Arch Game Engine

0.1

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

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Chapter 2

Class Index

2.1 Class List

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

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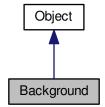
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Chapter 3

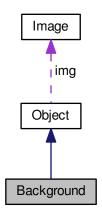
Class Documentation

3.1 Background Class Reference

Inheritance diagram for Background:



Collaboration diagram for Background:



Public Member Functions

• void setBackground (string file, int w, int h, SDL_Renderer *ren)

3.1.1 Detailed Description

Definition at line 6 of file background.h.

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

- · background.h
- · background.cpp

3.2 Collision Class Reference

Class used for calculating different types of collision between given Objects.

```
#include <collision.h>
```

Public Member Functions

bool isTouching (Object a, Object b)

Check if two objects are touching.

bool outOfBoundsOf (Object a, Object b)

Check if two object are not touching.

• bool isAbove (Object a, Object b)

Check if the first object is above the second object.

• bool isBelow (Object a, Object b)

Check if the first object is below the second object.

• bool isRightOf (Object a, Object b)

Check if the first object is to the right of the second object.

• bool isLeftOf (Object a, Object b)

Check if the first object is to the left of the second object.

3.2.1 Detailed Description

Class used for calculating different types of collision between given Objects.

Definition at line 7 of file collision.h.

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

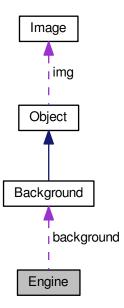
- · collision.h
- · collision.cpp

3.3 Engine Class Reference

Class for declaring an engine, which does basic SDL commands like creating the window and renderer.

#include <engine.h>

Collaboration diagram for Engine:



Public Member Functions

∼Engine ()

Decontructs renderer and window and then quits SDL.

• SDL_Renderer * init (string s, const int &w, const int &h, int flag)

Create a window with a given name, width, height, and anyother SDL_Window flags.

• SDL_Renderer * init (string s, const int &w, const int &h, int flag, int it)

Create a window with a given name, width, height, SDL_Window flags, and specified SDL_Init flags.

• SDL_Renderer * init (string s, const int &w, const int &h, int flag, int x, int y)

Create a window with a given name, width, height, SDL_Window flags, and specified x and y coordinate.

• SDL_Renderer * init (string s, const int &w, const int &h, int flag, int x, int y, int it)

Create a window with a given name, width, height, SDL_Window flags, specified x and y coordinate, and SDL_Init flags.

• void setName (string s)

Set window name.

void setPos (int x, int y)

Set window position.

• void setSize (int w, int y)

Set window size.

SDL_Renderer * getRenderer ()

Returns screen renderer.

• void setColor (Uint8 r, Uint8 g, Uint8 b)

Sets SDL color.

· void render ()

Call this at the end of the game loop to render.

· bool FPS () const

Get fps.

• void update ()

Update loop time.

void setBackground (Background b)

Set background.

void setBackground (string filename)

Set background with filename.

• Background getBackground () const

Get background.

• void drawBackground ()

Draw background.

void draw (Object obj)

Draw an object on the screen.

- void draw (Object obj, int key)
- void splash ()

Calls splashscreen at the beginning of the game. This is automatically called unless deactivated.

void bypassSplash (int key)

Deactives the splashscreen, requires key.

• bool hasSplashed ()

Check if the splashscreen has occured.

· bool runCustomSplash ()

Run custom splashscreen. This is automatically called after splash if there is a custom splashscreen.

• void customSplash (string file, double time, int w, int h)

Create a custom game splashscreen to be shown after the engine splashscreen by passing in the path to the image, the duration for it be displayed, and the size of the image.

Private Attributes

• SDL_Renderer * engren

SDL Renderer.

SDL_Window * engwin

SDL Window.

- int WIDTH
- int HEIGHT

Width and height of the window.

- · int simulationTime
- int realTime

Timestamps used for fps loop.

bool fps

Boolean for loop.

bool bkg

Boolean for if there is a set background.

· Background background

Background to display.

- Uint8 red
- Uint8 green
- Uint8 blue

Colors for background.

- · bool splashed
- · bool custom

Boolean that shows if the splashscreen has occured.

string cf

Custom splashscreen file path.

· double ct

Custom splashscreen duration.

- · int cw
- int ch

Custom splashcreen width and height.

3.3.1 Detailed Description

Class for declaring an engine, which does basic SDL commands like creating the window and renderer.

Definition at line 27 of file engine.h.

