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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

Flow 10
    Exponencial 7
    Logistical 13
Model 15
System 19

Chapter 2

Class Index

2.1 Class List

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

Exponencial 7
Flow 10
Logistical 13
Model 15
System 19

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

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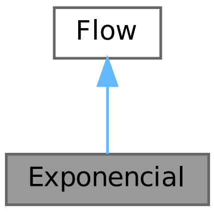
Chapter 4

Class Documentation

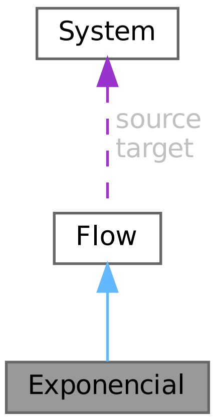
4.1 Exponencial Class Reference

```
#include <Exponencial.h>
```

Inheritance diagram for Exponencial:



Collaboration diagram for Exponencial:



Public Member Functions

- Exponencial (const std::string &name="NO_NAME", System ∗source=NULL, System ∗target=NULL)
- Exponencial (const Exponencial &other)
- virtual ∼Exponencial ()
- virtual double execute () override

Public Member Functions inherited from Flow

- std::string getName () const
- void setName (std::string &name)
- System ∗ getSource () const
- void setSource (System ∗source)
- System ∗ getTarget () const
- void setTarget (System ∗target)
- Flow & operator= (const Flow &other)
- bool operator== (const Flow &other) const

Additional Inherited Members

Protected Attributes inherited from Flow

- std::string name
- System ∗ source
- System ∗ target

4.1.1 Constructor & Destructor Documentation

4.1.1.1 Exponencial() [1/2]

```
Exponencial::Exponencial (
            const std::string & name = "NO_NAME",
            System * source = NULL,
            System * target = NULL )
{
    this->name = name;
    this->source = source;
    this->target = target;
}
```

4.1.1.2 Exponencial() [2/2]

```
Exponencial::Exponencial (
            const Exponencial & other )
{
    this->name = other.name;
    this->source = other.source;
    this->target = other.target;
}
```

4.1.1.3 ∼Exponencial()

```
Exponencial::∼Exponencial ( ) [virtual]
{}
```

4.1.2 Member Function Documentation

4.1.2.1 execute()

```
double Exponencial::execute ( ) [override], [virtual]
```

Implements Flow.

```
{
    return getSource()->getValue() * 0.01;
}
```

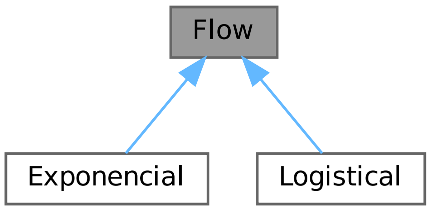
The documentation for this class was generated from the following files:

- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_↩ tests/src/Exponencial.h
- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_↩ tests/src/Exponencial.cpp

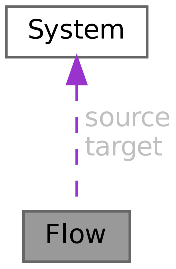
4.2 Flow Class Reference

`#include <Flow.h>`

Inheritance diagram for Flow:



Collaboration diagram for Flow:



Public Member Functions

- std::string getName () const
- void setName (std::string &name)
- System ∗ getSource () const
- void setSource (System ∗source)
- System ∗ getTarget () const
- void setTarget (System ∗target)
- virtual double execute ()=0
- Flow & operator= (const Flow &other)
- bool operator== (const Flow &other) const

Protected Attributes

- std::string name
- System ∗ source
- System ∗ target

Friends

- std::ostream & operator<< (std::ostream &out, const Flow &obj)

4.2.1 Member Function Documentation

4.2.1.1 execute()

```
virtual double Flow::execute ( )  [pure virtual]
```

Implemented in Exponencial, and Logistical.

4.2.1.2 getName()

```
std::string Flow::getName ( ) const
{ return name; }
```

4.2.1.3 getSource()

```
System * Flow::getSource ( ) const
{ return source; }
```

4.2.1.4 getTarget()

```
System * Flow::getTarget ( ) const
{ return target; }
```

4.2.1.5 operator=()

```
Flow & Flow::operator= (
            const Flow & other )
                                            {
    if(other == *this) return *this;
    name = other.name;
    source = other.source;
    target = other.target;
    return *this;
}
```

4.2.1.6 operator==()

```
bool Flow::operator== (
            const Flow & other ) const
                                                  {
    return (name == other.name && source == other.source && target == other.target);
}
```

4.2.1.7 setName()

```
void Flow::setName (
            std::string & name )
{ this->name = name; }
```

4.2.1.8 setSource()

```
void Flow::setSource (
                System * source )
{ this->source = source; }
```

4.2.1.9 setTarget()

```
void Flow::setTarget (
                System * target )
{ this->target = target; }
```

4.2.2 Friends And Related Symbol Documentation

4.2.2.1 operator<<

```
std::ostream & operator<< (
                std::ostream & out,
                const Flow & obj )  [friend]
                                                        {
    out « "(Flow) Name: " « obj.name « " - "
        « obj.source->getName() « " -----> " « obj.target->getName();
    return out;
}
```

4.2.3 Member Data Documentation

4.2.3.1 name

```
std::string Flow::name  [protected]
```

4.2.3.2 source

```
System* Flow::source  [protected]
```

4.2.3.3 target

```
System* Flow::target  [protected]
```

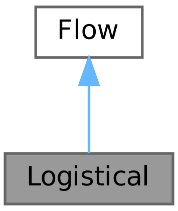
The documentation for this class was generated from the following files:

- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Flow.h
- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Flow.cpp

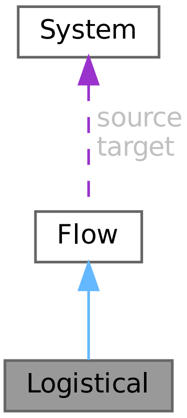
4.3 Logistical Class Reference

```
#include <Logistical.h>
```

Inheritance diagram for Logistical:



Collaboration diagram for Logistical:



Public Member Functions

- Logistical (const std::string &name="NO_NAME", System ∗source=NULL, System ∗target=NULL)
- Logistical (const Logistical &other)
- virtual ∼Logistical ()
- virtual double execute () override

Public Member Functions inherited from Flow

- std::string getName () const
- void setName (std::string &name)
- System ∗ getSource () const
- void setSource (System ∗source)
- System ∗ getTarget () const
- void setTarget (System ∗target)
- Flow & operator= (const Flow &other)
- bool operator== (const Flow &other) const

