# Raytracer

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# Chapter 1

# Hierarchical Index

## 1.1 Class Hierarchy

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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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: Base class for custom error types. This class is derived from the `IError` interface and provides a common base for custom error types. It contains a protected member `_message` to store the error message . . . 5

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# Chapter 3

# Class Documentation

## 3.1 Gui::Errors::AError Class Reference

Base class for custom error types. This class is derived from the `IError` interface and provides a common base for custom error types. It contains a protected member `_message` to store the error message.

`#include <AError.hpp>`

Inheritance diagram for Gui::Errors::AError:

Collaboration diagram for Gui::Errors::AError:

### Public Member Functions

- ~AError () override=default

  *Destructor.*
- const char * what () const noexcept override

  *Returns the error message.*

### Protected Attributes

- std::string _message

### 3.1.1 Detailed Description

Base class for custom error types. This class is derived from the `IError` interface and provides a common base for custom error types. It contains a protected member `_message` to store the error message.

### 3.1.2 Member Function Documentation

#### 3.1.2.1 what()

```
const char * Gui::Errors::AError::what ( ) const  [override], [virtual], [noexcept]
```

Returns the error message.

**Returns**

A pointer to a constant character string representing the error message.

Implements Gui::Errors::IError.

### 3.1.3 Member Data Documentation

#### 3.1.3.1 _message

```
std::string Gui::Errors::AError::_message  [protected]
```

The error message.

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

- gui/include/Error/AError.hpp
- gui/src/Error/Error.cpp

## 3.2 API.API Class Reference

### Public Member Functions

- def __init__ (self, str host, int port)
- def connect (self)
- def sendData (self, str data, int timeout=None)
- def receiveData (self, int timeout=None)
- def initConnection (self, str teamName)
- def close (self)

### 3.2.1 Detailed Description

```
API class
A class to communicate with the server

Attributes :
    host : str
        the host of the server
    port : int
        the port of the server
    inputs : list
        the list of inputs
    outputs : list
        the list of outputs
    sock : socket
        the socket to communicate with the server

----------

Methods :
    sendData(data : str, timeout : int = None)
        send data to the server
    receiveData(timeout : int = None)
        receive data from the server
    connect(team_name : str)
        connect to the server
    close()
        close the connection
```

### 3.2.2 Constructor & Destructor Documentation

#### 3.2.2.1 __init__()

```
def API.API.__init__ (
              self,
             str host,
             int port )


Constructor of the API class

Assign the host and the port of the server
Create the socket to communicate with the server
Connect to the server and add the socket to the inputs and outputs lists

Parameters :
    host : str
        the host of the server
    port : int
        the port of the server
```

### 3.2.3 Member Function Documentation

#### 3.2.3.1 close()

```
def API.API.close (
              self )
```

Close the connection with the server

#### 3.2.3.2 connect()

```
def API.API.connect (
              self )
```

Connect to the server
Add the socket to the inputs and outputs lists

#### 3.2.3.3 initConnection()

```
def API.API.initConnection (
              self,
             str teamName )
```

Function to do the first exchange with the server

Send the team name to the server
Receive the client number and the map size from the server
Print the client number and the map size

Parameters :
    team_name : str
        the name of the team

Returns :
    client_num : int
        the client number
    x : int
        the x size of the map
    y : int
        the y size of the map

#### 3.2.3.4 receiveData()

```
def API.API.receiveData (
              self,
             int  timeout = None )
```

Receive data from the server

Parameters :
    timeout : int
        the timeout to wait for the server to send data
        (default is None which means no timeout)

#### 3.2.3.5 sendData()

```
def API.API.sendData (
              self,
             str data,
             int  timeout = None )
```

```
Send data to the server

Parameters :
    data : str
        the data to send
    timeout : int
        the timeout to wait for the server to be ready to receive data
        (default is None which means no timeout)
```

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

- ai/src/Network/API.py

## 3.3 APIException.APIException Class Reference

Inheritance diagram for APIException.APIException:

## 3.4 ArgsException.ArgsException Class Reference

Inheritance diagram for ArgsException.ArgsException:

Collaboration diagram for ArgsException.ArgsException:

### Public Member Functions

- def __init__ (self, message)

### 3.4.1 Detailed Description

```
ArgsException class

A class to handle exceptions that can occur in the Args
The ArgsException class inherits from the IError class

Attributes :
    message : str
        the message of the exception
```

### 3.4.2 Constructor & Destructor Documentation

#### 3.4.2.1 __init__()

```
def ArgsException.ArgsException.__init__ (
              self,
              message )
```

```
Constructor of the ArgsException class
```

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

- ai/src/Errors/ArgsException.py

## 3.5 Gui::Egg Class Reference

### Public Member Functions

- Egg (size_t id, const std::string &team, std::pair< std::size_t, std::size_t > position)
  *Construct a new Egg object.*
- ~Egg ()
  *Destroy the Egg object.*
- std::size_t getId () const
  *Get the Id object.*
- std::string getTeam () const
  *Get the Team object.*
- std::pair< std::size_t, std::size_t > getPosition () const
  *Get the Position object.*
- void setId (std::size_t id)
  *Set the id object.*
- void setTeam (const std::string &team)
  *Set the team object.*
- void setPosition (std::pair< std::size_t, std::size_t > position)
  *Set the position object.*

### 3.5.1 Constructor & Destructor Documentation

#### 3.5.1.1 Egg()

```
Gui::Egg::Egg (
             size_t id,
             const std::string & team,
             std::pair< std::size_t, std::size_t > position )
```

Construct a new Egg object.

**Parameters**

| | |
|---|---|
| *id* | Id of the egg. |
| *team* | Team name of the egg. |
| *position* | Position of the egg. |

**Note**

The egg is created when a player lays an egg.

The constructor starts the egg animation if implemented.

#### 3.5.1.2 ~Egg()

```
Gui::Egg::~Egg ( )
```

Destroy the Egg object.

**Note**

The destructor starts the egg animation if implemented.

### 3.5.2 Member Function Documentation

#### 3.5.2.1 getId()

```
std::size_t Gui::Egg::getId ( ) const
```

Get the Id object.

