

# Exercies #1 in Computer Graphics

## Implementation of a pool game

February 1, 2002

**Due: 2/14/02**

The idea is to implement a *simplified pool* game.

The pool game takes place on a pool table. The components in your drawing should be the pool table (with its 6 holes), the pool table boundary, one ball, and the queue. The picture is two-dimensional, so the ball and the holes in the table are represented as disks. The game starts by positioning the ball at random.

There should be a slider for the velocity of the ball once hit by the queue. Also add a button for quitting and for performing a shot.

**Shooting a ball** Use the mouse to place the queue, by clicking the mouse twice. The location of the mouse at the first click sets the head of the queue, while the location of the mouse at the second mouse click sets the tail of the queue. After the second click, you should draw the queue between the two locations. You should ignore clicks which are not legal, for example, if the head of the queue is outside the table. Once both the head and the tail are specified, the program should render the cue.

**Behaviour of the ball once shot** Once the user pushed the “shoot” button a shot takes place. If the queue hits the ball the ball moves away from the queue in the direction of the queue. If the cue misses the ball, the ball remains static, and the user needs to pick a new queue. The initial velocity of the ball is specified before the shot by the velocity slider. Once hitting the boundary of the table, it reflects. After the third time it hits the boundary (in the same shot), it stops.

The program should animate the game by rendering the ball while it moves. Furthermore instructions for the user how to continue the game should be displayed.

**Bonus:** Instead of moving at a constant velocity, set the velocity of the ball to decrease as the ball moves, until it reaches some lower bound, at which the ball stops.

As in a “regular” pool game, the goal is to hit the ball so it would fall into one of the holes.

Obviously, there is plenty of room for creativity and modifications in the implementations of this game. The first, second, and third best projects will be awarded.