Additional Inherited Members

Protected Attributes inherited from Flow

- std::string name
- System ∗ source
- System ∗ target

4.3.1 Constructor & Destructor Documentation

4.3.1.1 Logistical() [1/2]

```
Logistical::Logistical (
            const std::string & name = "NO_NAME",
            System * source = NULL,
            System * target = NULL )
{
    this->name = name;
    this->source = source;
    this->target = target;
}
```

4.3.1.2 Logistical() [2/2]

```
Logistical::Logistical (
            const Logistical & other )
{
    this->name = other.name;
    this->source = other.source;
    this->target = other.target;
}
```

4.3.1.3 ∼Logistical()

```
Logistical::∼Logistical ( )  [virtual]
{}
```

4.3.2 Member Function Documentation

4.3.2.1 execute()

```
double Logistical::execute ( ) [override], [virtual]
```

Implements Flow.

```
{
    return 0.01 * getTarget()->getValue() * (1.0 - getTarget()->getValue() / 70.0);
}
```

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

- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_↩ tests/src/Logistical.h
- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_↩ tests/src/Logistical.cpp

4.4 Model Class Reference

```
#include <Model.h>
```

Public Member Functions

- Model (const std::string &name="NO_NAME", const int &startTime=0, const int &endTime=1)
- virtual ∼Model ()
- std::string getName () const
- void setName (const std::string &name)
- int getStartTime () const
- int getEndtTime () const
- void setStartTime (const int &startTime)
- void setEndTime (const int &endTime)
- void setTime (const int &startTime, const int &endTime)
- void add (System ∗system)
- void add (Flow ∗flow)
- bool rmv (const systemIterator &system)
- bool rmv (const flowIterator &flow)
- bool run ()
- bool operator== (const Model &other) const

Protected Attributes

- std::string name
- std::vector< System ∗ > systems
- std::vector< Flow ∗ > flows
- int startTime
- int endTime

Friends

- std::ostream & operator<< (std::ostream &out, const Model &obj)

4.4.1 Constructor & Destructor Documentation

4.4.1.1 Model()

```
Model::Model (
            const std::string & name = "NO_NAME",
            const int & startTime = 0,
            const int & endTime = 1 )
: name(name), startTime(startTime), endTime(endTime) {}
```

4.4.1.2 ∼Model()

```
Model::∼Model ( ) [virtual]
{systems.clear(); flows.clear();}
```

4.4.2 Member Function Documentation

4.4.2.1 add() [1/2]

```
void Model::add (
            Flow * flow )
{ flows.push_back(flow); }
```

4.4.2.2 add() [2/2]

```
void Model::add (
            System * system )
{ systems.push_back(system); }
```

4.4.2.3 getEndtTime()

```
int Model::getEndtTime ( ) const
{ return endTime; }
```

4.4.2.4 getName()

```
std::string Model::getName ( ) const
{ return name; }
```

4.4.2.5 getStartTime()

```
int Model::getStartTime ( ) const
{ return startTime; }
```

4.4.2.6 operator==()

```
bool Model::operator== (
            const Model & other ) const
                                    {
    return (name == other.name && systems == other.systems && flows == other.flows && startTime ==
 other.startTime && endTime == other.endTime);
}
```

4.4.2.7 rmv() [1/2]

```
bool Model::rmv (
            const flowIterator & flow )
{ return (flows.erase(flow) != flows.end()); }
```

4.4.2.8 rmv() [2/2]

```
bool Model::rmv (
            const systemIterator & system )
{ return (systems.erase(system) != systems.end()); }
```

4.4.2.9 run()

```
bool Model::run ( )
                {
    std::vector<double> flowValue;
    flowIterator f;
    std::vector<double>::iterator d;
    double calcValue;

    for(int i = startTime; i < endTime; i++){

        f = flows.begin();

        while (f != flows.end()) {
            flowValue.push_back((*f)->execute());
            f++;
        }

        f = flows.begin();
        d = flowValue.begin();

        while(f != flows.end()){
            calcValue = (*f)->getSource()->getValue() - (*d);
            (*f)->getSource()->setValue(calcValue);
            calcValue = (*f)->getTarget()->getValue() + (*d);
            (*f)->getTarget()->setValue(calcValue);
            f++;
            d++;
        }

        flowValue.clear();

    }

    return true;
}
```

4.4.2.10 setEndTime()

```
void Model::setEndTime (
            const int & endTime )
{ this->endTime = endTime; }
```

4.4.2.11 setName()

```
void Model::setName (
              const std::string & name )
{ this->name = name; }
```

4.4.2.12 setStartTime()

```
void Model::setStartTime (
              const int & startTime )
{ this->startTime = startTime; }
```

4.4.2.13 setTime()

```
void Model::setTime (
              const int & startTime,
              const int & endTime )
{ this->startTime = startTime; this->endTime = endTime; }
```

4.4.3 Friends And Related Symbol Documentation

4.4.3.1 operator<<

```
std::ostream & operator<< (
              std::ostream & out,
              const Model & obj )  [friend]
                                                      {
    out « "Name: " « obj.name « ";\n"
        « "Systems:\n";
    for (auto item : obj.systems) out « item « "\n";
    out « "Flows:\n";
    for (auto item : obj.flows) out « item « "\n";
    return out;
}
```

4.4.4 Member Data Documentation

4.4.4.1 endTime

```
int Model::endTime  [protected]
```

4.4.4.2 flows

```
std::vector<Flow*> Model::flows  [protected]
```

4.4.4.3 name

```
std::string Model::name  [protected]
```

4.4.4.4 startTime

```
int Model::startTime  [protected]
```

4.4.4.5 systems

```
std::vector<System*> Model::systems  [protected]
```

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

- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Model.h
- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Model.cpp

4.5 System Class Reference

```
#include <System.h>
```

Public Member Functions

- System (const std::string &name="NO_NAME", const double &value=0.0)
- System (const System &other)
- virtual ∼System ()
- std::string getName () const
- void setName (const std::string &name)
- double getValue () const
- void setValue (const double &value)
- System & operator= (const System &other)
- bool operator== (const System &other) const

Protected Attributes

- std::string name
- double value

Friends

- std::ostream & operator<< (std::ostream &out, const System &obj)

4.5.1 Constructor & Destructor Documentation

4.5.1.1 System() [1/2]

```
System::System (
            const std::string & name = "NO_NAME",
            const double & value = 0.0 )
00004 : name(name), value(value) {}
```

4.5.1.2 System() [2/2]

```
System::System (
                const System & other )
: name(other.name), value(other.value) {}
```

4.5.1.3 ∼System()

```
System::∼System ( )  [virtual]
{};
```

4.5.2 Member Function Documentation

4.5.2.1 getName()

```
std::string System::getName ( ) const
{ return name; }
```

4.5.2.2 getValue()

```
double System::getValue ( ) const
{ return value; }
```

4.5.2.3 operator=()

```
System & System::operator= (
                const System & other )
                                             {
    if(other == *this) return *this;
    name = other.name;
    value = other.value;
    return *this;
}
```