**Returns**

std::size_t Id of the egg.

#### 3.5.2.2 getPosition()

```
std::pair< std::size_t, std::size_t > Gui::Egg::getPosition ( ) const
```

Get the Position object.

**Returns**

std::pair<std::size_t, std::size_t> Position of the egg.

#### 3.5.2.3 getTeam()

```
std::string Gui::Egg::getTeam ( ) const
```

Get the Team object.

**Returns**

std::string Team name of the egg.

#### 3.5.2.4 setId()

```
void Gui::Egg::setId (
            std::size_t id )
```

Set the id object.

**Parameters**

| | |
|---|---|
| *id* | Id of the egg. |

#### 3.5.2.5 setPosition()

```
void Gui::Egg::setPosition (
            std::pair< std::size_t, std::size_t > position )
```

Set the position object.

**Parameters**

| | |
|---|---|
| *position* | Position of the egg. |

#### 3.5.2.6 setTeam()

```
void Gui::Egg::setTeam (
            const std::string & team )
```

Set the team object.

**Parameters**

| | |
|---|---|
| *team* | Team name of the egg. |

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

- gui/include/GameDatas/Egg.hpp
- gui/src/GameDatas/Egg.cpp

## 3.6 Gui::Engine Class Reference

### Public Member Functions

- Engine (Network network)

  *Construct a new Engine object.*
- ~Engine ()=default

  *Destroy the Engine object.*
- void run (void)

  *Run the engine loop.*

### 3.6.1 Constructor & Destructor Documentation

#### 3.6.1.1 Engine()

```
Gui::Engine::Engine (
            Network network )
```

Construct a new Engine object.

**Parameters**

| | |
|---|---|
| *network* | Network class. |

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

- gui/include/Engine/Engine.hpp
- gui/src/Engine/Engine.cpp

## 3.7 Gui::Errors::Error Class Reference

Base class for argument-related errors.

```
#include <Error.hpp>
```

Inheritance diagram for Gui::Errors::Error:

Collaboration diagram for Gui::Errors::Error:

### Additional Inherited Members

### 3.7.1 Detailed Description

Base class for argument-related errors.

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

- gui/include/Error/Error.hpp

## 3.8 Gui::Event Class Reference

### Public Member Functions

- Event ()
  *Construct a new Event object.*
- ~Event ()=default
  *Destroy the Event object.*
- void listen ()
  *Listen the user's events.*
- void setRender (std::shared_ptr< Render > render)
  *Set the Render object.*

### 3.8.1 Member Function Documentation

#### 3.8.1.1 setRender()

```
void Gui::Event::setRender (
            std::shared_ptr< Render > render )
```

Set the Render object.

**Parameters**

| | |
|---|---|
| *render* | Render class. |

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

- gui/include/Event/Event.hpp
- gui/src/Event/Event.cpp

## 3.9 Gui::GameData Class Reference

### Public Member Functions

- GameData ()

  *Construct a new GameData object.*
- ~GameData ()=default

  *Destroy the GameData object.*
- std::vector< Gui::Team > & getTeams ()

  *Get the Teams object.*
- Gui::Team & getTeam (const std::string &name)

  *Get a Team object.*
- void addTeam (const Gui::Team &team)

  *Add a team to the game.*
- void addTeam (const std::string &name, const std::string &playerModelPath, const std::string &eggModel↩ Path)

  *Add a team to the game.*
- void addPlayerToTeam (const std::string &teamName, const Gui::Player &player)

  *Add a player to a team.*
- Map< Gui::Tile > & getMap ()

  *Get the Map object.*
- void setMap (const Map< Gui::Tile > &map)

  *Set the Map object.*
- void setMapSize (size_t x, size_t y)

  *Set the Map Size object.*
- std::pair< size_t, size_t > getMapSize () const

  *Get the Map Size object.*
- Gui::Tile & getTile (size_t x, size_t y)

  *Get a Tile object.*
- void setTile (const Gui::Tile &tile)

  *Set the Tile object.*
- void restartLastTick (void)

  *Restart the last tick clock.*
- void setServerTick (std::size_t tick)

  *Set the Server Tick object.*
- clock_t getLastTick () const

  *Get the Last Tick object.*
- std::size_t getServerTick () const

  *Get the Server Tick object.*
- void setIsEndGame (bool isEndGame)

  *Set the IsEnd Game object.*
- bool getIsEndGame () const

  *Get the IsEnd Game object.*

### 3.9.1 Member Function Documentation

#### 3.9.1.1 addPlayerToTeam()

```
void Gui::GameData::addPlayerToTeam (
            const std::string & teamName,
            const Gui::Player & player )
```

Add a player to a team.

**Parameters**

| | |
|---|---|
| *teamName* | Name of the team. |
| *player* | Player to add. |

#### 3.9.1.2 addTeam() [1/2]

```
void Gui::GameData::addTeam (
            const Gui::Team & team )
```

Add a team to the game.

**Parameters**

| | |
|---|---|
| *team* | Team to add. |

#### 3.9.1.3 addTeam() [2/2]

```
void Gui::GameData::addTeam (
            const std::string & name,
            const std::string & playerModelPath,
            const std::string & eggModelPath )
```

Add a team to the game.

**Parameters**

| | |
|---|---|
| *name* | Name of the team. |
| *playerModelPath* | Path to the asset of the team for players. |
| *eggModelPath* | Path to the asset of the team for eggs. |

#### 3.9.1.4 getIsEndGame()

```
bool Gui::GameData::getIsEndGame ( ) const
```

Get the IsEnd Game object.

**Returns**

true - The game is finished.

false - The game continue.

#### 3.9.1.5 getLastTick()

```
clock_t Gui::GameData::getLastTick ( ) const
```

Get the Last Tick object.

**Returns**

clock_t - Last Tick.

#### 3.9.1.6 getMap()

```
Map< Gui::Tile > & Gui::GameData::getMap ( )
```

Get the Map object.

**Returns**

Map<Gui::Tile>& Map of the game.

