Computer Programing: Project

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

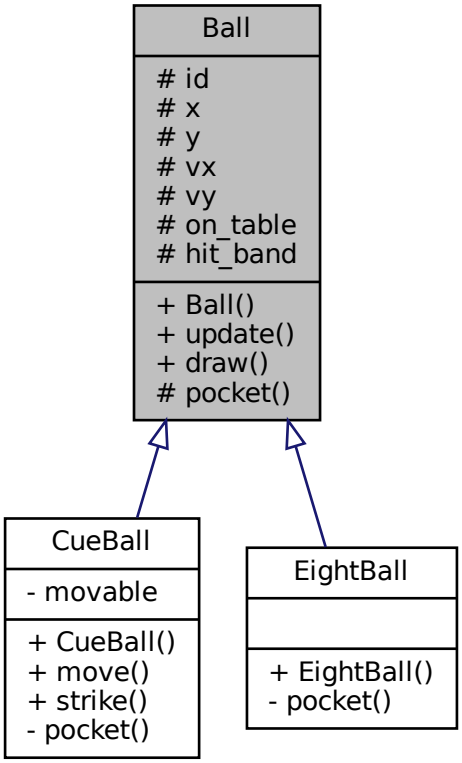
Chapter 4

Class Documentation

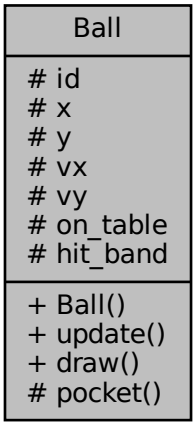
4.1 Ball Class Reference

`#include <classes.h>`

Inheritance diagram for Ball:



Collaboration diagram for Ball:



Public Member Functions

- Ball (double x, double y, int id)

  ball requires specifying position and balls number
- void update (Uint32 dt)

  function responsible for physics and checking for potting and fauls
- void draw (Game *r)

  function responsible for displaying the ball

Protected Member Functions

- virtual void pocket ()

  action taken after pocketing a ball, different for "normal" balls, cue ball and for eight ball

Protected Attributes

- int id

  Billard balls are numbered, cue ball is assumed to have id 0.
- double x

  x coordinate
- double y

  y coordinate
- double vx

  x component of velocity
- double vy

  y component of velocity
- bool on_table
- bool hit_band

Friends

- class **Game**

4.1.1 Detailed Description

Class representing basic billard ball

4.1.2 Member Data Documentation

4.1.2.1 hit_band

```
bool Ball::hit_band  [protected]
```

this flag is set to true if ball hit the band in this turn to check if the faul has been commited

4.1.2.2 on_table

```
bool Ball::on_table  [protected]
```

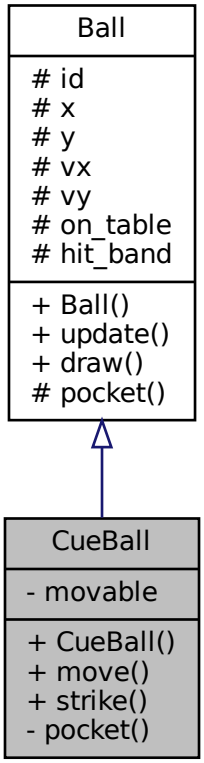
this flag is true if ball is still in the game, if it's false the ball isn't drawn neither checked for collisions

The documentation for this class was generated from the following files:

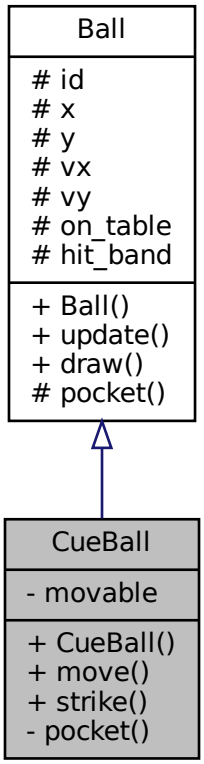
- classes.h
- classes.cpp

4.2 CueBall Class Reference

Inheritance diagram for CueBall:



Collaboration diagram for CueBall:



Public Member Functions

- CueBall (double x, double y)

  cue ball always has id 0
- void move (double x, double y)

  function responsible for moving the ball if player has it in hand
- void strike (double vx, double vy)

  function initiating movement of white ball

Private Member Functions

- void pocket ()

  cue ball after pocketing returns to the table

Private Attributes

- bool movable

  flag set if player has the ball in hand

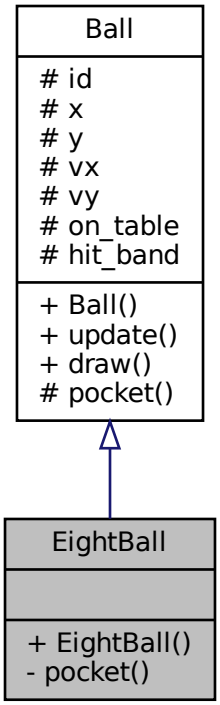
Additional Inherited Members

The documentation for this class was generated from the following files:

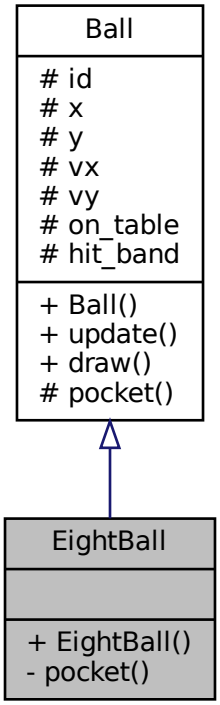
- classes.h
- classes.cpp

4.3 EightBall Class Reference

Inheritance diagram for EightBall:



Collaboration diagram for EightBall:



Public Member Functions

- EightBall (double x, double y)

  eight ball always has id 8

Private Member Functions

- void pocket ()

  pocketing eight ball ends game

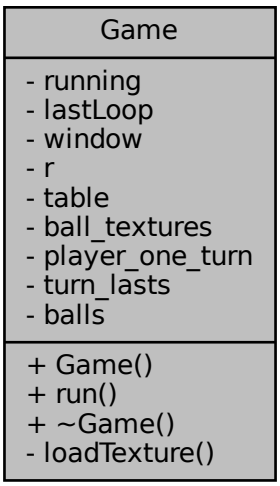
Additional Inherited Members

The documentation for this class was generated from the following file:

- classes.h

4.4 Game Class Reference

Collaboration diagram for Game:



Public Member Functions

- Game ()

  constructor taking care of initialising SDL, creating window and loading textures
- void run ()

  main loop of the game
- ~Game ()

  destructor takes care of proper release of SDL resources

Private Member Functions

- SDL_Texture * loadTexture (const char *fname)

  function loading textures from files

Private Attributes

- bool running

  if this flag is 0, the game stops
- Uint32 lastLoop

  variable for measuring time between frames
- SDL_Window * window

  pointer to the window
- SDL_Renderer * r

  pointer to SDL rendering context

- SDL_Texture * table
  pointer to table texture
- std::vector< SDL_Texture * > ball_textures
  vector of pointers to ball textures
- bool player_one_turn
  flag showing whose move it is
- bool turn_lasts
  flag set while the balls are moving
- std::vector< std::unique_ptr< Ball > > balls
  vector storing pointers to all balls(ones on the table and pocketed ones)

Friends

- class **Ball**

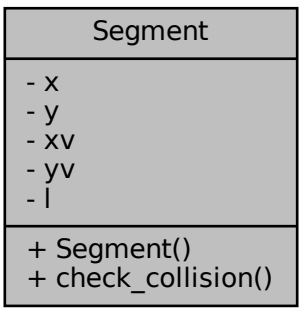
The documentation for this class was generated from the following files:

- classes.h
- classes.cpp

4.5 Segment Class Reference

`#include <classes.h>`

Collaboration diagram for Segment:



Public Member Functions

- Segment (double ax, double ay, double bx, double by)
  constructor generating segment from end points
- bool check_collision (double x, double y, double r)
  function for checking collision with ball

Private Attributes

- double x

  x coordinate of initial point
- double y

  y coordinate of initial point
- double xv

  x component of direction vector of the segment
- double yv

  y component of direction vector of the segment
- double l

  length of segment

4.5.1 Detailed Description

Class used to represent boundaries of the table and check for collisions

The documentation for this class was generated from the following file:

- classes.h

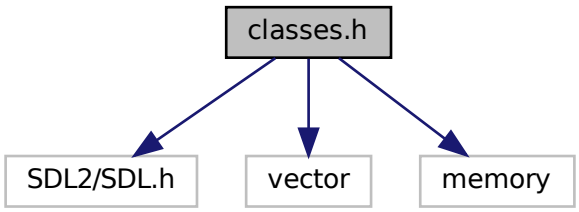
Chapter 5

File Documentation

5.1 classes.h File Reference

```
#include <SDL2/SDL.h>
#include <vector>
#include <memory>
```

Include dependency graph for classes.h:



Classes

- class Segment
- class Ball
- class CueBall
- class EightBall
- class Game

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