4.5.2.4 operator==()

```
bool System::operator== (
                const System & other ) const
                                                 {
    return (name == other.name && value == other.value);
    // Compare todos os membros para verificar igualdade
}
```

4.5.2.5 setName()

```
void System::setName (
                const std::string & name )
{ this->name = name; }
```

4.5.2.6 setValue()

```
void System::setValue (
             const double & value )
{ this->value = value; }
```

4.5.3 Friends And Related Symbol Documentation

4.5.3.1 operator<<

```
std::ostream & operator<< (
             std::ostream & out,
             const System & obj )  [friend]
                                                        {
    out « "(System)(Name: " « obj.name « ", Value: " « obj.value « ")";
    return out;
}
```

4.5.4 Member Data Documentation

4.5.4.1 name

```
std::string System::name  [protected]
```

4.5.4.2 value

```
double System::value  [protected]
```

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

- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/System.h
- /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/System.cpp

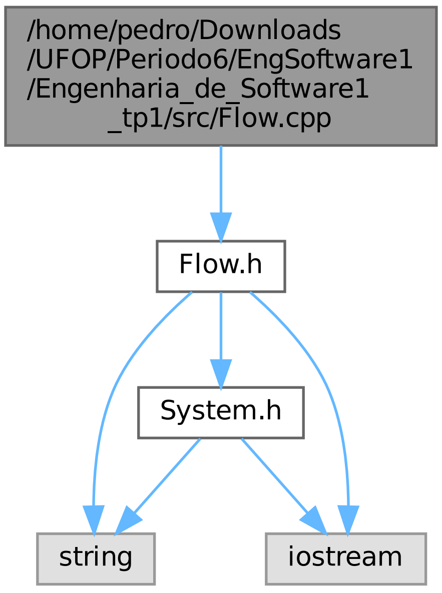
Chapter 5

File Documentation

5.1 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia↩ _de_Software1_tp1/src/Flow.cpp File Reference

```
#include "Flow.h"
```

Include dependency graph for Flow.cpp:



Functions

- std::ostream & operator<< (std::ostream &out, const Flow &obj)

5.1.1 Function Documentation

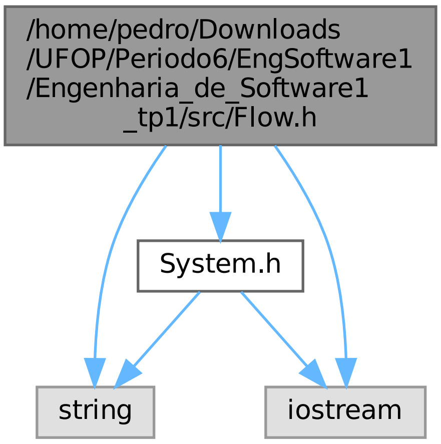
5.1.1.1 operator<<()

```
std::ostream & operator<< (
            std::ostream & out,
            const Flow & obj )
                                                  {
    out « "(Flow) Name: " « obj.name « " - "
        « obj.source->getName() « " -----> " « obj.target->getName();
    return out;
}
```

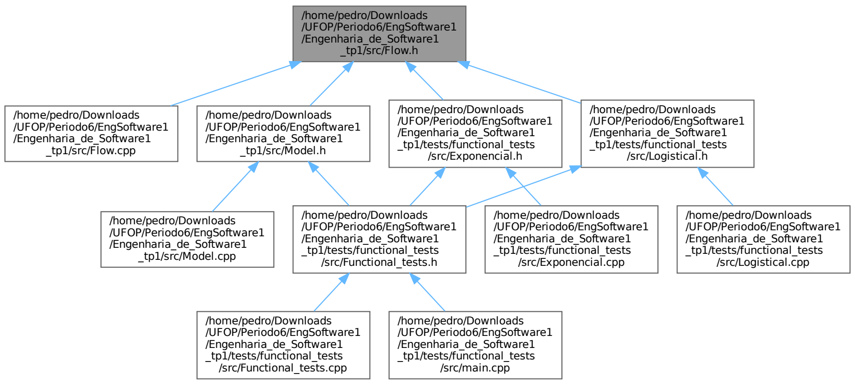
5.2 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Flow.h File Reference

```
#include "System.h"
#include <string>
#include <iostream>
```

Include dependency graph for Flow.h:



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


/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Flow.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Flow.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Model.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Exponencial.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Logistical.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Model.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Functional_tests.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Exponencial.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Logistical.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Functional_tests.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/main.cpp

Classes

- class Flow

5.3 Flow.h

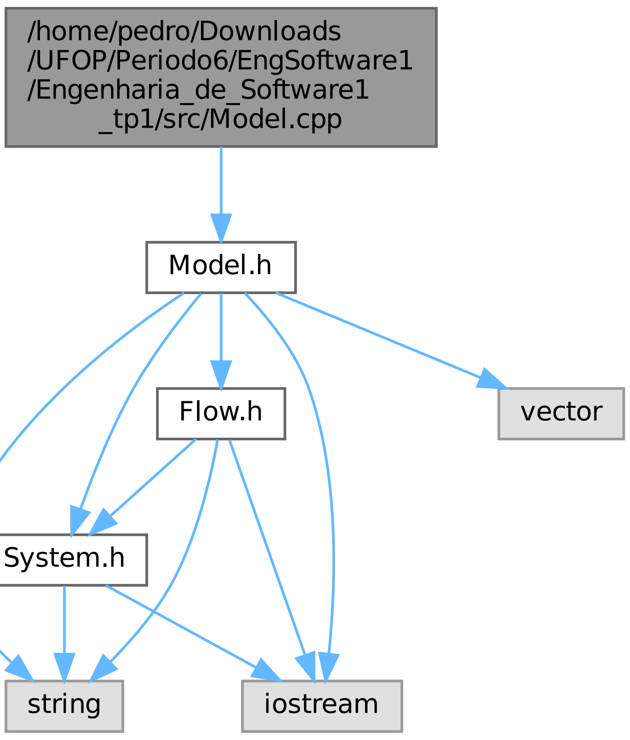
Go to the documentation of this file.

```
#ifndef FLOW_H
#define FLOW_H

#include "System.h"
#include <string>
#include <iostream>


class Flow{
    protected:
        std::string name;
        System* source;
        System* target;

    public:
        //Geters e seters
        //Name
        std::string getName() const;
        void setName(std::string& name);
        //Source
        System* getSource() const;
        void setSource(System* source);
        //Target
        System* getTarget() const;
        void setTarget(System* target);

        //Metodos
        virtual double execute() = 0;

        //Sobrecarga de operadores
        Flow& operator=(const Flow& other); // Operador de atribuição
        bool operator==(const Flow& other) const; // Operador de igualdade
        friend std::ostream& operator«(std::ostream& out, const Flow& obj); //Operador de saida
};


#endif
```

