

Fifteen_Puzzle_Game

0.0.1

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Chapter 1

Module Index

1.1 Modules

Here is a list of all modules:

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Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

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Drawable	
Game::GameRender	18
Game::FifteenPuzzleGame	16
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Transformable	
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Chapter 3

Class Index

3.1 Class List

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

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Game board class	13
Game::FifteenPuzzleGame	
Game class	16
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Controller class	17
Game::GameRender	
Class for drawing game	18
Game::Log	
Logger class	20

Chapter 4

File Index

4.1 File List

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

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Chapter 5

Module Documentation

5.1 Controller

Implements the Game Loop Design Pattern:

Classes

- class `Game::GameController`
Controller class.

5.1.1 Detailed Description

Implements the Game Loop Design Pattern:

- polling I/O devices;
- state update;
- frame drawing.

5.2 Model

Classes

- class `Game::FifteenPuzzleGame`
Game class.

Enumerations

- enum `Game::Direction` { **Left** = 0, **Right** = 1, **Up** = 2, **Down** = 3 }
Keyboard arrow keys class.

5.2.1 Detailed Description

5.2.2 Enumeration Type Documentation

5.2.2.1 Direction

```
enum Game::Direction [strong]
```

Keyboard arrow keys class.

Version

1.0

5.3 View

Classes

- class [Game::GameRender](#)
Class for drawing game.

5.3.1 Detailed Description

Chapter 6

Class Documentation

6.1 Game::Board Class Reference

Game board class.

```
#include <board.h>
```

Public Member Functions

- [Board](#) (int row_count=4, int column_count=4)
Make a new game board.
- void [Init](#) ()
Initializes the cells of the board in the correct order.
- bool [IsSolved](#) () const
Checks if the puzzle is solved and returns the result of the check.
- bool [isCellCorrect](#) (int row, int column)
Returns true if cell in right place.
- bool [isNotEmptyElement](#) (int row, int column)
Returns true if cell empty.
- void [MoveEmptyPlate](#) ([Direction](#) direction)
Swap an empty plate and a user plate.
- int [at](#) (int row, int column)
Returns contains of cell by coordinates.
- int [GetRowCount](#) () const
Returns rows count of board.
- int [GetColumnCount](#) () const
Returns columns count of board.

6.1.1 Detailed Description

Game board class.

Author

Dosart

Version

1.0

6.1.2 Constructor & Destructor Documentation

6.1.2.1 Board()

```
Game::Board::Board (
    int row_count = 4,
    int column_count = 4 )
```

Make a new game board.

Parameters

<i>row_count</i>	Row count of game board.
<i>column_count</i>	Column count of game board.

6.1.3 Member Function Documentation

6.1.3.1 at()

```
int Game::Board::at (
    int row,
    int column )
```

Returns contains of cell by coordinates.

Parameters

<i>row</i>	Cell's coordinates.
<i>column</i>	Cell's coordinates.

Returns

Contains of cell

6.1.3.2 GetColumnCount()

```
int Game::Board::GetColumnCount ( ) const
```

Returns columns count of board.

Returns

columns count of board/

6.1.3.3 GetRowCount()

```
int Game::Board::GetRowCount ( ) const
```

Returns rows count of board.

Returns

Row count of board/

6.1.3.4 isCellCorrect()

```
bool Game::Board::isCellCorrect (
    int row,
    int column )
```

Returns true if cell in right place.

Parameters

<i>row</i>	Cell's coordinates.
<i>column</i>	Cell's coordinates.

Returns

Result of the check

6.1.3.5 isNotEmptyElement()

```
bool Game::Board::isNotEmptyElement (
    int row,
    int column )
```

Returns true if cell empty.

Parameters

<i>row</i>	Cell's coordinates.
<i>column</i>	Cell's coordinates.

Returns

Result of the check

6.1.3.6 IsSolved()

```
bool Game::Board::IsSolved ( ) const
```

Checks if the puzzle is solved and returns the result of the check.

Returns

Result of the check.