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

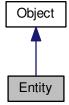
- engine.h
- · engine.cpp

3.4 Entity Class Reference

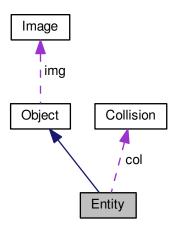
Class for storing health, emotion, team, etc. of an Object.

```
#include <entity.h>
```

Inheritance diagram for Entity:



Collaboration diagram for Entity:



Public Member Functions

• double getHealth () const

Get Entity's health.

• void setHealth (double h)

Set the Entity's health. If the health is higher then the max health it will set it to the max health.

• double getMaxHealth () const

Get max health.

• void setMaxHealth (double mh)

Set max health.

• void damage (double d)

Deal damage. Subtracted from health. If health is less then zero it kills the entity.

void heal (double h)

Give health to the Entity.

• int getEmotion () const

Get current emotion state.

• void setEmotion (int e)

Set current emotion state.

• int getTeam () const

Get Entity's team.

void setTeam (int t)

Set Entity's team.

• bool isActive () const

Check if Entity is active.

• void kill ()

Sets health to zero and deactives the Entity.

· void deactivate ()

Sets active to false.

• void activate ()

Sets active to true.

- void checkDisplayable (Object screen)
- SDL_Rect getDetect () const
- void setDetect (SDL_Rect d)
- void **setDetectRange** (int r)
- · void setDetectRange (int w, int h)

Private Attributes

· double health

Int for the Entity's health.

· double maxHealth

Int for the Enitity's max health.

· int emotion

Int for creating a range of emotional states.

• int team

Int for setting the team the Entity is on.

· bool active

Boolean for declaring if an entity is active.

- · Collision col
- · SDL_Rect detect

3.4.1 Detailed Description

Class for storing health, emotion, team, etc. of an Object.

Definition at line 9 of file entity.h.

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

- · entity.h
- · entity.cpp

3.5 Image Class Reference

Class for loading in SDL Textures.

```
#include <image.h>
```

Public Member Functions

• void loadImage (string file, SDL_Renderer *ren)

Load in either a BMP or PNG file with the path and renderer..

• void loadPNG (string file, SDL_Renderer *ren)

Load in a PNG image with the path to the PNG file and the renderer.

• void loadBMP (string file, SDL_Renderer *ren)

Load in a BMP image with the path to the BMP file and the renderer.

• SDL_Texture * getTexture ()

Get SDL_Texture.

• void setImage (SDL_Texture *t)

Set new, preloaded texture, to Image.

• string getFile () const

Get path file of the image.

• void setFile (string f)

Set path file to the image.

Private Attributes

```
• SDL_Texture * tex 
SDL_Texture for the image.
```

· string filename

Path file to the image.

3.5.1 Detailed Description

Class for loading in SDL Textures.

Definition at line 11 of file image.h.

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

- · image.h
- · image.cpp

3.6 Input Class Reference

Class for checking and storing keyboard and mouse input.

```
#include <input-tmp.h>
```

Public Member Functions

• void logPress ()

Log all current keys and buttons being pressed.

bool checkKey (int k)

Check if a key has been pressed using a given key from this class. Ex: Input i; i.checkKey(i.up);.

· void reset ()

Reset all pressed keystrokes and other inputs to false. Automatically down at the beginning of each logPress().

Public Attributes

• int left

Log ID for left.

int right

Log ID for right.

• int up

Log ID for up.

• int down

Log ID for down.

int q

Log ID for q.

• int w

Log ID for w.

```
• int e
      Log ID for e.
• int r
      Log ID for r.
• int t
      Log ID for t.
• int y
      Log ID for y.
• int u
      Log ID for u.
• int i
      Log ID for i.
• int o
      Log ID for o.
• int p
      Log ID for p.
• int a
      Log ID for a.

    int s

      Log ID for s.
int d
      Log ID for d.
• int f
      Log ID for f.
int g
      Log ID for g.
int h
      Log ID for h.
int j
      Log ID for j.
• int k
      Log ID for k.
• int I
      Log ID for I.

    int z

      Log ID for z.
int x
      Log ID for x.
int c
      Log ID for c.
• int v
      Log ID for v.
• int b
      Log ID for b.
• int n
      Log ID for n.
• int m
      Log ID for m.
• int Ishift
      Log ID for left shift.

    int rshift
```

Log ID for right shift.

• int shift

Shift ID for shift.

int quit

Log ID for quit.