5.4 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia←_de_Software1_tp1/src/Model.cpp File Reference

`#include "Model.h"`

Include dependency graph for Model.cpp:



Functions

- std::ostream & operator<< (std::ostream &out, const Model &obj)

5.4.1 Function Documentation

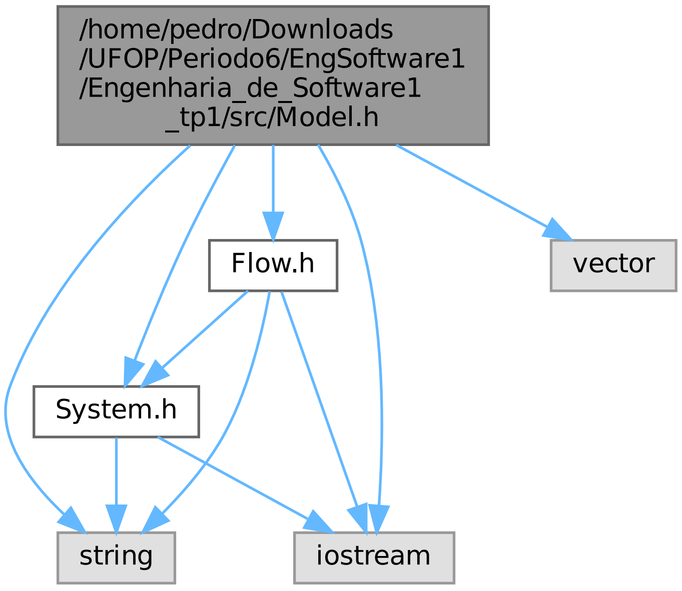
5.4.1.1 operator<<()

```
std::ostream & operator<< (
            std::ostream & out,
            const Model & obj )
{
    out « "Name: " « obj.name « ";\n"
        « "Systems:\n";
    for (auto item : obj.systems) out « item « "\n";
    out « "Flows:\n";
    for (auto item : obj.flows) out « item « "\n";
    return out;
}
```

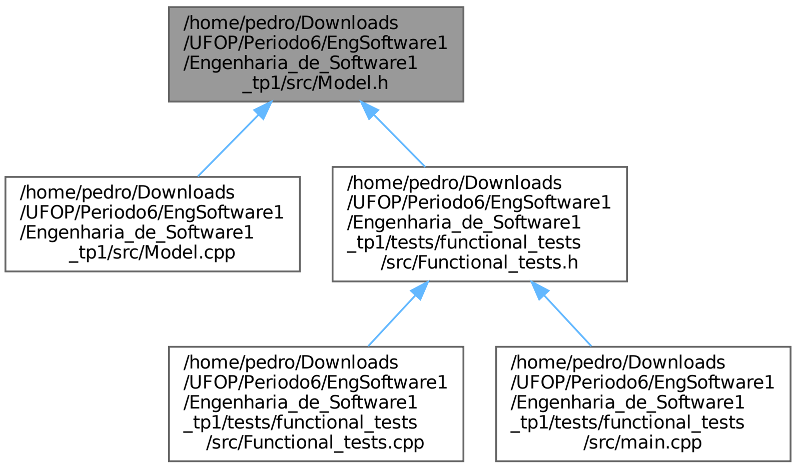
5.5 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia↩ _de_Software1_tp1/src/Model.h File Reference

```
#include "System.h"
#include "Flow.h"
#include <string>
#include <iostream>
#include <vector>
```

Include dependency graph for Model.h:



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


/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Model.h
/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Model.cpp
/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/Functional_tests.h
/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/Functional_tests.cpp
/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/main.cpp

Classes

- class Model

Typedefs

- typedef std::vector< System ∗ >::iterator systemIterator
- typedef std::vector< Flow ∗ >::iterator flowIterator

5.5.1 Typedef Documentation

5.5.1.1 flowIterator

```
typedef std::vector<Flow*>::iterator flowIterator
```

5.5.1.2 systemIterator

```
typedef std::vector<System*>::iterator systemIterator
```

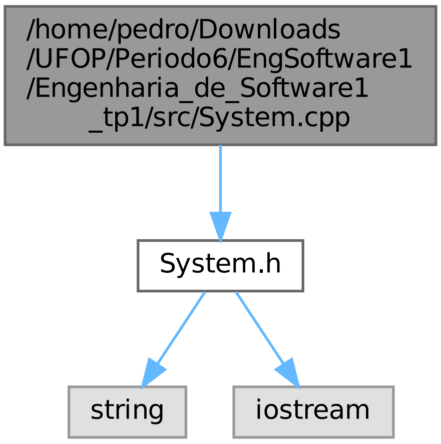
5.6 Model.h

Go to the documentation of this file.

```
#ifndef MODEL_H
#define MODEL_H

#include "System.h"
#include "Flow.h"
#include <string>
#include <iostream>
#include <vector>

typedef std::vector<System*>::iterator systemIterator;
typedef std::vector<Flow*>::iterator flowIterator;

class Model{
    protected:
        std::string name;
        std::vector<System*> systems;
        std::vector<Flow*> flows;
        int startTime;
        int endTime;

    private:
        Model& operator=(const Model& other); // Operador de atribuição
        Model(const Model& other); //Copia outro flow

    public:
        //Contructors
        Model(const std::string& name = "NO_NAME", const int& startTime = 0, const int& endTime = 1);

        //Destrutor
        virtual ~Model();

        //Geters e seters
        //Name
        std::string getName() const;
        void setName(const std::string& name);
        //Time
        int getStartTime() const;
        int getEndtTime() const;
        void setStartTime(const int& startTime);
        void setEndTime(const int& endTime);
        void setTime(const int& startTime, const int& endTime);

        //Metodos
        //add
        void add(System* system);
        void add(Flow* flow);
        //remove
        bool rmv(const systemIterator& system);
        bool rmv(const flowIterator& flow);
        //Others
        bool run();

        bool operator==(const Model& other) const; // Operador de igualdade
        friend std::ostream& operator<<(std::ostream& out, const Model& obj); //Operador de saida
};

#endif
```

5.7 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia↩ _de_Software1_tp1/src/System.cpp File Reference

```
#include "System.h"
```
Include dependency graph for System.cpp:


/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/System.cpp
System.h
string
iostream

Functions

- std::ostream & operator<< (std::ostream &out, const System &obj)