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

- /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/model/[board.h](#)

6.2 Game::FifteenPuzzleGame Class Reference

Game class.

```
#include <fifteen_puzzle_game.h>
```

Public Member Functions

- [Board](#) & [GetBoard](#) ()
Returns game's board.
- void [StartNewGame](#) ()
Starts new game.
- void [MoveEmptyPlate](#) ([Direction](#) direction)
Swaps an empty cell with an adjacent one.
- bool [IsSolved](#) () const
Returns true if puzzle is solved.

6.2.1 Detailed Description

Game class.

Author

Dosart

Version

1.0

6.2.2 Member Function Documentation

6.2.2.1 GetBoard()

```
Board& Game::FifteenPuzzleGame::GetBoard ( )
```

Returns game's board.

Returns

board

6.2.2.2 IsSolved()

```
bool Game::FifteenPuzzleGame::IsSolved ( ) const
```

Returns true if puzzle is solved.

Returns

true if puzzle is solved.

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

- [/home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/model/fifteen_puzzle_game.h](#)

6.3 Game::GameController Class Reference

Controller class.

```
#include <game_controller.h>
```

Public Member Functions

- [GameController](#) ([FifteenPuzzleGame](#) *game, [GameRender](#) *render)
Constructor.
- void [Run](#) ()
Implements the Game Loop Design Pattern.

6.3.1 Detailed Description

Controller class.

Author

Dosart

Version

1.0

6.3.2 Constructor & Destructor Documentation

6.3.2.1 GameController()

```
Game::GameController::GameController (
    FifteenPuzzleGame * game,
    GameRender * render )
```

Constructor.

Parameters

<i>game</i>	Game.
<i>render</i>	Render for drawing game.

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

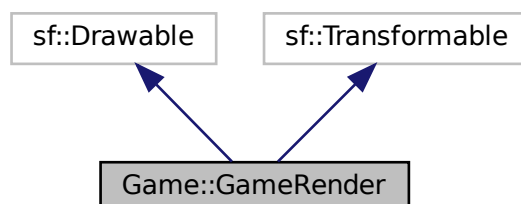
- /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/controller/[game_controller.h](#)

6.4 Game::GameRender Class Reference

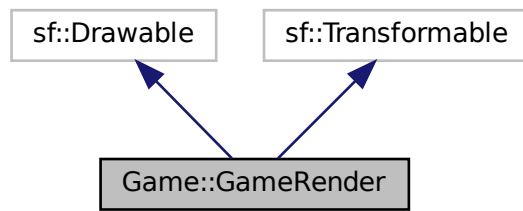
Class for drawing game.

```
#include <game_render.h>
```

Inheritance diagram for Game::GameRender:



Collaboration diagram for Game::GameRender:



Public Member Functions

- [GameRender](#) ([FifteenPuzzleGame](#) *game, [sf::Font](#) font)
Make simple render.
- void [Render](#) ()
Refresh window state.
- [sf::RenderWindow](#) & [Window](#) ()
Returns game's window.
- virtual void [draw](#) ([sf::RenderTarget](#) &target, [sf::RenderStates](#) states) const
Draws board's frame and cells.

6.4.1 Detailed Description

Class for drawing game.

Author

Dosart

Version

1.0

6.4.2 Constructor & Destructor Documentation

6.4.2.1 GameRender()

```

Game::GameRender::GameRender (
    FifteenPuzzleGame * game,
    sf::Font font )
  
```

Make simple render.

Parameters

<i>game</i>	Game.
<i>font</i>	Font for game.

6.4.3 Member Function Documentation

6.4.3.1 Window()

```
sf::RenderWindow& Game::GameRender::Window ( )
```

Returns game's window.

Returns

game's window

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

- /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/view/[game_render.h](#)

6.5 Game::Log Class Reference

Logger class.

```
#include <log.h>
```

Static Public Member Functions

- static void [Init](#) ()
Initialize logger.
- static std::shared_ptr< spdlog::logger > [GetLogger](#) ()
Return logger.

6.5.1 Detailed Description

Logger class.

Author

Dosart

Version

1.0

Date

09.08.2021

Simple static logger for game.

6.5.2 Member Function Documentation

6.5.2.1 GetLogger()

```
static std::shared_ptr<spdlog::logger> Game::Log::GetLogger ( ) [inline], [static]
```

Return logger.

