooperation will only be admitted if both names are present in the submission