5.7.1 Function Documentation

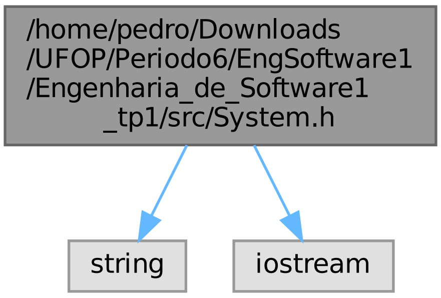
5.7.1.1 operator<<()

```
std::ostream & operator<< (
            std::ostream & out,
            const System & obj )
                                                          {
    out « "(System)(Name: " « obj.name « ", Value: " « obj.value « ")";
    return out;
}
```

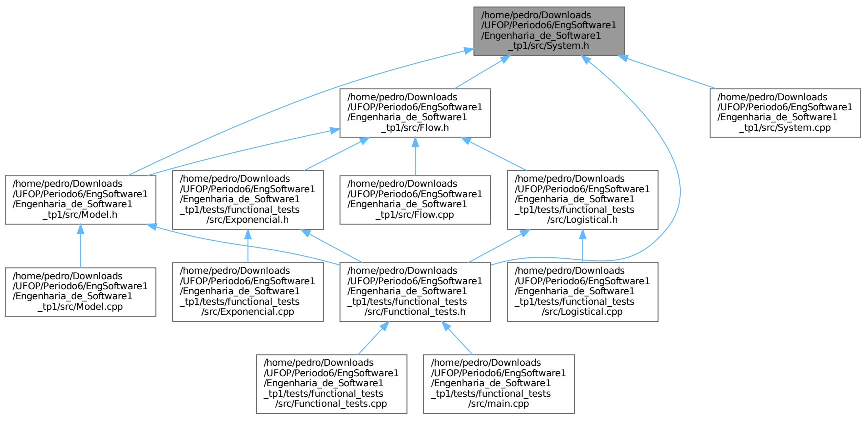
5.8 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia↩ _de_Software1_tp1/src/System.h File Reference

```
#include <string>
#include <iostream>
```

Include dependency graph for System.h:



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


/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/System.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Flow.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/System.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Model.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Exponencial.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Flow.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Logistical.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/src/Model.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Exponencial.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Functional_tests.h
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Logistical.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Functional_tests.cpp
/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/main.cpp

Classes

- class System

5.9 System.h

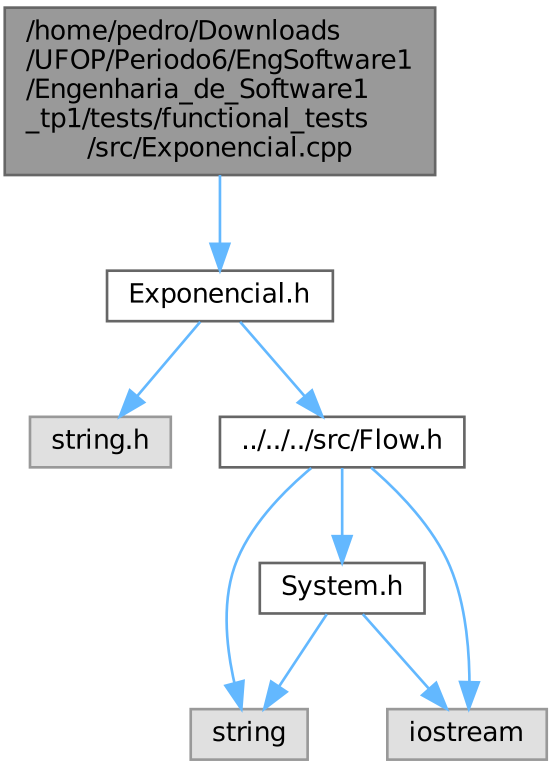
Go to the documentation of this file.

```
#ifndef SYSTEM_H
#define SYSTEM_H

//Bibliotecas
#include <string>
#include <iostream>

class System{
    protected:
        std::string name;
        double value;

    public:
        //Contructors
        System(const std::string& name = "NO_NAME", const double& value = 0.0);
        System(const System& other); //Copia outro system

        //Destructors
        virtual ~System();

        //Geters e seters
        //Nome
        std::string getName() const;
        void setName(const std::string& name);
        //Value
        double getValue() const;
        void setValue(const double& value);

        //Sobrecarga de operadores
        System& operator=(const System& other);  // Operador de atribuição
        bool operator==(const System& other) const;  // Operador de igualdade
        friend std::ostream& operator«(std::ostream& out, const System& obj); //Operador de saida
};

#endif
```

5.10 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↩ Engenharia_de_Software1_tp1/tests/functional_tests/src/↩ Exponencial.cpp File Reference

`#include "Exponencial.h"`

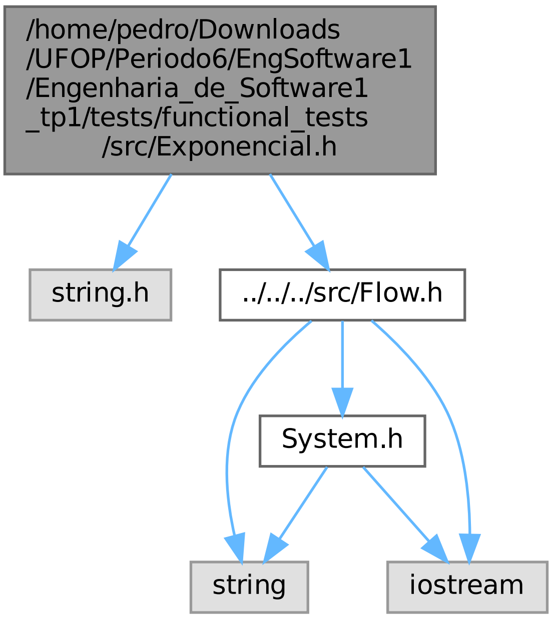
Include dependency graph for Exponencial.cpp:



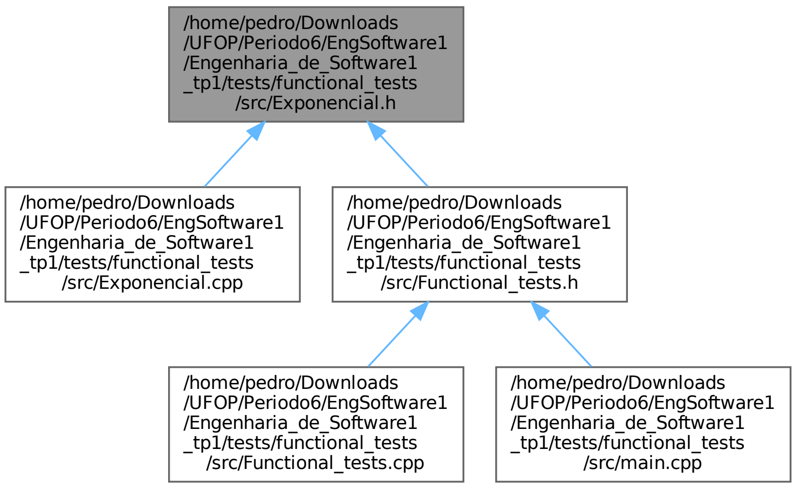
5.11 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↩ Engenharia_de_Software1_tp1/tests/functional_tests/src/↩ Exponencial.h File Reference

```
#include <string.h>
#include "../../../src/Flow.h"
```

