
Subject: Help with a possible design problem?

Posted by [snap2000](#) on Fri, 02 Feb 2007 21:43:59 GMT

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I'm trying to create a pong game that I will later add some power-ups to (affecting ball speed and paddle size). I've been making nice progress, however, I've hit a problem that I can't seem to get past. I've separated my game into the classes Ball, Player, and Pong (the main application). In my member function Ball::Update(), I'm trying to obtain the positions of my paddles (I planned on using player.GetRect()/computer.GetRect()), but the paddles are instanced in my Pong class. I've tried making them friend classes with public member variables and all types of crazy other things, but I can't seem to access player or computer from my Ball::Update function.

Is this simply a terrible design flaw (does anyone have a better idea), or is there some solution that I'm just missing? Thanks for your time if you decide to try and help. Here is my code so far (you may have to paste into editor to see it all, it's wide):

```
#include <CtrlLib/CtrlLib.h>

#define SCREENWIDTH 600
#define SCREENHEIGHT 480

#define PADDLEWIDTH 12
#define PADDLEHEIGHT 40

#define BALLSIZE 8
#define BALLSPEED 5

enum Which { PLAYER, COMPUTER };

class Ball {
private:
    int bx;
    float by;        // Ball pos
    int sx;
    float sy;        // Ball speed
    int size;        // Ball size
    Point* samples;  // Vector samples for collision detection
    int numSamples;  // Number of samples to be taken
    int serve;       // Who the ball is being served to
public:
    Ball() { serve = -1; Reset(); }
    Rect GetRect() { Rect r(int(bx), int(by), int(bx + size), int(by + size)); return r; }
    void Update();
    void GetVectorSamples();
    void Reset();
};

void Ball::Reset() {
```

```

size = BALLSIZE;      // Init ball size
bx = (SCREENWIDTH - size) / 2;    // center ball horizontally
by = (SCREENHEIGHT - size) / 2;   // center ball vertically
sx = BALLSPEED * serve;    // Init ball x-speed
sy = 0; //TODO: Pick random angle // Init ball y-speed (angle)
}

```

```

void Ball::GetVectorSamples() {
numSamples = (sx > size) ? sx / size : 1; // Number of samples to take
float dy = sy / numSamples;    // Slope of ball movement
samples = new Point[numSamples];
for(int s = 1; s <= numSamples; s++) {
samples[s - 1].x = bx + (s * size); // Calculate sample x-pos
samples[s - 1].y = int(by + (s * dy)); // Calculate sample y-pos
}
}

```

```

void Ball::Update() {
if(bx + sx > SCREENWIDTH) { // Ball exits to right of screen
// TODO: add score and re-serve ball
serve = -1;
Reset();
} else if(bx + size + sx < 0) { // Ball exits to left of screen
// TODO: add score and re-serve ball
serve = 1;
Reset();
} else { // Ball is still in play
GetVectorSamples();
// [[ HOW DO I GET ACCESS TO PADDLE? player/computer are in Pong class ]]
// TODO: Test each sample against nearest paddle for collision
// TODO: Correct angle and direction of ball if collided
// TODO: Else continue in direction:
bx += sx;
by += sy;
}
}
}

```

```

class Player {
private:
int score, px, py, height;
Which who;
public:
Player() {}
Player(Which w);
int GetScore() { return score; }
Rect GetRect() { Rect r(px, py, px + PADDLEWIDTH, py + height); return r; }
void Update();
};

```

```

Player::Player(Which w) {
    score = 0;          // Init score
    py = (SCREENHEIGHT - PADDLEHEIGHT) / 2; // Init paddle y-pos
    height = PADDLEHEIGHT; // Init paddle height
    px = (w == PLAYER)
        ? 10 // Set player paddle x-pos
        : SCREENWIDTH - PADDLEWIDTH - 10; // Set computer paddle x-pos
}

```

```

void Player::Update() {
    switch(who) {
    case PLAYER:
        // TODO: Get mouse y pos
        break;
    case COMPUTER:
        // TODO: Move computer paddle toward ball
        break;
    }
}

```

```

class Pong : public TopWindow {
public:
    void Paint(Draw& w);
private:
    Player player, computer;
    Ball ball;
public:
    typedef Pong CLASSNAME;
    Pong();
    void Update();
};

```

```

void Pong::Update() {
    // player.Update(); // Update player paddle position
    // computer.Update(); // Update computer paddle position
    ball.Update(); // Update ball position
    Refresh();
}

```

```

void Pong::Paint(Draw& w) {
    w.DrawRect(GetSize(), SBlack);
    w.DrawRect(player.GetRect(), SWhite);
    w.DrawRect(computer.GetRect(), SWhite);
    w.DrawRect(ball.GetRect(), SWhite);
    /* For showing projected samples ( samples and numSamples need to be made public to work )
    for(int i = 0; i < ball.numSamples; i++) {
        //w.DrawText(SCREENWIDTH / 2, 10 + 10 * i, ball.samples[i].ToString(), StdFont(), SWhite);
    }

```

```
w.DrawRect(ball.samples[i].x, ball.samples[i].y, BALLSIZE, BALLSIZE, SWhite);  
}  
*/  
}
```

```
Pong::Pong() {  
  Title("Snap.Pong");  
  SetRect(0, 0, SCREENWIDTH, SCREENHEIGHT);  
  MinimizeBox();  
  
  player = Player(PLAYER);    // Init player  
  computer = Player(COMPUTER); // Init computer
```

```
  BackPaint();  
  Update();  
  SetTimeCallback(-25, THISBACK(Update));  
}
```

```
GUI_APP_MAIN  
{  
  Pong().Run();  
}
```