#### 3.9.1.7 getMapSize()

```
std::pair< size_t, size_t > Gui::GameData::getMapSize ( ) const
```

Get the Map Size object.

**Returns**

std::pair<size_t, size_t> Size of the map.

#### 3.9.1.8 getServerTick()

```
std::size_t Gui::GameData::getServerTick ( ) const
```

Get the Server Tick object.

**Returns**

std::size_t - Server Tick.

#### 3.9.1.9 getTeam()

```
Gui::Team & Gui::GameData::getTeam (
            const std::string & name )
```

Get a Team object.

**Parameters**

| | |
|---|---|
| *name* | Name of the team. |

**Returns**

Gui::Team& Team object.

#### 3.9.1.10 getTeams()

```
std::vector< Gui::Team > & Gui::GameData::getTeams ( )
```

Get the Teams object.

**Returns**

std::vector<Gui::Team>& Teams of the game.

#### 3.9.1.11 getTile()

```
Gui::Tile & Gui::GameData::getTile (
            size_t x,
            size_t y )
```

Get a Tile object.

**Parameters**

| | |
|---|---|
| *x* | X position of the tile. |
| *y* | Y position of the tile. |

**Returns**

Gui::Tile& Tile object.

#### 3.9.1.12 setIsEndGame()

```
void Gui::GameData::setIsEndGame (
            bool isEndGame )
```

Set the IsEnd Game object.

**Parameters**

| | |
|---|---|
| *isEndGame* | EndGame state. |

#### 3.9.1.13 setMap()

```
void Gui::GameData::setMap (
            const Map< Gui::Tile > & map )
```

Set the Map object.

**Parameters**

| | |
|---|---|
| *map* | Map of the game. |

#### 3.9.1.14 setMapSize()

```
void Gui::GameData::setMapSize (
            size_t x,
            size_t y )
```

Set the Map Size object.

**Parameters**

| | |
|---|---|
| *x* | X size of the map. |
| *y* | Y size of the map. |

**Note**

This method resizes the map.

#### 3.9.1.15 setServerTick()

```
void Gui::GameData::setServerTick (
            std::size_t tick )
```

Set the Server Tick object.

**Parameters**

| | |
|---|---|
| *tick* | Tick of the server. |

#### 3.9.1.16 setTile()

```
void Gui::GameData::setTile (
            const Gui::Tile & tile )
```

Set the Tile object.

**Parameters**

| | |
|---|---|
| *x* | X position of the tile. |
| *y* | Y position of the tile. |
| *tile* | Tile to set. |

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

- gui/include/GameDatas/GameData.hpp
- gui/src/GameDatas/GameData.cpp

## 3.10 Gui::Errors::GuiGameDataException Class Reference

Error class for GameData errors.

`#include <Error.hpp>`

Inheritance diagram for Gui::Errors::GuiGameDataException:

Collaboration diagram for Gui::Errors::GuiGameDataException:

### Public Member Functions

- GuiGameDataException (std::string message)
  *Constructor for GuiGameDataException.*

### Additional Inherited Members

### 3.10.1 Detailed Description

Error class for GameData errors.

### 3.10.2 Constructor & Destructor Documentation

#### 3.10.2.1 GuiGameDataException()

```
Gui::Errors::GuiGameDataException::GuiGameDataException (
            std::string message )
```

Constructor for GuiGameDataException.

**Parameters**

| | |
|---|---|
| *message* | The error message. |

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

- gui/include/Error/Error.hpp
- gui/src/Error/Error.cpp

## 3.11 Gui::GUIUpdater Class Reference

### Public Member Functions

- GUIUpdater (std::shared_ptr< GameData > gameData)

  *Construct a new GUIUpdater object.*
- ~GUIUpdater ()=default

  *Destroy the GUIUpdater object.*
- void update (const std::string &command, const std::vector< std::string > &data)

  *Update the GUI GameData.*

### 3.11.1 Constructor & Destructor Documentation

#### 3.11.1.1 GUIUpdater()

```
Gui::GUIUpdater::GUIUpdater (
            std::shared_ptr< GameData > gameData )
```

Construct a new GUIUpdater object.

**Parameters**

| | |
|---|---|
| *gameData* | The GUI GameData to update. |

### 3.11.2 Member Function Documentation

#### 3.11.2.1 update()

```
void Gui::GUIUpdater::update (
            const std::string & command,
            const std::vector< std::string > & data )
```

Update the GUI GameData.

**Parameters**

| | |
|---|---|
| *command* | The command to update the GUI GameData. |
| *data* | The data to update the GUI GameData. |

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

- gui/include/GUIUpdater/GUIUpdater.hpp
- gui/src/GUIUpdater/GUIUpdater.cpp

## 3.12 Gui::Errors::GuiUpdaterException Class Reference

Error class for GUIUpdater errors.

`#include <Error.hpp>`

Inheritance diagram for Gui::Errors::GuiUpdaterException:

Collaboration diagram for Gui::Errors::GuiUpdaterException:

### Public Member Functions

- GuiUpdaterException (std::string message)
  *Constructor for GuiUpdaterException.*

### Additional Inherited Members

### 3.12.1 Detailed Description

Error class for GUIUpdater errors.

### 3.12.2 Constructor & Destructor Documentation

#### 3.12.2.1 GuiUpdaterException()

```
Gui::Errors::GuiUpdaterException::GuiUpdaterException (
            std::string message )
```

Constructor for GuiUpdaterException.

**Parameters**

| | |
|---|---|
| *message* | The error message. |

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

- gui/include/Error/Error.hpp
- gui/src/Error/Error.cpp

## 3.13 Gui::Errors::IError Class Reference

Inheritance diagram for Gui::Errors::IError:

Collaboration diagram for Gui::Errors::IError:

### Public Member Functions

- virtual ~IError ()=default

  *Destructor for IError.*
- virtual const char * what () const noexcept=0

  *Returns a C-style string describing the error. This function must be implemented by derived classes to provide a description of the error. The returned string should be null-terminated.*

### 3.13.1 Member Function Documentation

#### 3.13.1.1 what()

```
virtual const char* Gui::Errors::IError::what ( ) const  [pure virtual], [noexcept]
```

Returns a C-style string describing the error. This function must be implemented by derived classes to provide a description of the error. The returned string should be null-terminated.