Include dependency graph for Exponencial.h:



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



Classes

- class Exponencial

5.12 Exponencial.h

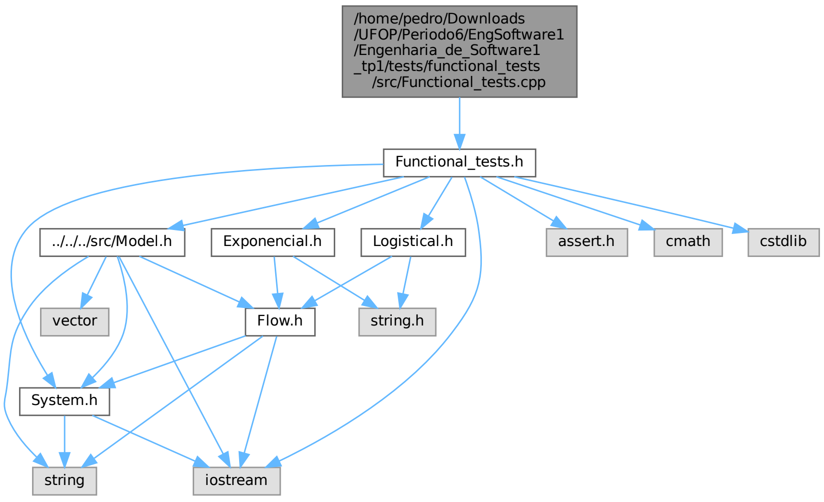
Go to the documentation of this file.

```
#ifndef EXPONENCIAL_DEF
#define EXPONENCIAL_DEF

#include <string.h>
#include "../../../src/Flow.h"
class Exponencial : public Flow{
    public:
        //Contructor
        Exponencial(const std::string& name = "NO_NAME", System* source = NULL, System* target =
      NULL);
        Exponencial(const Exponencial& other);
        //Destructor
        virtual ~Exponencial();

        //Metodos
        virtual double execute() override;
};

#endif
```

5.13 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↩ Engenharia_de_Software1_tp1/tests/functional_tests/src/↩ Functional_tests.cpp File Reference

```
#include "Functional_tests.h"
```

Include dependency graph for Functional_tests.cpp:



Functions

- void exponencial_test_run ()
- void logistical_test_run ()
- void Complex_test_run ()

5.13.1 Function Documentation

5.13.1.1 Complex_test_run()

```
void Complex_test_run ( )
                    {
    std::cout « "Complex funcional test" « std::endl;

    Model* model = new Model("Model", 0, 100);
    System* q1 = new System("q1", 100.0);
    System* q2 = new System("q2", 0.0);
    System* q3 = new System("q3", 100.0);
    System* q4 = new System("q4", 0.0);
    System* q5 = new System("q5", 0.0);
    Exponencial* f = new Exponencial("f", q1, q2);
    Exponencial* t = new Exponencial("t", q2, q3);
    Exponencial* u = new Exponencial("u", q3, q4);
    Exponencial* v = new Exponencial("v", q4, q1);
    Exponencial* g = new Exponencial("g", q1, q3);
    Exponencial* r = new Exponencial("r", q2, q5);

    model->add(q1);
    model->add(q2);
    model->add(q3);
    model->add(q4);
    model->add(q5);
    model->add(f);
    model->add(t);
    model->add(u);
    model->add(v);
    model->add(g);
    model->add(r);

    model->run();

    assert(fabs((round((q1->getValue() * 10000)) - 10000 * 31.8513)) < 0.0001);
    assert(fabs((round((q2->getValue() * 10000)) - 10000 * 18.4003)) < 0.0001);
    assert(fabs((round((q3->getValue() * 10000)) - 10000 * 77.1143)) < 0.0001);
    assert(fabs((round((q4->getValue() * 10000)) - 10000 * 56.1728)) < 0.0001);
    assert(fabs((round((q5->getValue() * 10000)) - 10000 * 16.4612)) < 0.0001);

    delete model;
    delete q1;
    delete q2;
    delete q3;
    delete q4;
    delete q5;
    delete f;
    delete t;
    delete u;
    delete v;
    delete g;
    delete r;

    std::cout « "Passed Complex funcional test" « std::endl;
}
```

5.13.1.2 exponencial_test_run()

void exponencial_test_run ( )

```
                             {
    std::cout « "Exponencial funcional test" « std::endl;

    System* pop1 = new System("pop1", 100.0);
    System* pop2 = new System("pop2", 0.0);
    Exponencial* exp = new Exponencial("exp", pop1, pop2);
    Model* exponencial = new Model("Exponencial", 0, 100);

    //Add os systems e flows ao modelo
    exponencial->add(pop1);
    exponencial->add(pop2);
    exponencial->add(exp);

    //Roda o modelo
    exponencial->run();

    assert(fabs((round(pop1->getValue() * 10000) - 10000 * 36.6032)) < 0.0001);
    assert(fabs((round(pop2->getValue() * 10000) - 10000 * 63.3968)) < 0.0001);

    delete(exponencial);
    delete(exp);
    delete(pop1);
    delete(pop2);

    std::cout « "Passed exponencial funcional test" « std::endl;
}
```

5.13.1.3 logistical_test_run()

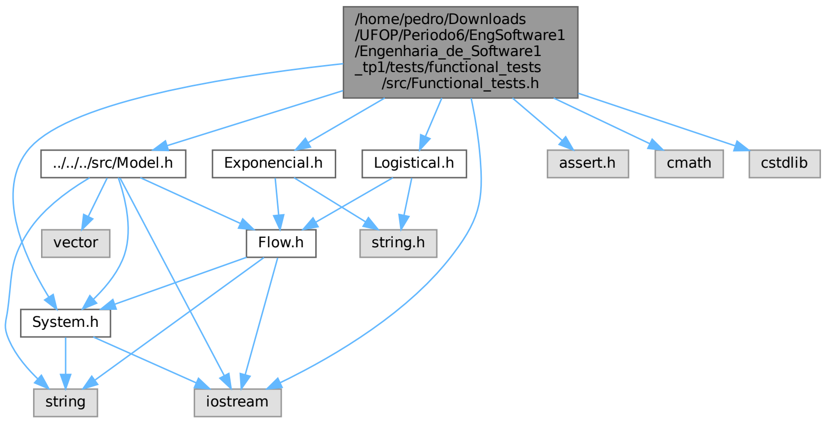
void logistical_test_run ( )

```
                            {
    std::cout « "Logistical funcional test" « std::endl;

    System* p1 = new System("p1", 100.0);
    System* p2 = new System("p2", 10.0);
    Logistical* log = new Logistical("log", p1, p2);
    Model* logistical = new Model("Logistical", 0, 100);

    //Add os systems e flows ao modelo
    logistical->add(p1);
    logistical->add(p2);
    logistical->add(log);

    //Roda o modelo
    logistical->run();

    assert(fabs(round(p1->getValue() * 10000) - 10000 * 88.2167) < 0.0001);
    assert(fabs(round(p2->getValue() * 10000) - 10000 * 21.7833) < 0.0001);

    delete(logistical);
    delete(log);
    delete(p1);
    delete(p2);
}
```