Returns

spdlog format logger

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

- [/home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/log.h](#)

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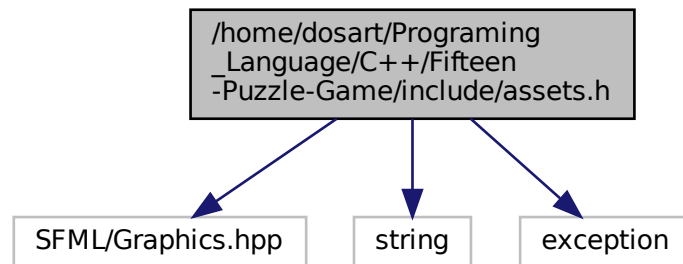
File Documentation

7.1 /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/assets.h File Reference

Header file for work on resources of game.

```
#include <SFML/Graphics.hpp>
#include <string>
#include <exception>
```

Include dependency graph for assets.h:



Functions

- `sf::Font Game::LoadFont (std::string fontName)`
Load font from resources.

7.1.1 Detailed Description

Header file for work on resources of game.

This file contains functions for work on resources of game

7.1.2 Function Documentation

7.1.2.1 LoadFont()

```
sf::Font Game::LoadFont (
    std::string fontName )
```

Load font from resources.

Parameters

<i>fontName</i>	Name of font for load
-----------------	-----------------------

Returns

SFML format font

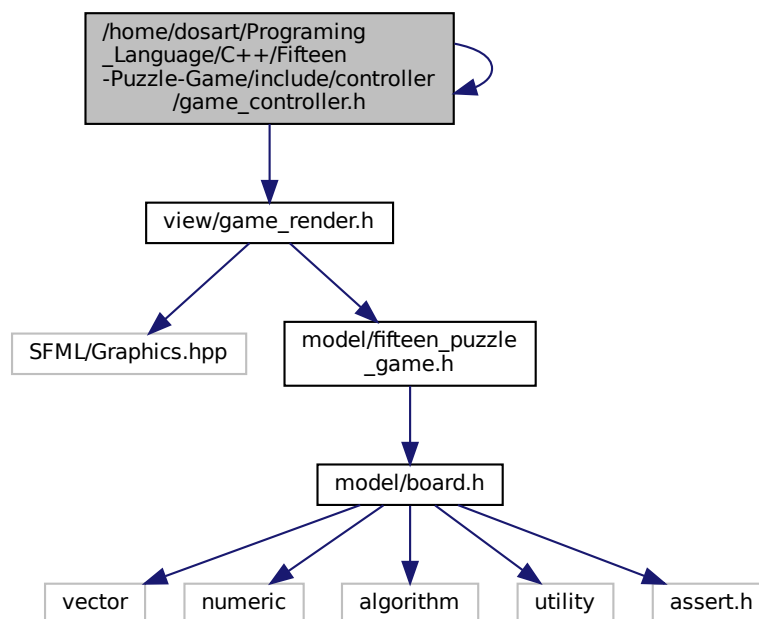
7.2 /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/controller/game_controller.h File Reference

Header file for implementation controller.

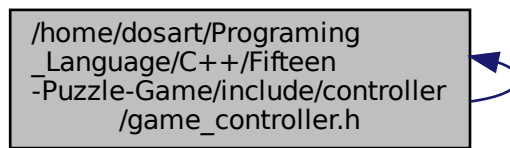
```
#include "view/game_render.h"
```

```
#include "game_controller.h"
```

Include dependency graph for game_controller.h:



This graph shows which files directly or indirectly include this file:



Classes

- class `Game::GameController`
Controller class.

7.2.1 Detailed Description

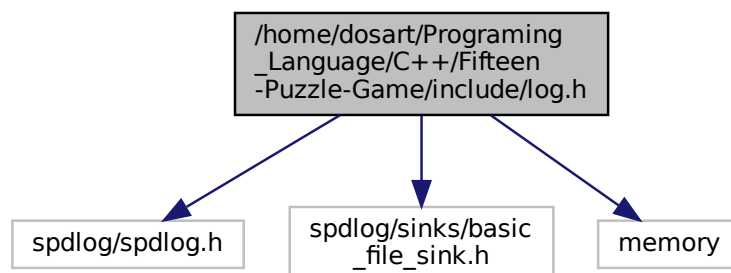
Header file for implementation controller.