· int esc

Log ID for esc.

· int mouseleft

Log ID for left mouse click.

· int mousemiddle

Log ID for middle mouse click.

· int mouseright

Log ID for right mouse click.

· int mouseup

Log ID for scroll up on mouse wheel.

· int mousedown

Log ID for scroll down on mouse wheel.

· int mousex

Log ID for mouse x coordinate.

· int mousey

Log ID for mouse y coordinate.

Private Attributes

• bool keys [50]

Array that stores what buttons are down.

3.6.1 Detailed Description

Class for checking and storing keyboard and mouse input.

Definition at line 9 of file input-tmp.h.

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

- · input-tmp.h
- · input-tmp.cpp

3.7 Tilesettmp::layer Struct Reference

Contains a set of tiles, the width and height of the set, the x and y coordinate of the set, and the Tiles width and height.

Public Attributes

• int width = 0

layers width

• int height = 0

layers height

• double x = 0

layers x coordinate

• double y = 0

layers y coordinate

• int tw = 0

Tiles width.

• int th = 0

Tiles height.

vector< tile > tiles

Vector of tiles.

3.7.1 Detailed Description

Contains a set of tiles, the width and height of the set, the x and y coordinate of the set, and the Tiles width and height.

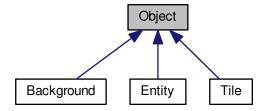
Definition at line 91 of file tileset-tmp.h.

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

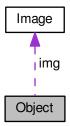
· tileset-tmp.h

3.8 Object Class Reference

Inheritance diagram for Object:



Collaboration diagram for Object:



Public Member Functions

- void setDisplayable (bool d)
- bool isDisplayable (Object screen)
- · virtual void checkDisplayable (Object screen)
- void **setCoord** (double x, double y)
- void **setX** (double x)
- void setY (double y)
- void **move** (double x, double y)
- void **moveX** (double x)
- void moveY (double y)
- · double getX () const
- double getY () const
- Image getImage () const
- void **setImage** (string file, SDL_Renderer *ren)
- · double getAngle () const
- void setAngle (double a)
- void center (int w, int h)
- SDL_Rect getFrame () const
- SDL_Rect getDest () const
- SDL_Rect getPos () const
- · void setFrame (SDL Rect i)
- void setDest (SDL Rect i)
- void **setPos** (SDL_Rect i)
- void setFrame (int x, int y, int w, int h)
- void setFrameCoord (int x, int y)
- void setFrameSize (int w, int h)
- void setFrameX (int x)
- void setFrameY (int y)
- void setFrameW (int w)
- void setFrameH (int h)
- int getFrameX () const
- int getFrameY () const
- int getFrameW () const
- int getFrameH () const
- void setDest (int x, int y, int w, int h)
- void setDestCoord (int x, int y)

- void setDestSize (int w, int h)
- void setDestX (int x)
- void setDestY (int y)
- void setDestW (int w)
- void setDestH (int h)
- int getDestX () const
- int getDestY () const
- int getDestW () const
- int getDestH () const
- void setPos (int x, int y, int w, int h)
- void setPosCoord (int x, int y)
- void setPosSize (int w, int h)
- void setPosX (int x)
- void setPosY (int y)
- void setPosW (int w)
- void setPosH (int h)
- int getPosX () const
- int getPosY () const
- int getPosW () const
- int getPosH () const
- void **moveFrame** (int x, int y)
- void moveFrameX (int x)
- void moveFrameY (int y)
- void **moveDest** (int x, int y)
- void moveDestX (int x)
- void moveDestY (int y)
- void **movePos** (int x, int y)
- void movePosX (int x)
- void movePosY (int y)
- void **setName** (string s)
- string getName ()

Private Attributes

- Image img
- SDL_Rect frame
- SDL_Rect dest
- SDL_Rect pos
- double angle
- string name
- double **x**
- double y
- · bool displayable

3.8.1 Detailed Description

Definition at line 9 of file object.h.

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

- · object.h
- · object.cpp

3.9 Physics Class Reference

Class for doing physics functions.

```
#include <physics-tmp.h>
```

Public Member Functions

• Object moveTowards (Object cur, Object des)

Returns modified first Object that is moving towards the second object (I THINK).

3.9.1 Detailed Description

Class for doing physics functions.

Definition at line 23 of file physics-tmp.h.