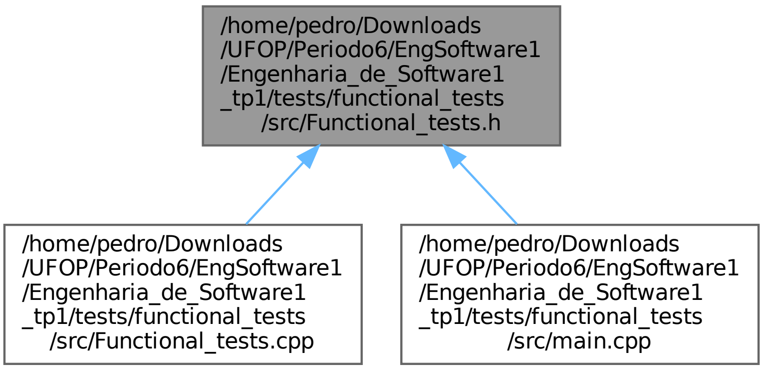
5.14 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↩ Engenharia_de_Software1_tp1/tests/functional_tests/src/↩ Functional_tests.h File Reference

```
#include "../../../src/Model.h"
#include "../../../src/System.h"
#include "Exponencial.h"
#include "Logistical.h"
#include <assert.h>
#include <cmath>
#include <iostream>
#include <cstdlib>
```

Include dependency graph for Functional_tests.h:



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


/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/Functional_tests.h
/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/Functional_tests.cpp
/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/main.cpp

Functions

- void exponencial_test_run ()
- void logistical_test_run ()
- void Complex_test_run ()

5.14.1 Function Documentation

5.14.1.1 Complex_test_run()

```
void Complex_test_run ( )
                          {
    std::cout « "Complex funcional test" « std::endl;

    Model* model = new Model("Model", 0, 100);
    System* q1 = new System("q1", 100.0);
    System* q2 = new System("q2", 0.0);
    System* q3 = new System("q3", 100.0);
    System* q4 = new System("q4", 0.0);
    System* q5 = new System("q5", 0.0);
    Exponencial* f = new Exponencial("f", q1, q2);
    Exponencial* t = new Exponencial("t", q2, q3);
    Exponencial* u = new Exponencial("u", q3, q4);
    Exponencial* v = new Exponencial("v", q4, q1);
    Exponencial* g = new Exponencial("g", q1, q3);
    Exponencial* r = new Exponencial("r", q2, q5);

    model->add(q1);
    model->add(q2);
    model->add(q3);
    model->add(q4);
    model->add(q5);
    model->add(f);
    model->add(t);
    model->add(u);
    model->add(v);
    model->add(g);
    model->add(r);

    model->run();

    assert(fabs((round((q1->getValue() * 10000)) - 10000 * 31.8513)) < 0.0001);
    assert(fabs((round((q2->getValue() * 10000)) - 10000 * 18.4003)) < 0.0001);
    assert(fabs((round((q3->getValue() * 10000)) - 10000 * 77.1143)) < 0.0001);
    assert(fabs((round((q4->getValue() * 10000)) - 10000 * 56.1728)) < 0.0001);
    assert(fabs((round((q5->getValue() * 10000)) - 10000 * 16.4612)) < 0.0001);

    delete model;
    delete q1;
    delete q2;
    delete q3;
    delete q4;
    delete q5;
    delete f;
    delete t;
    delete u;
    delete v;
    delete g;
    delete r;

    std::cout « "Passed Complex funcional test" « std::endl;
}
```

5.14.1.2 exponencial_test_run()

void exponencial_test_run ( )

```
                            {
    std::cout « "Exponencial funcional test" « std::endl;

    System* pop1 = new System("pop1", 100.0);
    System* pop2 = new System("pop2", 0.0);
    Exponencial* exp = new Exponencial("exp", pop1, pop2);
    Model* exponencial = new Model("Exponencial", 0, 100);

    //Add os systems e flows ao modelo
    exponencial->add(pop1);
    exponencial->add(pop2);
    exponencial->add(exp);

    //Roda o modelo
    exponencial->run();

    assert(fabs((round(pop1->getValue() * 10000) - 10000 * 36.6032)) < 0.0001);
    assert(fabs((round(pop2->getValue() * 10000) - 10000 * 63.3968)) < 0.0001);

    delete(exponencial);
    delete(exp);
    delete(pop1);
    delete(pop2);

    std::cout « "Passed exponencial funcional test" « std::endl;
}
```

5.14.1.3 logistical_test_run()

void logistical_test_run ( )

```
                           {
    std::cout « "Logistical funcional test" « std::endl;

    System* p1 = new System("p1", 100.0);
    System* p2 = new System("p2", 10.0);
    Logistical* log = new Logistical("log", p1, p2);
    Model* logistical = new Model("Logistical", 0, 100);

    //Add os systems e flows ao modelo
    logistical->add(p1);
    logistical->add(p2);
    logistical->add(log);

    //Roda o modelo
    logistical->run();

    assert(fabs(round(p1->getValue() * 10000) - 10000 * 88.2167) < 0.0001);
    assert(fabs(round(p2->getValue() * 10000) - 10000 * 21.7833) < 0.0001);

    delete(logistical);
    delete(log);
    delete(p1);
    delete(p2);
}
```

