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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

| | |
|--------------------------|----|
| Flow | ?? |
| FlowIMP | ?? |
| Exponencial | ?? |
| Flow_unit_test | ?? |
| Logistical | ?? |
| Model | ?? |
| ModelIMP | ?? |
| System | ?? |
| SystemIMP | ?? |

Chapter 2

Class Index

2.1 Class List

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

| | | |
|--------------------------------|----|----|
| Exponencial | .. | ?? |
| Flow | .. | ?? |
| Flow_unit_test | .. | ?? |
| FlowIMP | .. | ?? |
| Logistical | .. | ?? |
| Model | .. | ?? |
| ModelIMP | .. | ?? |
| System | .. | ?? |
| SystemIMP | .. | ?? |

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

| | |
|---|----|
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Flow.h . . . | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/FlowIMP.cpp | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/FlowIMP.h . | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Model.h . . | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/ModelIMP.cpp | |
| ?? | |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/ModelIMP.h | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/System.h . | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/SystemIMP.cpp | |
| ?? | |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/SystemIMP.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/Exponencial.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/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/Logistical.h | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional↵ _tests/src/main.cpp | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit↵ tests/src/main.cpp | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit↵ tests/src/unit_Flow.cpp | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit↵ tests/src/unit_Flow.h | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit↵ tests/src/unit_Model.cpp | ?? |
| /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit↵ tests/src/unit_Model.h | ?? |

/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_↵
tests/src/unit_System.cpp ??
/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_↵
tests/src/unit_System.h ??