**Returns**

const char* A C-style string describing the error.

Implemented in Gui::Errors::AError.

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

- gui/include/Error/IError.hpp

## 3.14 IError.IError Class Reference

Inheritance diagram for IError.IError:

Collaboration diagram for IError.IError:

### Public Member Functions

- def __init__ (self, message)
- def __str__ (self)
- def __repr__ (self)

### Public Attributes

- **message**

### 3.14.1 Detailed Description

```
IError class

A class to handle errors that can occur in the project

Attributes :
    message : str
        the message of the error

----------

Methods :
    __str__()
        return the message of the error
    __repr__()
        return the message of the error
```

### 3.14.2 Constructor & Destructor Documentation

#### 3.14.2.1 __init__()

```
def IError.IError.__init__ (
              self,
              message )
```

```
Constructor of the IError class

Assign the message of the error

Parameters :
    message : str
        the message of the error
```

### 3.14.3 Member Function Documentation

#### 3.14.3.1 __repr__()

```
def IError.IError.__repr__ (
              self )
```

Return the message of the error

#### 3.14.3.2 __str__()

```
def IError.IError.__str__ (
              self )
```

Return the message of the error

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

- ai/src/Errors/IError.py

## 3.15 Gui::Inventory Class Reference

### Public Types

- using **Ressources** = size_t[RessourcesNumber]

### Public Member Functions

- Inventory ()

  *Construct a new Inventory object.*
- Inventory (std::size_t food, std::size_t linemate, std::size_t deraumere, std::size_t sibur, std::size_t mendiane, std::size_t phiras, std::size_t thystame)

  *Construct a new Inventory object.*
- ~Inventory ()=default

  *Destroy the Inventory object.*
- void setFood (std::size_t food)

  *Set the Food object.*
- void setLinemate (std::size_t linemate)

  *Set the Linemate object.*
- void setDeraumere (std::size_t deraumere)

  *Set the Deraumere object.*

- void setSibur (std::size_t sibur)

  *Set the Sibur object.*
- void setMendiane (std::size_t mendiane)

  *Set the Mendiane object.*
- void setPhiras (std::size_t phiras)

  *Set the Phiras object.*
- void setThystame (std::size_t thytsame)

  *Set the Thystame object.*
- void setRessources (Ressources ressources)

  *Set the Ressources object.*
- std::size_t getFood (void)

  *Get the Food object.*
- std::size_t getLinemate (void)

  *Get the Linemate object.*
- std::size_t getDeraumere (void)

  *Get the Deraumere object.*
- std::size_t getSibur (void)

  *Get the Sibur object.*
- std::size_t getMendiane (void)

  *Get the Mendiane object.*
- std::size_t getPhiras (void)

  *Get the Phiras object.*
- std::size_t getThystame (void)

  *Get the Thystame object.*
- Ressources & getRessources (void)

  *Get the Ressources object.*

### 3.15.1 Constructor & Destructor Documentation

#### 3.15.1.1 Inventory()

```
Gui::Inventory::Inventory (
            std::size_t food,
            std::size_t linemate,
            std::size_t deraumere,
            std::size_t sibur,
            std::size_t mendiane,
            std::size_t phiras,
            std::size_t thystame )
```

Construct a new Inventory object.

**Parameters**

| | |
|---|---|
| *food* | Food to set. |
| *linemate* | Linemate to set. |
| *deraumere* | Deraumere to set. |
| *sibur* | Sibur to set. |
| *mendiane* | Mendiane to set. |
| *phiras* | Phiras to set. |
| *thystame* | Thystame to set. |

## 3.15.2 Member Function Documentation

### 3.15.2.1 getDeraumere()

```
std::size_t Gui::Inventory::getDeraumere (
            void  )
```

Get the Deraumere object.

**Returns**

std::size_t - deraumere

### 3.15.2.2 getFood()

```
std::size_t Gui::Inventory::getFood (
            void  )
```

Get the Food object.

**Returns**

std::size_t - food

### 3.15.2.3 getLinemate()

```
std::size_t Gui::Inventory::getLinemate (
            void  )
```

Get the Linemate object.

**Returns**

std::size_t - linemate

#### 3.15.2.4 getMendiane()

```
std::size_t Gui::Inventory::getMendiane (
            void  )
```

Get the Mendiane object.

**Returns**

std::size_t - mendiane

#### 3.15.2.5 getPhiras()

```
std::size_t Gui::Inventory::getPhiras (
            void  )
```

Get the Phiras object.

**Returns**

std::size_t - phiras

#### 3.15.2.6 getRessources()

```
Gui::Inventory::Ressources & Gui::Inventory::getRessources (
            void  )
```

Get the Ressources object.

**Returns**

Ressources - ressources

#### 3.15.2.7 getSibur()

```
std::size_t Gui::Inventory::getSibur (
            void  )
```

Get the Sibur object.

**Returns**

std::size_t - sibur

#### 3.15.2.8 getThystame()

```
std::size_t Gui::Inventory::getThystame (
            void  )
```

Get the Thystame object.

**Returns**

std::size_t - thystame

#### 3.15.2.9 setDeraumere()

```
void Gui::Inventory::setDeraumere (
            std::size_t deraumere )
```

Set the Deraumere object.

**Parameters**

| | |
|---|---|
| *deraumere* | Deraumere to set. |

#### 3.15.2.10 setFood()

```
void Gui::Inventory::setFood (
            std::size_t food )
```

Set the Food object.

**Parameters**

| | |
|---|---|
| *food* | Food to set. |

#### 3.15.2.11 setLinemate()

```
void Gui::Inventory::setLinemate (
            std::size_t linemate )
```

Set the Linemate object.

**Parameters**

| | |
|---|---|
| *linemate* | Linemate to set. |

#### 3.15.2.12 setMendiane()

```
void Gui::Inventory::setMendiane (
            std::size_t mendiane )
```

Set the Mendiane object.

