

TDDC76 - Project: Ball Blaster

Design

version 1.0

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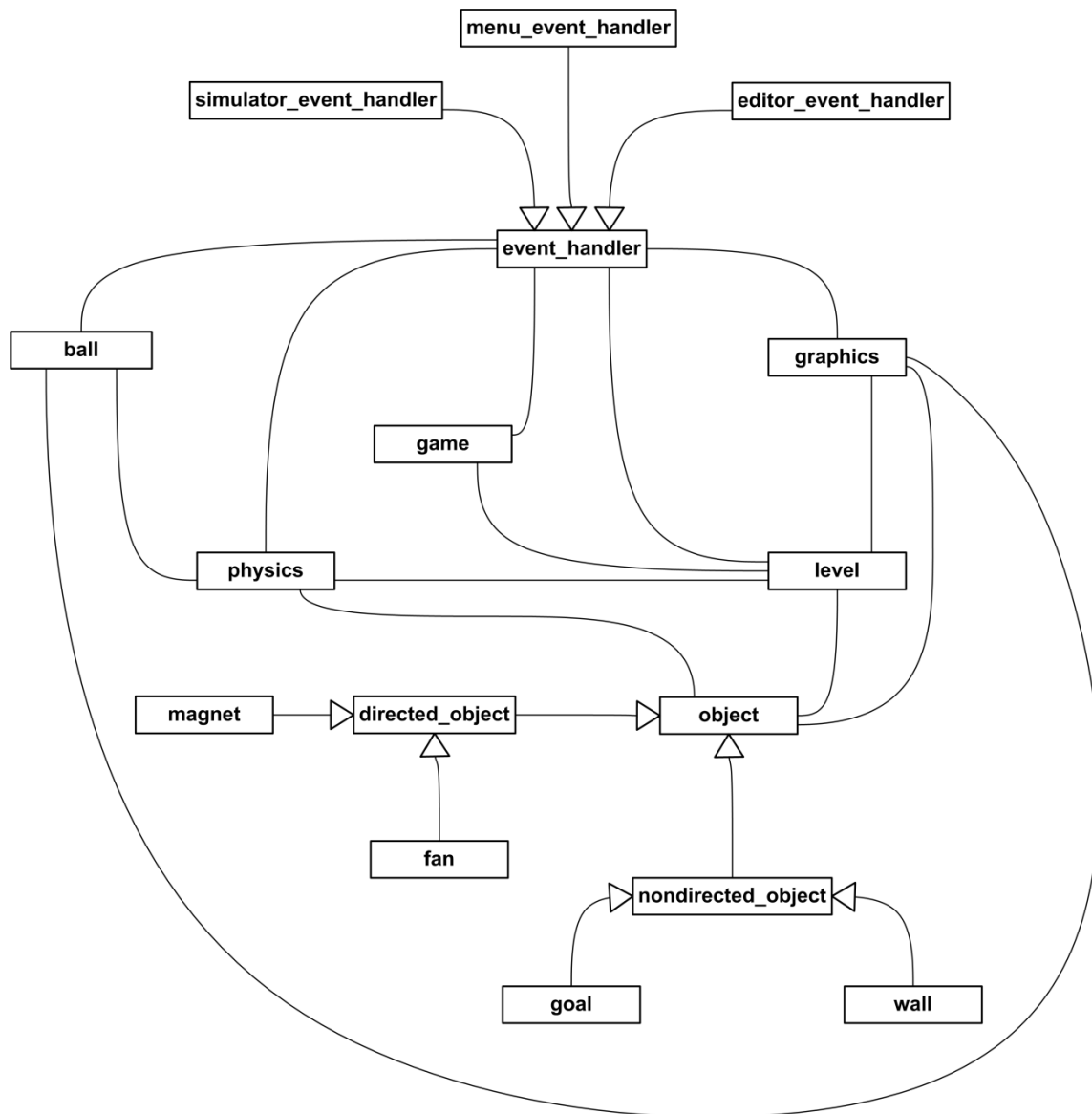
1 Summary

This document describes the properties of the fundamental classes in the project Ball Blaster.

2 Class diagram

The following diagram illustrates the communication possibilities between the planned objects.

A transparent triangle symbolizes an inheritance relation where the triangle is connected to the side of the base class.



3 Class cards

Here follows a list of class cards for the most fundamental classes in the project. The cards contain the attributes and operations (in that order) for the classes.

A plus sign to the left indicate that the attribute/operation is public. A minus sign means private.

3.1 Game

| game |
|--|
| -_cur_event_handler : event_handler* -_simulator_event_handler : event_handler -_editor_event_handler : event_handler -_menu_event_handler : event_handler -_level : level -_physics : physics -_graphics : graphics |
| +init_game() : void +main() : void |

3.2 Event handler

| event_handler |
|--|
| +e_mouse_move(in pos : vec) : virtual void +e_mouse_click(in pos : vec, in button : int) : virtual void +e_key_down(in pos : vec, in button : int) : virtual void +e_key_up(in pos : vec, in button : int) : virtual void +e_none() : virtual void |

3.3 Level

| level |
|---|
| -_objects : <vector<vector<object*>> -_w : size_t -_h : size_t -_grid_size : unsigned int -_square_size : double -_ball_scale : double -_gravity : vec -_ball : ball |
| +num_objects(in : size_t, in : size_t) : size_t +get_object(in : size_t, in : size_t, in : size_t) : object* -remove_obj(in : size_t, in : size_t, in : size_t) : void -insert_obj(in : size_t, in : size_t, in : object*) : void +get_width() : size_t +get_height() : size_t -set_size(in : size_t, in : size_t) : void +get_grid_size() : unsigned int -set_grid_size(in : unsigned int) : void +get_square_size() : double -set_square_size(in : double) : void +get_ball_scale() : double -set_ball_scale(in : double) : void +get_gravity() : vec +set_gravity(in : vec) : void +get_ball() : ball +set_ball_pos(in : vec) : void +set_ball_vel(in : vec) : void +save_level(in : string) : void +load_level(in : string) : void |

3.4 Physics

| physics |
|---|
| |
| +step() : void +apply_magnet(in : vec, in : magnet&) : void +apply_fan(in : vec, in : fan&) : void +apply_force(in : vec, in : vec) : void |

3.5 Graphics

| graphics |
|---|
| -_refresh : bool -_screen_buffer : BITMAP* -_background_buffer : BITMAP* -_wall_buffer : BITMAP* -_object_buffer : BITMAP* -_ball_buffer : BITMAP* |
| +set_refresh_flag() : void -load_bitmap(in : string) : BITMAP* +init_graphics() : void +update() : void |

3.6 Object (directed and nondirected)

| object |
|--|
| +friends : level, graphics, physics -_locked : bool |
| |

| directed_object |
|-----------------|
| -_dir : int |
| |

| nondirected_object |
|--------------------|
| |
| |

3.7 Ball

| ball |
|--|
| +friends : physics, graphics -_pos : vec -_vel : vec -_visible : bool |
| |

3.8 Vec

| vec |
|--------------------------------|
| +x : double |
| +y : double |
| +operator+(in : vec) : vec |
| +operator-(in : vec) : vec |
| +operator*(in : vec) : double |
| +operator%(in : vec) : double |
| +operator*(in : double) : vec |
| +operator/(in : double) : vec |
| +operator=(in : vec) : vec |
| +operator+=(in : vec) : vec |
| +operator-=(in : vec) : vec |
| +operator*=(in : double) : vec |
| +operator/=(in : double) : vec |
| +length() : double |
| +sqr_length() : double |
| +normalized() : vec |

extern operator: operator*(in: double, vec) : vec