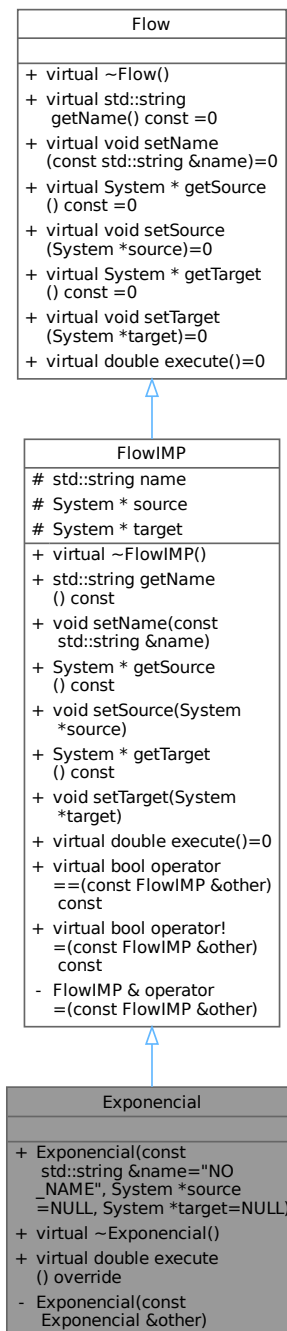
Chapter 4

Class Documentation

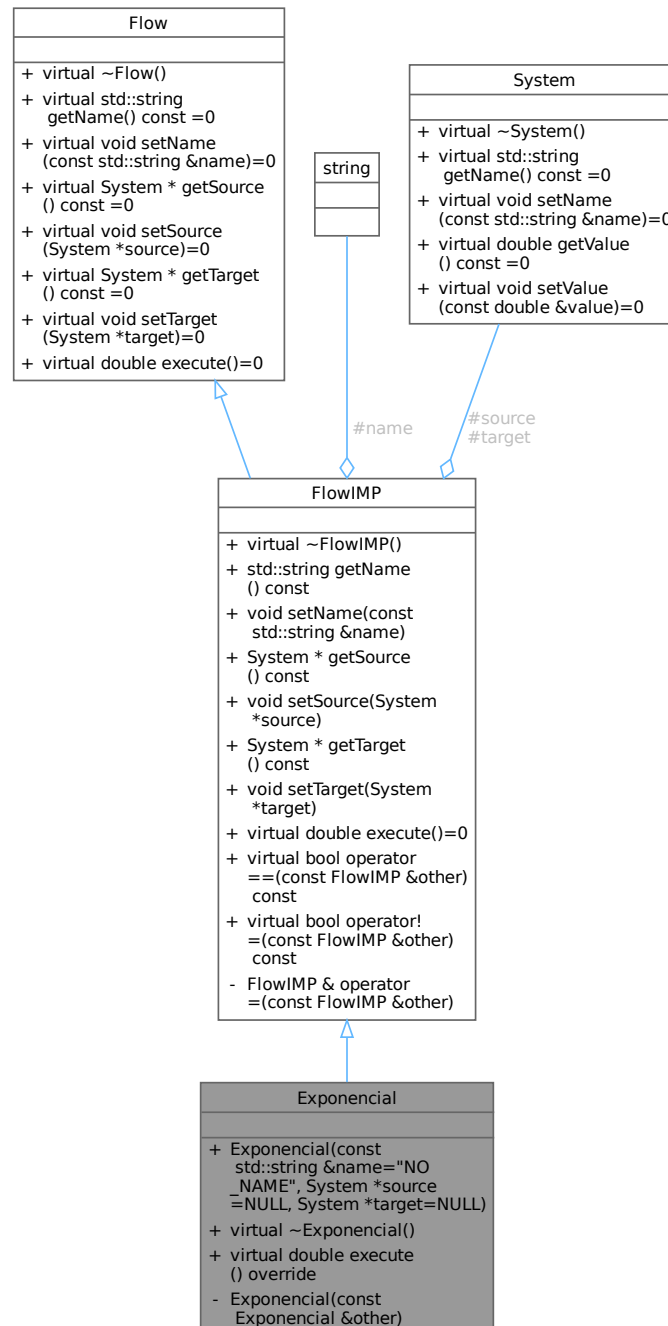
4.1 Exponencial Class Reference

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

Inheritance diagram for Exponential:



Collaboration diagram for Exponential:



Public Member Functions

- **Exponential** (const std::string &name="NO_NAME", System *source=NULL, System *target=NULL)
Construct a new **Exponential** by name, source and target.
- virtual ~**Exponential** ()
This destructor is a virtual destructor of the Class.
- virtual double **execute** () override
Pure virtual method that will contain an equation that will be executed in the flow by the model.

Public Member Functions inherited from [FlowIMP](#)

- virtual [~FlowIMP](#) ()
This destructor is a virtual destructor of the class.
- std::string [getName](#) () const
This method returns the name of a flow.
- void [setName](#) (const std::string &[name](#))
This method assigns a string to the name of a flow obj.
- [System](#) * [getSource](#) () const
This method returns the source system pointer.
- void [setSource](#) ([System](#) *[source](#))
This method assigns a system pointer to the source of a flow obj.
- [System](#) * [getTarget](#) () const
This method returns the target system pointer.
- void [setTarget](#) ([System](#) *[target](#))
This method assigns a system pointer to the target of a flow obj.
- virtual bool [operator==](#) (const [FlowIMP](#) &[other](#)) const
This method is overloading the '==' operator, compare two flows objs.
- virtual bool [operator!=](#) (const [FlowIMP](#) &[other](#)) const
This method is overloading the '!=' operator, compare two flows objs.

Public Member Functions inherited from [Flow](#)

- virtual [~Flow](#) ()
This destructor is a virtual destructor of the class.

Private Member Functions

- [Exponencial](#) (const [Exponencial](#) &[other](#))
Construct a new [Exponencial](#) by a obj.

Additional Inherited Members

Protected Attributes inherited from [FlowIMP](#)

- std::string [name](#)
- [System](#) * [source](#)
- [System](#) * [target](#)

4.1.1 Constructor & Destructor Documentation

4.1.1.1 [Exponencial](#)() [1/2]

```
Exponencial::Exponencial (
    const Exponencial & other ) [private]
```

Construct a new [Exponencial](#) by a obj.

Parameters

| | |
|--------------|---------------------------------|
| <i>other</i> | Exponential obj |
|--------------|---------------------------------|

```

00011                                     {
00012     this->name = other.name;
00013     this->source = other.source;
00014     this->target = other.target;
00015 }
```

References [FlowIMP::name](#), [FlowIMP::source](#), and [FlowIMP::target](#).

4.1.1.2 Exponential() [2/2]

```

Exponential::Exponential (
    const std::string & name = "NO_NAME",
    System * source = NULL,
    System * target = NULL )
```

Construct a new [Exponential](#) by name, source and target.

Parameters

| | |
|---------------|--|
| <i>name</i> | string with default value "NO_NAME" |
| <i>source</i> | System pointer with default value NULL |
| <i>target</i> | System pointer with default value NULL |

```

00004                                     {
00005     this->name = name;
00006     this->source = source;
00007     this->target = target;
00008 }
```

References [FlowIMP::name](#), [FlowIMP::source](#), and [FlowIMP::target](#).

4.1.1.3 ~Exponential()

```

Exponential::~Exponential ( ) [virtual]
```

This destructor is a virtual destructor of the Class.

```

00018 {}
```

4.1.2 Member Function Documentation

4.1.2.1 execute()

```

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

Pure virtual method that will contain an equation that will be executed in the flow by the model.

Returns

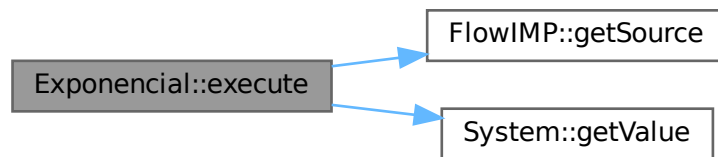
double

Implements [FlowIMP](#).