**Parameters**

| | |
|---|---|
| *mendiane* | Mendiane to set. |

#### 3.15.2.13 setPhiras()

```
void Gui::Inventory::setPhiras (
            std::size_t phiras )
```

Set the Phiras object.

**Parameters**

| | |
|---|---|
| *phiras* | Phiras to set. |

#### 3.15.2.14 setRessources()

```
void Gui::Inventory::setRessources (
            Ressources ressources )
```

Set the Ressources object.

**Parameters**

| | |
|---|---|
| *ressources* | Ressources to set. |

#### 3.15.2.15 setSibur()

```
void Gui::Inventory::setSibur (
            std::size_t sibur )
```

Set the Sibur object.

**Parameters**

| | |
|---|---|
| *sibur* | Sibur to set. |

#### 3.15.2.16 setThystame()

```
void Gui::Inventory::setThystame (
            std::size_t thytsame )
```

Set the Thystame object.

**Parameters**

| | |
|---|---|
| *thystame* | Thystame to set. |

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

- gui/include/GameDatas/Inventory.hpp
- gui/src/GameDatas/Inventory.cpp

## 3.16 Gui::Network Class Reference

### Public Member Functions

- Network (int port, const std::string &hostName)

  *Construct a new Network object.*
- ~Network ()=default

  *Destroy the Network object.*
- void setPort (int port)

  *Set the port object.*
- void setHostName (const std::string &hostName)

  *Set the host name object.*
- int getPort () const

  *Get the port object.*
- std::string getHostName () const

  *Get the host name object.*
- void connectToServer ()

  *Connect the Gui network with the server.*
- const std::string listenServer ()

  *Listen the server and return it message.*
- void sendMessageServer (const std::string &message)

  *Send a message to the Server.*

### 3.16.1 Constructor & Destructor Documentation

#### 3.16.1.1 Network()

```
Gui::Network::Network (
            int port,
            const std::string & hostName )
```

Construct a new Network object.

**Parameters**

| | |
|---|---|
| *port* | Port of the server. |
| *hostName* | Host of the server. |

### 3.16.2 Member Function Documentation

#### 3.16.2.1 getHostName()

```
std::string Gui::Network::getHostName ( ) const
```

Get the host name object.

**Returns**

const std::string - Host name of the server.

#### 3.16.2.2 getPort()

```
int Gui::Network::getPort ( ) const
```

Get the port object.

**Returns**

const int - Port of the server.

#### 3.16.2.3 listenServer()

```
const std::string Gui::Network::listenServer (
            void  )
```

Listen the server and return it message.

**Returns**

std::string - Message of the server.

#### 3.16.2.4 sendMessageServer()

```
void Gui::Network::sendMessageServer (
            const std::string & message )
```

Send a message to the Server.

**Parameters**

| | |
|---|---|
| *message* | Message to send to the server. |

#### 3.16.2.5 setHostName()

```
void Gui::Network::setHostName (
            const std::string & hostName )
```

Set the host name object.

**Parameters**

| | |
|---|---|
| *hostName* | Host of the server. |

#### 3.16.2.6 setPort()

```
void Gui::Network::setPort (
            int port )
```

Set the port object.

**Parameters**

| | |
|---|---|
| *port* | Port of the server. |

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

- gui/include/Network/Network.hpp
- gui/src/Network/Network.cpp

## 3.17 Gui::Errors::NetworkException Class Reference

Error class for network errors.

`#include <Error.hpp>`

Inheritance diagram for Gui::Errors::NetworkException:

Collaboration diagram for Gui::Errors::NetworkException:

### Public Member Functions

- NetworkException (std::string message)
  *Constructor for NetworkException.*

### Additional Inherited Members

### 3.17.1 Detailed Description

Error class for network errors.

### 3.17.2 Constructor & Destructor Documentation

#### 3.17.2.1 NetworkException()

```
Gui::Errors::NetworkException::NetworkException (
            std::string message )
```

Constructor for NetworkException.

**Parameters**

| | |
|---|---|
| *message* | The error message. |

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

- gui/include/Error/Error.hpp
- gui/src/Error/Error.cpp

## 3.18 Gui::ParseCommandLine Class Reference

### Public Member Functions

- ParseCommandLine (int argc, char **argv)

  *Construct a new Parse Command Line object.*
- ~ParseCommandLine ()=default

  *Destroy the Parse Command Line object.*
- void parseFlags (int argc, char **argv)

  *Parse flags in command line.*
- int getPort (void)

  *Get the port object.*
- std::string getHostName (void)

  *Get the hostName object.*

### 3.18.1 Constructor & Destructor Documentation

#### 3.18.1.1 ParseCommandLine()

```
Gui::ParseCommandLine::ParseCommandLine (
            int argc,
            char ** argv )
```

Construct a new Parse Command Line object.

**Parameters**

| | |
|---|---|
| *argc* | Number of arguments in command line. |
| *argv* | Array with command line arguments. |

### 3.18.2 Member Function Documentation

#### 3.18.2.1 getHostName()

```
std::string Gui::ParseCommandLine::getHostName (
            void  )
```

Get the hostName object.

**Returns**

std::string - hostName

#### 3.18.2.2 getPort()

```
int Gui::ParseCommandLine::getPort (
            void  )
```

Get the port object.

**Returns**

int - port

#### 3.18.2.3 parseFlags()

```
void Gui::ParseCommandLine::parseFlags (
            int argc,
            char ** argv )
```

Parse flags in command line.

**Parameters**

| | |
|---|---|
| *argc* | Number of arguments in command line. |
| *argv* | Array with command line arguments. |

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

- gui/include/Parsing/ParseCommandLine.hpp
- gui/src/Parsing/ParseCommandLine.cpp

## 3.19 Gui::Errors::ParseCommandLineException Class Reference

Error class for parseCommandLine errors.

`#include <Error.hpp>`

Inheritance diagram for Gui::Errors::ParseCommandLineException:

Collaboration diagram for Gui::Errors::ParseCommandLineException:

### Public Member Functions

- ParseCommandLineException (std::string message)
  *Constructor for ParseCommandLineException.*

### Additional Inherited Members

### 3.19.1 Detailed Description

Error class for parseCommandLine errors.