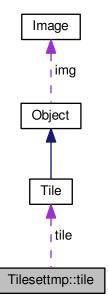
The documentation for this class was generated from the following files:

- · physics-tmp.h
- · physics-tmp.cpp

3.10 Tilesettmp::tile Struct Reference

Contains the Tile and its x and y coordinate.

Collaboration diagram for Tilesettmp::tile:



3.11 Tile Class Reference

Public Attributes

• double x = 0

tile x coordinate

• double y = 0

tile y coordinate

Tile tile

tile's Tile

3.10.1 Detailed Description

Contains the Tile and its x and y coordinate.

Definition at line 82 of file tileset-tmp.h.

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

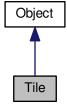
· tileset-tmp.h

3.11 Tile Class Reference

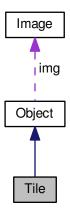
An Object class that stores the a tile value and name.

#include <tile.h>

Inheritance diagram for Tile:



Collaboration diagram for Tile:



Public Member Functions

void setValue (int v)

Set value of the tile. This is used when reading from a map file, etc.

• int getValue ()

Get the value of the tile.

- void setSolid ()
- void setPassable ()
- bool isSolid () const

Private Attributes

• int value

Tiles value. Used for reading from a map file, etc.

• bool solid

3.11.1 Detailed Description

An Object class that stores the a tile value and name.

Definition at line 7 of file tile.h.

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

- · tile.h
- tile.cpp

3.12 Tileset Class Reference

Public Member Functions

vector < Tile > create (string name, string img, SDL_Renderer *ren, int width, int height, int r, int count)
 Load in a map file with the name for all the tiles, the path to the map file, path to the tileset image, the SDL renderer, width and height of a tile, row to begin from on the image, how many tiles there are in the image.

vector< Tile > create (string name, string img, SDL_Renderer *ren, int width, int height, int r, int rcount, int count)

Load a map with a given name for the tiles, the file path to the map, the path to the tileset image, SDL renderer, width and height of a tile, row to begin on in the image, how many tiles on a certain row in the image, total amount of tiles in the image.

void addTile (Tile t)

Push Tile in tile with given Tile.

• Tile addTile (string name, string file, SDL_Renderer *ren, int value, int r, int c, int width, int height)

Generate and push Tile with tile name, path tot he tile image, SDL renderer, tile value, row and columg the tile as on in the image, the tiles width and height.

Tile addTile (string name, string file, SDL_Renderer *ren, int value, int width, int height)

Generate and push Tile with a given name, path to image file, SDL renderer, given value, and tile width and height.

• Tile addTile (string name, string file, SDL Renderer *ren, int value, int size)

Generate and push Tile with a given name, path to the image, SDL renderer, value, and size (used for width and height).

• void setAngle (int ang)

Set the angle of all the tiles. Calls pushAng().

- · void setSolid ()
- · void setSolid (int t)
- void setSolid (int s, int e)
- void setPassable ()
- · void setPassable (int t)
- void setPassable (int s, int e)
- void **setName** (string n, int id)

Private Attributes

vector< Tile > tiles

3.12.1 Detailed Description

Definition at line 7 of file tileset.h.

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

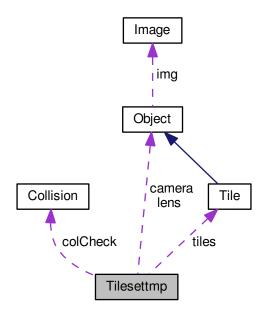
- · tileset.h
- tileset.cpp

3.13 Tilesettmp Class Reference

Class for loading in maps, tileset images, and then displaying them.

```
#include <tileset-tmp.h>
```

Collaboration diagram for Tilesettmp:



Classes

· struct layer

Contains a set of tiles, the width and height of the set, the x and y coordinate of the set, and the Tiles width and height.

• struct tile

Contains the Tile and its x and y coordinate.

Public Member Functions

• Tilesettmp (int amount)

Amout of types of tiles.

void setAng (int ang)

Set the angle of all the tiles. Calls pushAng().

• void pushAng ()

Sets all tiles to the angle (I don't think this is working yet).

· void setCoord (double ix, double iy)

Set the coordinate with a given x and y.

• void setCoord (double ix, double iy, double mx, double my)

Set the coordinate with the given x and y and the amount to move by on the x and y.

void setWindowSize (int ww, int wh)

Set the window width and height.

double getX ()

Gets the current x coordinate.

