Intro to gamedev with D (Part 2)

Let's make an actual game
By Professor Emeritus Stefan Brus

Goal of this presentation

- Create something that feels like an actual game
- Figure out how to do it step by step
- We begin where we left off last time
- Let us play pong!

DISCLAIMER:

Presenter will not be held responsible for any brain damage caused by some of the mind-bogglingly strange hacks found in the upcoming code.

Quick recap

Last talk we learned about:

- Derelict's SDL bindings: github.com/DerelictOrg/DerelictSDL2
- Some basic SDL functions for displaying graphics and handling user input
- The basic structure of a game loop

Step 1: Game interface & entities

- Abstract the game loop functions into an interface
- Create an abstract "entity" class for game objects
    - Contains data about position and size
    - Methods for drawing, checking collisions, etc

Step 2: Movement

- Fire the ball in a random direction
- Move the player paddle based on keyboard input
- Have the computer paddle follow the ball

Step 3: Collision detection

- Check if either paddle collides with the game edges
- Check if the ball has collided with a game edge, or one of the paddles
- Create invisible entities for the game boundaries
- Bounce the ball on collision
- For simplicity, we will check if a rectangle is within another rectangle (even though the ball is *clearly* round...ish)

Step 4: Game states

- Three states:
    - Splash screen
    - The game itself
    - Game over (win or lose)
- A state interface is similar to the game interface
- Most functionality is moved to the various states

Step 5: Polish!

- Nie chodzi mi o język polski
- The basic game mechanics are there, but the game feels incomplete
- Let's add some missing features:
  - Sound effects
  - Let the player know when the game is paused
  - Speed up the ball after each paddle bounce (so the computer can also lose sometimes)

Future improvements

- Smoothen computer paddle movement
- Adjust ball bounce angle depending on where it collides with a paddle
- Better collision detection
- Multiple lives?
- Persistent highscores
- Make more games! (Tetris, Asteroids, Breakout, World of Warcraft 2, Civilization 7, Minesweeper)

Thank you!

The code for this talk and the previous one can be found at:

github.com/stefan-brus/dmeetuptalk