### 3.19.2 Constructor & Destructor Documentation

#### 3.19.2.1 ParseCommandLineException()

```
Gui::Errors::ParseCommandLineException::ParseCommandLineException (
            std::string message )
```

Constructor for ParseCommandLineException.

**Parameters**

| | |
|---|---|
| *message* | The error message. |

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

- gui/include/Error/Error.hpp
- gui/src/Error/Error.cpp

## 3.20 Gui::Player Class Reference

Collaboration diagram for Gui::Player:

### Public Types

- enum **PlayerState** {
  **IDLE** , **BORN** , **BROADCAST** , **EJECT** ,
  **BEING_EJECTED** , **WALK** , **INCANTATION** , **FINISHED_INCANTATION** ,
  **LAY_EGG** , **DROP** , **COLLECT** }

## Public Member Functions

- Player (std::size_t id, const std::string &team, std::pair< std::size_t, std::size_t > position, std::size_t orientation, std::size_t level=1)

  *Construct a new Player object.*
- ~Player ()=default

  *Destroy the Player object.*
- void setPosition (std::pair< std::size_t, std::size_t > position)

  *Set the Position object.*
- void setId (std::size_t id)

  *Set the Id object.*
- void setLevel (std::size_t level)

  *Set the Level object.*
- void setOrientation (std::size_t orientation)

  *Set the Orientation object.*
- void setTeam (const std::string &team)

  *Set the Team object.*
- std::pair< std::size_t, std::size_t > getPosition (void) const

  *Get the Position object.*
- std::size_t getId (void) const

  *Get the Id object.*
- std::size_t getLevel (void) const

  *Get the Level object.*
- std::size_t getOrientation (void) const

  *Get the Orientation object.*
- std::string getTeam (void) const

  *Get the Team object.*
- void setState (PlayerState state)

  *Set the State object.*
- PlayerState getState (void) const

  *Get the State object.*

## Public Attributes

- Inventory inventory

  *Inventory of the player.*

### 3.20.1 Constructor & Destructor Documentation

#### 3.20.1.1 Player()

```
Gui::Player::Player (
            std::size_t id,
            const std::string & team,
            std::pair< std::size_t, std::size_t > position,
            std::size_t orientation,
            std::size_t level = 1 )
```

Construct a new Player object.

**Parameters**

| | |
|---|---|
| *id* | Id of the player. |
| *team* | Team name of the player. |
| *position* | Position of the Player. |

## 3.20.2 Member Function Documentation

### 3.20.2.1 getId()

```
std::size_t Gui::Player::getId (
            void  ) const
```

Get the Id object.

**Returns**

std::size_t - id

### 3.20.2.2 getLevel()

```
std::size_t Gui::Player::getLevel (
            void  ) const
```

Get the Level object.

**Returns**

std::size_t - level

### 3.20.2.3 getOrientation()

```
std::size_t Gui::Player::getOrientation (
            void  ) const
```

Get the Orientation object.

**Returns**

std::size_t - orientation

#### 3.20.2.4 getPosition()

```
std::pair< std::size_t, std::size_t > Gui::Player::getPosition (
            void  ) const
```

Get the Position object.

**Returns**

std::pair<std::size_t, std::size_t> - position

#### 3.20.2.5 getState()

```
Gui::Player::PlayerState Gui::Player::getState (
            void  ) const
```

Get the State object.

**Returns**

PlayerState - Player state.

#### 3.20.2.6 getTeam()

```
std::string Gui::Player::getTeam (
            void  ) const
```

Get the Team object.

**Returns**

std::string - team name

#### 3.20.2.7 setId()

```
void Gui::Player::setId (
            std::size_t id )
```

Set the Id object.

**Parameters**

| | |
|---|---|
| *id* | Id of the player. |

#### 3.20.2.8 setLevel()

```
void Gui::Player::setLevel (
            std::size_t level )
```

Set the Level object.

**Parameters**

| | |
|---|---|
| *level* | Level of the player. |

#### 3.20.2.9 setOrientation()

```
void Gui::Player::setOrientation (
            std::size_t orientation )
```

Set the Orientation object.

**Parameters**

| | |
|---|---|
| *orientation* | Orientation of the player. |

#### 3.20.2.10 setPosition()

```
void Gui::Player::setPosition (
            std::pair< std::size_t, std::size_t > position )
```

Set the Position object.

**Parameters**

| | |
|---|---|
| *position* | Position of the player |

#### 3.20.2.11 setState()

```
void Gui::Player::setState (
            PlayerState state )
```

Set the State object.

**Parameters**

| | |
|---|---|
| *state* | New player state. |

#### 3.20.2.12 setTeam()

```
void Gui::Player::setTeam (
            const std::string & team )
```

Set the Team object.

**Parameters**

| | |
|---|---|
| *team* | Team name of the player. |

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

- gui/include/GameDatas/Player.hpp
- gui/src/GameDatas/Player.cpp

## 3.21 Gui::Render Class Reference

### Public Member Functions

- Render (std::shared_ptr< GameData > gameData)
  *Construct a new Render object.*
- ~Render ()
  *Destroy the Render object.*
- bool isOpen ()
  *Check if the window is open.*
- void draw ()
  *Draw the scene.*
- std::shared_ptr< Camera > getCamera ()
  *Get the Camera object.*
- void setIsDebug (bool isDebug)
  *Set the Is Debug object.*
- bool getIsDebug (void)
  *Get the Is Debug object.*

### 3.21.1 Member Function Documentation

#### 3.21.1.1 getCamera()

```
std::shared_ptr< Camera > Gui::Render::getCamera ( )
```

Get the Camera object.

**Returns**

std::shared_ptr<Camera> - camera

#### 3.21.1.2 getIsDebug()

```
bool Gui::Render::getIsDebug (
            void  )
```

Get the Is Debug object.

**Returns**

true - diplay debug

false - do not display debug

#### 3.21.1.3 isOpen()

```
bool Gui::Render::isOpen ( )
```

Check if the window is open.