7.3 /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/log.h File Reference

Header file for logger class.

```
#include "spdlog/spdlog.h"
#include "spdlog/sinks/basic_file_sink.h"
#include <memory>
```

Include dependency graph for log.h:



Classes

- class [Game::Log](#)
Logger class.

Macros

- `#define GAME_TRACE(...) ::Game::Log::GetLogger()->trace(__VA_ARGS__)`
- `#define GAME_INFO(...) ::Game::Log::GetLogger()->info(__VA_ARGS__)`
- `#define GAME_WARN(...) ::Game::Log::GetLogger()->warn(__VA_ARGS__)`
- `#define GAME_ERROR(...) ::Game::Log::GetLogger()->error(__VA_ARGS__)`
- `#define GAME_CRITICAL(...) ::Game::Log::GetLogger()->critical(__VA_ARGS__)`

7.3.1 Detailed Description

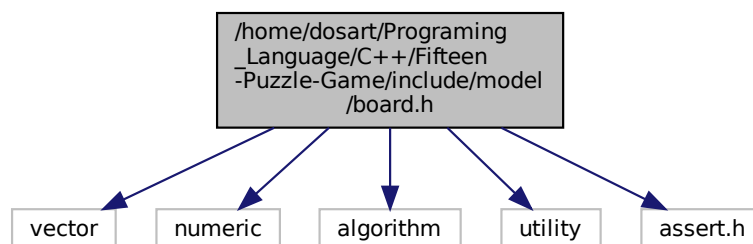
Header file for logger class.

7.4 /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/model/board.h File Reference

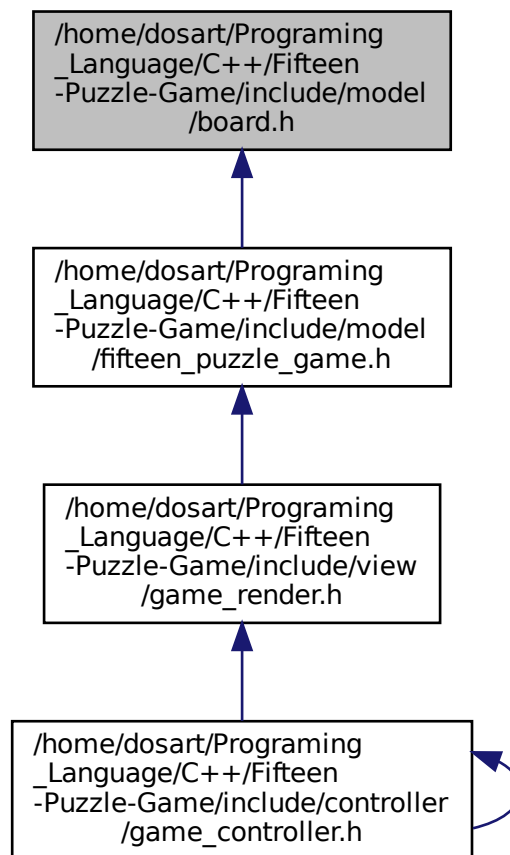
Header file for implementation game board for Fifteen Puzzle Game.

```
#include <vector>
#include <numeric>
#include <algorithm>
#include <utility>
#include <assert.h>
```

Include dependency graph for board.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [Game::Board](#)
Game board class.

Typedefs

- using **coordinate** = std::pair< int, int >

Enumerations

- enum [Game::Direction](#) { **Left** = 0, **Right** = 1, **Up** = 2, **Down** = 3 }
Keyboard arrow keys class.

7.4.1 Detailed Description

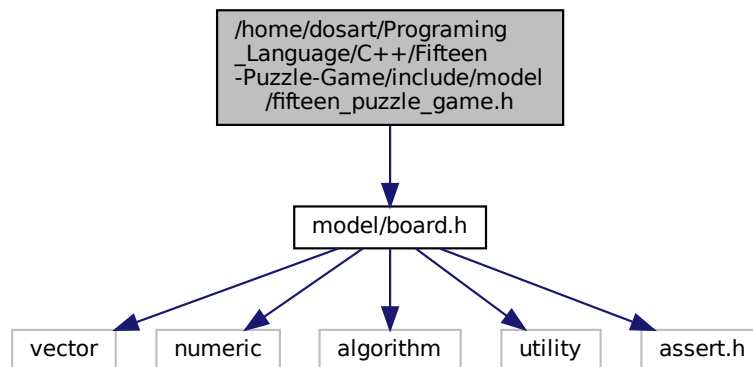
Header file for implementation game board for Fifteen Puzzle Game.

