CrisisDefender

Generated by Doxygen 1.8.5

Fri May 19 2017 08:12:24

Contents

Chapter 1

README

Crisis Defender, a topdown action arcade game. Alex Cowell, i7460122

Please put your resolution in config.txt (for example 1080) as one number (and no letters). Please be aware that the game will render out in a 16:9 ratio from your number, although you may resize the window if necessary.

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

- background . . . . **??**
- enemies . . . . **??**
- Enemy . . . . **??**
- Heart . . . . **??**
- Player . . . . **??**
- QOpenGLWindow
  - NGLScene . . . . **??**
- Sword . . . . **??**
- WinParams . . . . **??**

Chapter 3

Class Index

3.1 Class List

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

background . . . . ??
enemies
Struct for enemy data . . . . ??
Enemy . . . . ??
Heart . . . . ??
NGLScene . . . . ??
Player . . . . ??
Sword . . . . ??
WinParams . . . . ??

Chapter 4

File Index

4.1 File List

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

include/background.h
Used for the background sphere . . . . ??
include/Enemy.h
For the enemies . . . . ??
include/Heart.h
For the heart health pickup . . . . ??
include/**NGLScene.h** . . . . ??
include/Player.h
This is for the player character . . . . ??
include/Sword.h
Sword object . . . . ??
include/WindowParams.h
For the windows . . . . ??

Chapter 5

Class Documentation

5.1 background Class Reference

Public Member Functions

- background (std::string _texture, std::string _texture2)

  ctor
- ∼background ()

  dtor
- void draw (ngl::Camera ∗_cam)

  draw method

5.1.1 Constructor & Destructor Documentation

5.1.1.1 background::background (std::string *_texture,* std::string *_texture2*)

ctor

Parameters

texture/-texture2	the texture to load in

5.1.2 Member Function Documentation

5.1.2.1 void background::draw (ngl::Camera ∗ *_cam*)

draw method

Parameters

_cam	camera data

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

- include/background.h
- src/background.cpp

5.2 enemies Struct Reference

struct for enemy data

```
#include <Enemy.h>
```

Public Attributes

- ngl::Vec3 m_pos

  position vector
- int health = 1

  a value for enemy health
- ngl::Transformation m_transform

  a transform stack
- float m_rotation

  the enemy's rotation
- std::unique_ptr< ngl::Obj > m_mesh

  the enemy mesh

5.2.1 Detailed Description

struct for enemy data

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

- include/Enemy.h

5.3 Enemy Class Reference

Public Member Functions

- Enemy (ngl::Vec3 _pos, std::string _fname)

  ctor
- void draw (const std::string &_shader, ngl::Camera ∗_cam)

  draw method
- void moveEnemy (ngl::Vec3 spos)

  movement method
- int attack (ngl::Vec3 spos, int rot)

  enemy being attacked method
- int knockbackPlayer (ngl::Vec3 spos)

  method to work out player/enemy collision and knockback
- void enemyCollisions ()

  enemy collision method

Public Attributes

- std::vector< enemies > m_enemies

  vector of enemy structs
- float speed = 0.1

  movement speed variable

5.3.1 Constructor & Destructor Documentation

5.3.1.1 Enemy::Enemy (ngl::Vec3 *_pos,* std::string *_fname*)

ctor

Parameters

_pos	the initial position
_fname	the name of mesh to load

5.3.2 Member Function Documentation

5.3.2.1 int Enemy::attack (ngl::Vec3 *spos,* int *rot*)

enemy being attacked method

Parameters

spos	player position
rot	player facing direction

5.3.2.2 void Enemy::draw (const std::string & *_shader,* ngl::Camera ∗ *_cam*)

draw method

Parameters

_shader	the shader to use
_cam	camera data passed on

5.3.2.3 int Enemy::knockbackPlayer (ngl::Vec3 *spos*)

method to work out player/enemy collision and knockback

Parameters

spos	player position

5.3.2.4 void Enemy::moveEnemy (ngl::Vec3 *spos*)

movement method

Parameters

spos	player's position passed on for chasing

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

- include/Enemy.h
- src/Enemy.cpp

5.4 Heart Class Reference

Public Member Functions

- Heart (ngl::Vec3 _pos, std::string _fname)

  ctor
- void draw (const std::string &_shader, ngl::Camera ∗_cam)

  draw method
- bool collide (ngl::Vec3 spos)

collision method
- bool spawn ()

  method to determine whether it will spawn

Public Attributes

- ngl::Vec3 m_pos

  the position of the heart

5.4.1 Constructor & Destructor Documentation

5.4.1.1 Heart::Heart (ngl::Vec3 *_pos*, std::string *_fname*)

ctor

Parameters

_pos	the initial position
_fname	the name of mesh to load

5.4.2 Member Function Documentation

5.4.2.1 bool Heart::collide (ngl::Vec3 *spos*)

collision method

Parameters

spos	player position

5.4.2.2 void Heart::draw (const std::string & *_shader*, ngl::Camera ∗ *_cam*)

draw method

Parameters

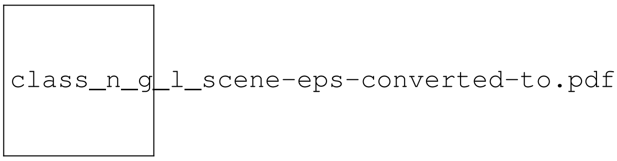
_shader	the shader to use
_cam	camera data passed on