**Returns**

true - the window is open

false - the window is closed

#### 3.21.1.4 setIsDebug()

```
void Gui::Render::setIsDebug (
            bool isDebug )
```

Set the Is Debug object.

**Parameters**

| | |
|---|---|
| *isDebug* | New Is Debug value to set. |

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

- gui/include/Render/Render.hpp
- gui/src/Render/Render.cpp

## 3.22 Gui::ServerParser Class Reference

### Public Types

- enum ParseType { **INT** , **STRING** , **MESSAGE** , **LIST_INT** }

  *Enum of types to parse.*

### Public Member Functions

- ServerParser ()=default

  *Construct a new Server Parser object.*
- ~ServerParser ()=default

  *Destroy the Server Parser object.*
- std::vector< std::string > parse (const std::string &command)

  *Parse the command server.*

### 3.22.1 Member Function Documentation

#### 3.22.1.1 parse()

```
std::vector< std::string > Gui::ServerParser::parse (
            const std::string & command )
```

Parse the command server.

**Parameters**

| | |
|---|---|
| *command* | Command to parse. |

**Returns**

std::vector<std::string> - arguments parsed

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

- gui/include/Parsing/ServerParser.hpp
- gui/src/Parsing/ServerParser.cpp

## 3.23 Gui::Errors::ServerParserException Class Reference

Error class for network errors.

`#include <Error.hpp>`

Inheritance diagram for Gui::Errors::ServerParserException:

Collaboration diagram for Gui::Errors::ServerParserException:

### Public Member Functions

- ServerParserException (std::string message)
  *Constructor for ServerParserException.*

### Additional Inherited Members

### 3.23.1 Detailed Description

Error class for network errors.

### 3.23.2 Constructor & Destructor Documentation

#### 3.23.2.1 ServerParserException()

```
Gui::Errors::ServerParserException::ServerParserException (
            std::string message )
```

Constructor for ServerParserException.

**Parameters**

| | |
|---|---|
| *message* | The error message. |

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

- gui/include/Error/Error.hpp
- gui/src/Error/Error.cpp

## 3.24 Gui::Team Class Reference

### Public Member Functions

- Team (const std::string &name, const std::string &playerModelPath, const std::string &eggModelPath)
  *Construct a new Team object.*
- ~Team ()
  *Destroy the Team object.*
- const std::string & getName () const
  *Get the Name object.*
- std::vector< Gui::Player > & getPlayers ()
  *Get the Players object.*
- std::vector< Gui::Egg > & getEggs ()
  *Get the Eggs object.*
- void setName (const std::string &name)
  *Set the Name object.*
- void addPlayer (const Gui::Player &player)
  *Add a player to the team.*
- void addEgg (const Gui::Egg &egg)
  *Add an egg to the team.*
- bool removePlayer (std::size_t id)
  *Remove a player from the team.*
- bool removeEgg (std::size_t id)
  *Remove an egg from the team.*
- std::shared_ptr< Gui::Player > getPlayer (std::size_t id)
  *Get the Player object.*
- Model getPlayerModel () const
  *Get the Model object.*
- void setPlayerModelPath (const std::string &playerModelPath)
  *Set the Model object.*
- std::shared_ptr< Gui::Egg > getEgg (std::size_t id)
  *Get the Egg object.*
- Model getEggModel () const
  *Get the Egg Model Path object.*
- void setEggModelPath (const std::string &eggModelPath)
  *Set the Egg Model Path object.*

### 3.24.1 Constructor & Destructor Documentation

#### 3.24.1.1 Team()

```
Gui::Team::Team (
            const std::string & name,
            const std::string & playerModelPath,
            const std::string & eggModelPath )
```

Construct a new Team object.

**Parameters**

| | |
|---|---|
| *name* | Name of the team. |
| *playerModelPath* | Path to the team model asset for players. |
| *eggSkinPath* | Path to the skin of the team. |

## 3.24.2 Member Function Documentation

### 3.24.2.1 addEgg()

```
void Gui::Team::addEgg (
            const Gui::Egg & egg )
```

Add an egg to the team.

**Parameters**

| | |
|---|---|
| *egg* | Egg to add. |

### 3.24.2.2 addPlayer()

```
void Gui::Team::addPlayer (
            const Gui::Player & player )
```

Add a player to the team.

**Parameters**

| | |
|---|---|
| *player* | Player to add. |

### 3.24.2.3 getEgg()

```
std::shared_ptr< Gui::Egg > Gui::Team::getEgg (
            std::size_t id )
```

Get the Egg object.

**Parameters**

| | |
|---|---|
| *id* | Id of the egg. |

**Returns**

std::shared_ptr<Gui::Egg> Egg.

#### 3.24.2.4 getEggModel()

```
Model Gui::Team::getEggModel ( ) const
```

Get the Egg Model Path object.

**Returns**

const std::string& Path to the eggs Model of the team.

#### 3.24.2.5 getEggs()

```
std::vector< Gui::Egg > & Gui::Team::getEggs ( )
```

Get the Eggs object.

**Returns**

std::vector<Gui::Egg>& Eggs of the team.

#### 3.24.2.6 getName()

```
const std::string & Gui::Team::getName ( ) const
```

Get the Name object.

**Returns**

const std::string& Name of the team.

#### 3.24.2.7 getPlayer()

```
std::shared_ptr< Gui::Player > Gui::Team::getPlayer (
            std::size_t id )
```

Get the Player object.

**Parameters**

| | |
|---|---|
| *id* | Id of the player. |

**Returns**

std::shared_ptr<Gui::Player> Player.

#### 3.24.2.8 getPlayerModel()

```
Model Gui::Team::getPlayerModel (
            void  ) const
```

Get the Model object.

**Returns**

Model - Model asset of the Team.

#### 3.24.2.9 getPlayers()

```
std::vector< Gui::Player > & Gui::Team::getPlayers ( )
```

Get the Players object.

**Returns**

std::vector<Gui::Player>& Players of the team.

#### 3.24.2.10 removeEgg()

```
bool Gui::Team::removeEgg (
            std::size_t id )
```

Remove an egg from the team.

**Parameters**

| | |
|---|---|
| *id* | Id of the egg to remove. |

**Returns**

true If the egg has been removed.

false If the egg has not been removed.

