

# pool— and interrupts

Version 3

December 10, 2003

Due Time: 12/11 (9:00PM). Submission in pairs is **NOT** allowed.

Turnin ID: cs352\_assg8

Turnin File List: Any number of files with a “Makefile” (When running command “make” your Makefile should produce two executables, namely *Pool* and *QRemove*, for pool game and advance QRemove respectively.)

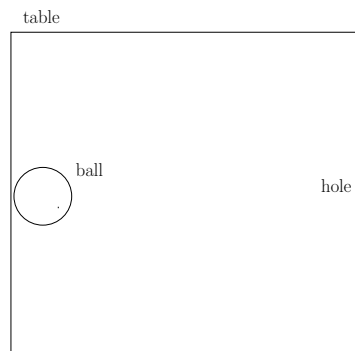
The exercise is optional, and can replace the grade you obtained for any of the hw previously given. You have to specify which of the hw you want it to replace. You should also email us by 12/9 if you plan to submit this hw.

## 1. Question 1 — pool—

- (a) The purpose of this game is to create a *pool—* (read “pool minus minus”) game. This game is similar to pool, but much much simpler. The game is played with one ball. The table of this game has shape as shown in the figure, with a single hole. Initially the ball is positioned as specified in the figure. We call the original location of the ball the “*origin*”. Once the user hits the left button of the mouse at some point  $q$ , the ball starts moving from the origin toward the point  $p$  where the mouse was clicked. If the ball bounced from one of the walls of the table, it leaves the wall in an angle which is equal to the angle in which it hits the wall.
- (b) We say that a shot “*misses*” if it bounced 6 times from the walls, and did not hit the hole. In this case, we locate the ball again at the origin, and wait for the user to start a new round. We give the user an appropriate message in this case.
- (c) **Ranking** We say that the ball hit the hole if any part of the ball intersects any part of the hole. The number of points gained for this hit is  $2^i$ , where  $i$  is the number of times the balls bounced from the wall before hitting the hole. So for example, if the ball, after leaving the origin, bounced from the walls 3 times, the user earns 8 points for it. After each hit, the ball

is located at the origin again for the next round. And give the user an appropriate message in this case too.

- (d) The program shows at each time the total number of points earned by the user.
- (e) The game must show a convincing and pleasant to the eye animation of the motion of the ball (not too fast, not too slow).
- (f) The program ends once the user presses the 'q' button on the keyboard.
- (g) If the user hits the 'h' button, a help message should be printed on the terminal (not on the screen).
- (h) The table is of size 400 by 400 pixels. The ball has radius 20 pixels. The 'hole' is a segment of length 80 pixels. The center of the origin of the ball, and the center of the hole, are in height 200 pixels from the bottom of the table. The center of the origin is 20 pixels from the left wall.



2. In this question you are requested to modify the program Qremove created for hw2, so that a single hit on ctrl-c would not stop the program (and actually ctrl-c would be ignored by the program), but pressing ctrl-c 3 times, without hitting the 'enter' key between them, would stop the program. Excluding its reaction to ctrl-c, the program should behave the same as specified in hw2.