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

- include/Heart.h
- src/Heart.cpp

5.5 NGLScene Class Reference

Inheritance diagram for NGLScene:



Public Member Functions

- NGLScene ()

  ctor for our NGL drawing class
- ∼NGLScene ()

  dtor must close down ngl and release OpenGL resources
- void initializeGL ()

  the initialize class is called once when the window is created and we have a valid GL context use this to setup any default GL stuff
- void paintGL ()

  this is called everytime we want to draw the scene
- void resizeGL (int _w, int _h)

  this is called everytime we resize

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

- include/NGLScene.h
- src/NGLScene.cpp

5.6 Player Class Reference

Public Member Functions

- Player (ngl::Vec3 _pos, std::string _fname)

  ctor
- void draw (const std::string &_shader, ngl::Camera ∗_cam)

  draw method
- void move (float _x, float _y)

  move method

Public Attributes

- ngl::Vec3 m_pos

  the position of the player
- int health = 3

  player health value
- float m_rotation

  rotation value
- int score = 0

  score value
- int mult = 1

  multiplier value

5.6.1 Constructor & Destructor Documentation

5.6.1.1 Player::Player (ngl::Vec3 *_pos,* std::string *_fname*)

ctor

Parameters

_pos	the initial position
_fname	the name of mesh to load

5.6.2 Member Function Documentation

5.6.2.1 void Player::draw (const std::string & *_shader,* ngl::Camera ∗ *_cam*)

draw method

Parameters

_shader	the shader to use
_cam	camera data passed on

5.6.2.2 void Player::move (float *_x,* float *_y*)

move method

Parameters

_x,_y	values to transform with

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

- include/Player.h
- src/Player.cpp

5.7 Sword Class Reference

Public Member Functions

- Sword (ngl::Vec3 _pos, std::string _fname)

  ctor
- void draw (const std::string &_shader, ngl::Camera ∗_cam)

  draw method
- void move (ngl::Vec3 spos)

  move method

Public Attributes

- ngl::Vec3 m_pos

  the position of the ship
- float m_rotation

  the sword's rotation

5.7.1 Constructor & Destructor Documentation

5.7.1.1 Sword::Sword (ngl::Vec3 *_pos,* std::string *_fname*)

ctor

Parameters

_pos	the initial position
_fname	the name of mesh to load

5.7.2 Member Function Documentation

5.7.2.1 void Sword::draw (const std::string & *_shader,* ngl::Camera ∗ *_cam*)

draw method

Parameters

_shader	the shader to use
_cam	camera data passed on

5.7.2.2 void Sword::move (ngl::Vec3 *spos*)

move method

Parameters

spos	the position of the player

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

- include/Sword.h
- src/Sword.cpp

5.8 WinParams Struct Reference

Public Attributes

- int spinXFace = 0

  used to store the x rotation mouse value
- int spinYFace = 0

  used to store the y rotation mouse value
- bool rotate = false

  flag to indicate if the mouse button is pressed when dragging
- bool translate = false

  flag to indicate if the Right mouse button is pressed when dragging
- int origX = 0

  the previous x mouse value
- int origY = 0

  the previous y mouse value
- int origXPos = 0

  the previous x mouse value for Position changes
- int origYPos = 0

  the previous y mouse value for Position changes
- int width = 1920

  window width
- int height = 1080

  window height

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

- include/WindowParams.h

Chapter 6

File Documentation

6.1 include/background.h File Reference

used for the background sphere

```
#include <ngl/Camera.h>
#include <string>
```

Classes

- class background

6.1.1 Detailed Description

used for the background sphere

Author

Alex Cowell

6.2 include/Enemy.h File Reference

for the enemies

```
#include <ngl/Camera.h>
#include <ngl/Vec3.h>
#include <ngl/Obj.h>
#include <ngl/Transformation.h>
```

Classes

- struct enemies

  struct for enemy data
- class Enemy

6.2.1 Detailed Description

for the enemies this class inherits from the Qt OpenGLWindow and allows us to use NGL to draw OpenGL

Author

Alex Cowell
Jonathan Macey

6.3 include/Heart.h File Reference

for the heart health pickup

```
#include <ngl/Camera.h>
#include <ngl/Vec3.h>
#include <ngl/Obj.h>
#include <ngl/Transformation.h>
```

Classes

- class Heart

6.3.1 Detailed Description

for the heart health pickup

Author

Alex Cowell

6.4 include/Player.h File Reference

this is for the player character

```
#include <ngl/Camera.h>
#include <ngl/Vec3.h>
#include <ngl/Obj.h>
#include <ngl/Transformation.h>
```

Classes

- class Player

6.4.1 Detailed Description

this is for the player character

Author

Alex Cowell

6.5 include/Sword.h File Reference

the sword object

```
#include <ngl/Camera.h>
#include <ngl/Vec3.h>
#include <ngl/Obj.h>
#include <ngl/Transformation.h>
```

Classes

- class Sword

6.5.1 Detailed Description

the sword object

Author

Alex Cowell

6.6 include/WindowParams.h File Reference

for the windows

Classes

- struct WinParams

Variables

- constexpr float INCREMENT = 0.01f

  the increment for x/y translation with mouse movement
- constexpr float ZOOM = 0.1f

  the increment for the wheel zoom

6.6.1 Detailed Description

for the windows

Author

Jonathan Macey