• double getY ()

Gets the current y cooridnate.

vector < Tile > loadMaps (string name, string map, string img, SDL_Renderer *ren, int width, int height, int r, int count)

Load in a map file with the name for all the tiles, the path to the map file, path to the tileset image, the SDL renderer, width and height of a tile, row to begin from on the image, how many tiles there are in the image.

vector< Tile > loadMaps (string name, string map, string img, SDL_Renderer *ren, int width, int height, int r, int rcount, int count)

Load a map with a given name for the tiles, the file path to the map, the path to the tileset image, SDL renderer, width and height of a tile, row to begin on in the image, how many tiles on a certain row in the image, total amount of tiles in the image.

vector< Tile > genMap (string name, string map, string img, SDL_Renderer *ren, int width, int height, int r, int count)

Load in a map file with the name for all the tiles, the path to the map file, path to the tileset image, the SDL renderer, width and height of a tile, row to begin from on the image, how many tiles there are in the image.

vector< Tile > genMap (string name, string map, string img, SDL_Renderer *ren, int width, int height, int r, int rcount, int count)

Load a map with a given name for the tiles, the file path to the map, the path to the tileset image, SDL renderer, width and height of a tile, row to begin on in the image, how many tiles on a certain row in the image, total amount of tiles in the image.

void loadTiles (string filename, int iw, int ih)

Read in map file with given path to the file and width and height of the tiles.

void addTile (Tile t)

Push Tile in tile with given Tile.

• Tile addTile (string name, string file, SDL Renderer *ren, int value, int r, int c, int width, int height)

Generate and push Tile with tile name, path tot he tile image, SDL renderer, tile value, row and columg the tile as on in the image, the tiles width and height.

• Tile addTile (string name, string file, SDL_Renderer *ren, int value, int width, int height)

Generate and push Tile with a given name, path to image file, SDL renderer, given value, and tile width and height.

• Tile addTile (string name, string file, SDL_Renderer *ren, int value, int size)

Generate and push Tile with a given name, path to the image, SDL renderer, value, and size (used for width and height).

vector< Tile > getTilesToRender ()

Get Tiles to renderer based on screen size and location.

vector< Tile > getTilesToRender (int w, int h)

Get tiles to renderer based on screen size, location, and given tile width and height.

vector< Tile > renderTiles (Engine e)

Get Tiles to renderer based on screen size and location and then it renders them given the Engine.

vector< Tile > renderTiles (int w, int h, Engine e)

Get tiles to renderer based on screen size, location, and given tile width and height and then it renders them given the Engine.

• void move (double mx, double my)

Move map x and y amount.

Object move (double mx, double my, Object p)

Given x and y amount to move and a given Object that also need to be moved, this function calculates the movement based on the Camera and Lens and then moves the Object and map if needed then returns the modified Object.

• void calcPos (double mx, double my)

Moves all tilesets by looping through them and calling calcSetPos() given movement on the x and y coordinate.

void calcSetPos (int i, double mx, double my)

Moves all tiles in a given tileset by looping through and calling calcTilesPos() given the point in the array the tileset is and the movement on the x and coordinates.

void calcTilesPos (int i, double mx, double my)

Moves tile given the point on the array the tile is and the movement on the x and y coordinate.

void setCameraMargin (int wm, int hm)

Set the width and height of the Camera.

• void centerCamera (int percentage)

Set the Camera size based on percentage of window to cover.

Object getCamera ()

Get the Camera.

· void setLensMargin (int wm, int hm)

Set the width and height of the Lens.

void centerLens (int percentage)

Set the Lens based on the percentage of the Camera to cover.

· Object getLens ()

Get the Lens.

Private Attributes

· int angle

Display angle.

double x

Display/map coordinates.

- · double y
- bool set

Boolean that says if the maps coordinates has already been set.

· int winWidth

Window width and height.

- · int winHeight
- · int layersize

Layer, x, and y size. (I don't think these are actually used).

- int xsize
- int ysize
- vector< layer > tileset

Vector of layers (tilesets).

• Tile * tiles

Array of tiles with undeclared size.

Object camera

Camera object. When in the Camera, the map and Object move.

Object lens

Lens object. When in the Lens, only the given Object moves.

Collision colCheck

Instance of Collision.

bool activeCam

Boolean that shows if the Camera and Lens have been activated.

· bool activeLens

3.13.1 Detailed Description

Class for loading in maps, tileset images, and then displaying them.

Definition at line 13 of file tileset-tmp.h.

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

- tileset-tmp.h
- tileset-tmp.cpp

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