5.15 Functional_tests.h

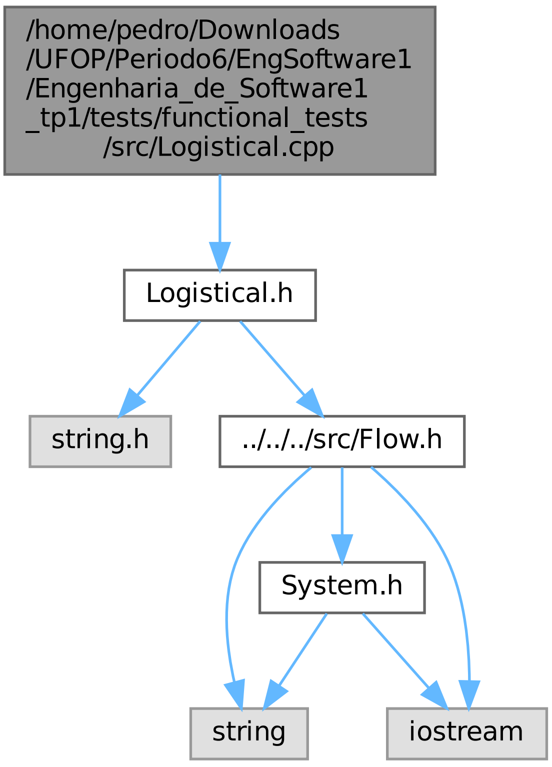
Go to the documentation of this file.

```
#ifndef FUNCTIONAL_TESTS_H
#define FUNCTIONAL_TESTS_H

#include "../../../src/Model.h"
#include "../../../src/System.h"
#include "Exponencial.h"
#include "Logistical.h"
#include <assert.h>
#include <cmath>
#include <iostream>
#include <cstdlib>

void exponencial_test_run();
void logistical_test_run();
void Complex_test_run();

#endif
```

5.16 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↩ Engenharia_de_Software1_tp1/tests/functional_tests/src/↩ Logistical.cpp File Reference

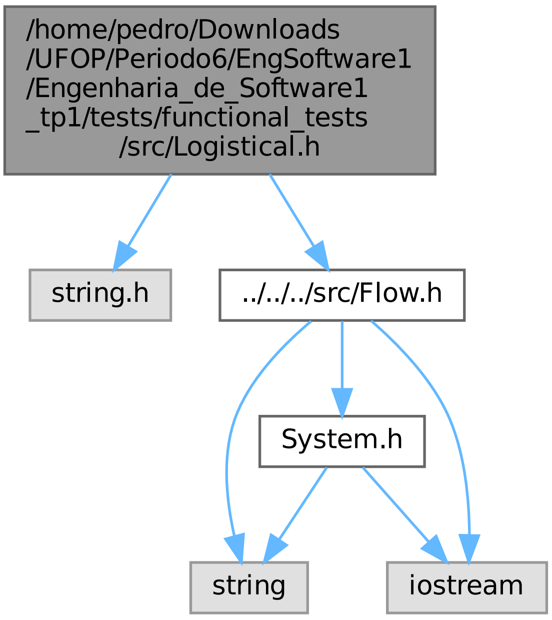
```
#include "Logistical.h"
```

Include dependency graph for Logistical.cpp:

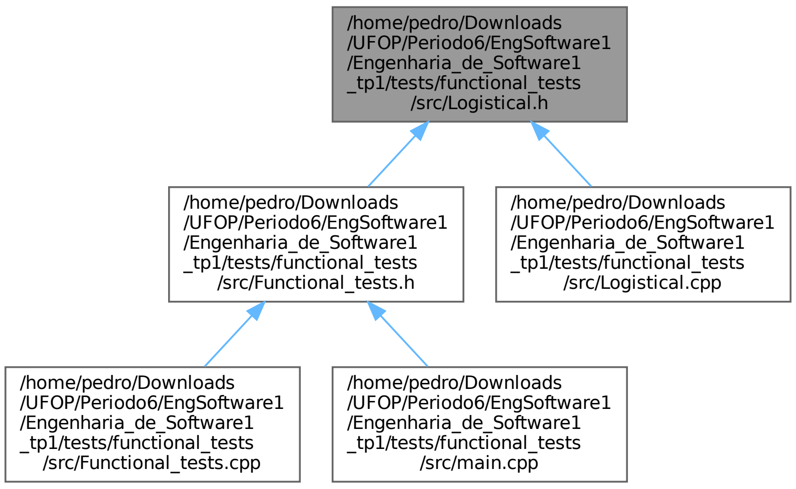

/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Logistical.cpp
Logistical.h
string.h
../../../src/Flow.h
System.h
string
iostream

5.17 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↩ Engenharia_de_Software1_tp1/tests/functional_tests/src/↩ Logistical.h File Reference

```
#include <string.h>
#include "../../../src/Flow.h"
```
Include dependency graph for Logistical.h:



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


/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/Logistical.h
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/home/pedro/Downloads /UFOP/Periodo6/EngSoftware1 /Engenharia_de_Software1 _tp1/tests/functional_tests /src/main.cpp

Classes

- class Logistical

5.18 Logistical.h

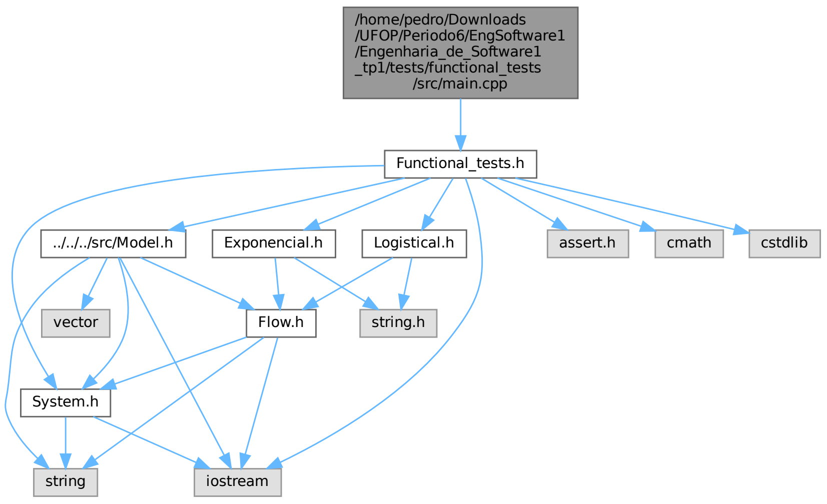
Go to the documentation of this file.

```
#ifndef LOGISTICAL_DEF
#define LOGISTICAL_DEF

#include <string.h>
#include "../../../src/Flow.h"

class Logistical : public Flow{
    public:
        //Contructor
        Logistical(const std::string& name = "NO_NAME", System* source = NULL, System* target = NULL);
        Logistical(const Logistical& other);

        //Destructor
        virtual ~Logistical();

        //Metodos
        virtual double execute() override;
};

#endif
```

5.19 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↩ Engenharia_de_Software1_tp1/tests/functional_tests/src/main.cpp File Reference

```
#include "Functional_tests.h"
```

Include dependency graph for main.cpp:



Functions

- int main ()

5.19.1 Function Documentation

5.19.1.1 main()

```
int main ( )
        {
    exponencial_test_run();
    logistical_test_run();
    Complex_test_run();
    return 0;
}
```

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