#### 3.24.2.11 removePlayer()

```
bool Gui::Team::removePlayer (
            std::size_t id )
```

Remove a player from the team.

**Parameters**

| | |
|---|---|
| *id* | Id of the player to remove. |

**Returns**

true If the player has been removed.

false If the player has not been removed.

#### 3.24.2.12 setEggModelPath()

```
void Gui::Team::setEggModelPath (
            const std::string & eggModelPath )
```

Set the Egg Model Path object.

**Parameters**

| | |
|---|---|
| *eggSkinPath* | Path to the eggs Model of the team. |

#### 3.24.2.13 setName()

```
void Gui::Team::setName (
            const std::string & name )
```

Set the Name object.

**Parameters**

| | |
|---|---|
| *name* | Name of the team. |

#### 3.24.2.14 setPlayerModelPath()

```
void Gui::Team::setPlayerModelPath (
            const std::string & playerModelPath )
```

Set the Model object.

**Parameters**

| | |
|---|---|
| *playerModelPath* | Path to the team model asset for players. |

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

- gui/include/GameDatas/Team.hpp
- gui/src/GameDatas/Team.cpp

## 3.25 Gui::Tile Class Reference

Collaboration diagram for Gui::Tile:

### Public Member Functions

- Tile (std::pair< std::size_t, std::size_t > position)
  *Construct a new Tile object.*
- Tile (std::pair< std::size_t, std::size_t > position, Inventory inventory)
  *Construct a new Tile object.*
- ~Tile ()=default
  *Destroy the Tile object.*
- void setPosition (std::pair< std::size_t, std::size_t > position)
  *Set the Position object.*
- std::pair< std::size_t, std::size_t > getPosition (void) const
  *Get the Position object.*
- Vector3 getPositionIn3DSpace (void)
  *Get the Position In Space object.*

### Public Attributes

- Inventory inventory
  *Inventory of the tile.*

### 3.25.1 Constructor & Destructor Documentation

#### 3.25.1.1 Tile() [1/2]

```
Gui::Tile::Tile (
            std::pair< std::size_t, std::size_t > position )
```

Construct a new Tile object.

**Parameters**

| | |
|---|---|
| *position* | Set the position of the tile. |

#### 3.25.1.2 Tile() [2/2]

```
Gui::Tile::Tile (
            std::pair< std::size_t, std::size_t > position,
            Inventory inventory )
```

Construct a new Tile object.

**Parameters**

| | |
|---|---|
| *position* | Set the position of the tile. |
| *inventory* | Set the inventory of the tile. |

### 3.25.2 Member Function Documentation

#### 3.25.2.1 getPosition()

```
std::pair< std::size_t, std::size_t > Gui::Tile::getPosition (
            void  ) const
```

Get the Position object.

**Returns**

std::pair<std::size_t, std::size_t> - position x y

#### 3.25.2.2 getPositionIn3DSpace()

```
Vector3 Gui::Tile::getPositionIn3DSpace (
            void  )
```

Get the Position In Space object.

**Returns**

Vector3 - Position in space.

#### 3.25.2.3 setPosition()

```
void Gui::Tile::setPosition (
            std::pair< std::size_t, std::size_t > position )
```

Set the Position object.

**Parameters**

| | |
|---|---|
| *position* | New position of the tile. |

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

- gui/include/GameDatas/Tile.hpp
- gui/src/GameDatas/Tile.cpp

## 3.26 Gui::UserCamera Class Reference

### Public Member Functions

- UserCamera ()
  *Construct a new User Camera object.*
- ~UserCamera ()=default
  *Destroy the User Camera object.*
- void setPosition (Vector3 position)
  *Set the Position object.*
- void setTarget (Vector3 target)
  *Set the Target object.*
- void setUp (Vector3 up)
  *Set the Up object.*
- void setFovy (float fovy)
  *Set the Fovy object.*
- Vector3 getPosition (void) const
  *Get the Position object.*
- Vector3 getTarget (void) const
  *Get the Target object.*
- Vector3 getUp (void) const
  *Get the Up object.*
- float getFovy (void) const
  *Get the Fovy object.*
- std::shared_ptr< Camera > getCamera ()
  *Get the Camera object.*

### 3.26.1 Member Function Documentation

#### 3.26.1.1 getCamera()

```
std::shared_ptr< Camera > Gui::UserCamera::getCamera ( )
```

Get the Camera object.

**Returns**

Camera - camera

#### 3.26.1.2 getFovy()

```
float Gui::UserCamera::getFovy (
            void  ) const
```

Get the Fovy object.

**Returns**

float - fovy

#### 3.26.1.3 getPosition()

```
Vector3 Gui::UserCamera::getPosition (
            void  ) const
```

Get the Position object.

**Returns**

Vector3 - position

#### 3.26.1.4 getTarget()

```
Vector3 Gui::UserCamera::getTarget (
            void  ) const
```

Get the Target object.

**Returns**

Vector3 - target

#### 3.26.1.5 getUp()

```
Vector3 Gui::UserCamera::getUp (
            void  ) const
```

Get the Up object.

**Returns**

Vector3 - up

#### 3.26.1.6 setFovy()

```
void Gui::UserCamera::setFovy (
            float fovy )
```

Set the Fovy object.

**Parameters**

| | |
|---|---|
| *fovy* | New camera fovy. |

#### 3.26.1.7 setPosition()

```
void Gui::UserCamera::setPosition (
            Vector3 position )
```

Set the Position object.

**Parameters**

| | |
|---|---|
| *position* | New camera position. |

#### 3.26.1.8 setTarget()

```
void Gui::UserCamera::setTarget (
            Vector3 target )
```

Set the Target object.

**Parameters**

| | |
|---|---|
| *target* | New camera target. |

#### 3.26.1.9 setUp()

```
void Gui::UserCamera::setUp (
            Vector3 up )
```

Set the Up object.

**Parameters**

| | |
|---|---|
| *up* | New camera up vector. |

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

- gui/include/Render/UserCamera.hpp
- gui/src/Render/UserCamera.cpp

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