7.5 /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/model/fifteen_puzzle_game.h File Reference

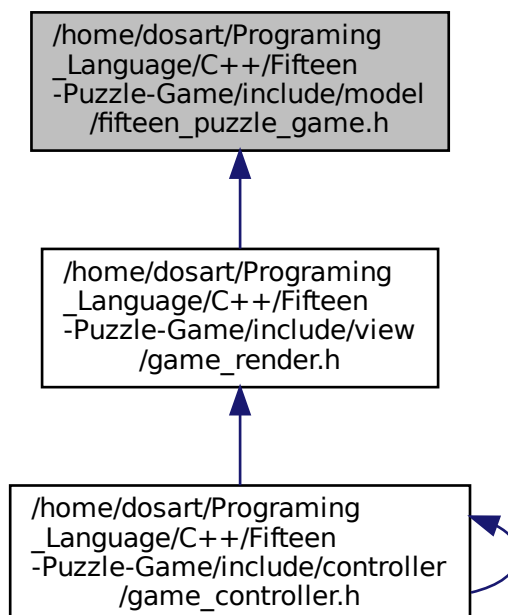
Header file for implementation game.

```
#include "model/board.h"
```

Include dependency graph for fifteen_puzzle_game.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [Game::FifteenPuzzleGame](#)

Game class.

7.5.1 Detailed Description

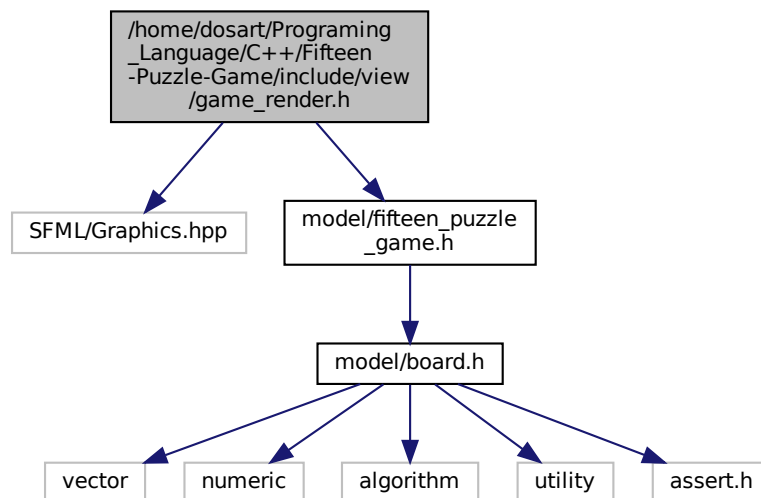
Header file for implementation game.

7.6 /home/dosart/Programing_Language/C++/Fifteen-Puzzle-Game/include/view/game_render.h File Reference

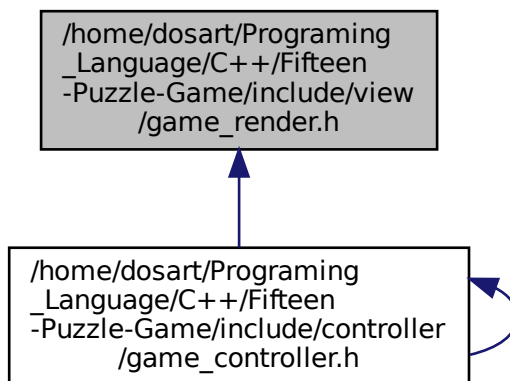
Header file for Simple class for game draw.

```
#include <SFML/Graphics.hpp>
#include "model/fifteen_puzzle_game.h"
```

Include dependency graph for game_render.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [Game::GameRender](#)
Class for drawing game.

7.6.1 Detailed Description

Header file for Simple class for game draw.

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