```
00020     {  
00021     return getSource()->getValue() * 0.01;  
00022 }
```

References [FlowIMP::getSource\(\)](#), and [System::getValue\(\)](#).

Here is the call graph for this function:



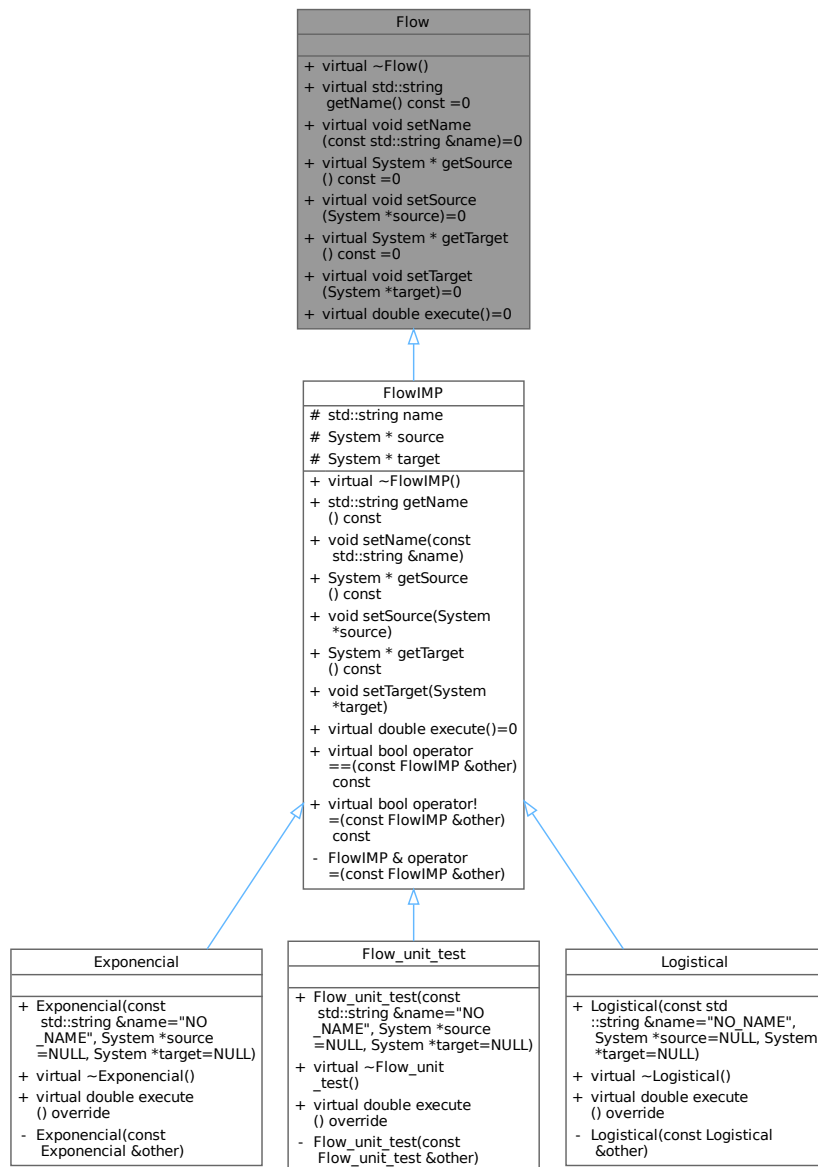
The documentation for this class was generated from the following files:

- [/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:

| Flow |
|---|
| <ul style="list-style-type: none"> + virtual ~Flow() + virtual std::string getName() const =0 + virtual void setName (const std::string &name)=0 + virtual System * getSource () const =0 + virtual void setSource (System *source)=0 + virtual System * getTarget () const =0 + virtual void setTarget (System *target)=0 + virtual double execute()=0 |

Public Member Functions

- virtual [~Flow](#) ()
This destructor is a virtual destructor of the class.
- virtual std::string [getName](#) () const =0
This method returns the name of a flow.
- virtual void [setName](#) (const std::string &name)=0
This method assigns a string to the name of a flow obj.
- virtual [System](#) * [getSource](#) () const =0
This method returns the source system poiter.
- virtual void [setSource](#) ([System](#) *source)=0
This method assigns a system poiter to the source of a flow obj.
- virtual [System](#) * [getTarget](#) () const =0
This method returns the target system poiter.
- virtual void [setTarget](#) ([System](#) *target)=0
This method assigns a system poiter to the target of a flow obj.
- virtual double [execute](#) ()=0
Pure virtual method that will be inherited by subclasses created by the user, this one will contain an equation that will be executed in the flow by the model.

4.2.1 Constructor & Destructor Documentation

4.2.1.1 ~Flow()

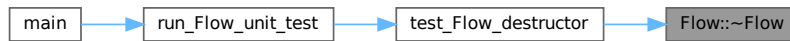
```
virtual Flow::~~Flow ( ) [inline], [virtual]
```


This destructor is a virtual destructor of the class.

```
00024 {};
```

Referenced by [test_Flow_destructor\(\)](#).

Here is the caller graph for this function:



4.2.2 Member Function Documentation

4.2.2.1 execute()

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

Pure virtual method that will be inherited by subclasses created by the user, this one will contain an equation that will be executed in the flow by the model.

Returns

double

Implemented in [Exponencial](#), [Logistical](#), [Flow_unit_test](#), and [FlowIMP](#).

Referenced by [test_Flow_execute\(\)](#).

Here is the caller graph for this function:



4.2.2.2 getName()

```
virtual std::string Flow::getName ( ) const [pure virtual]
```

This method returns the name of a flow.

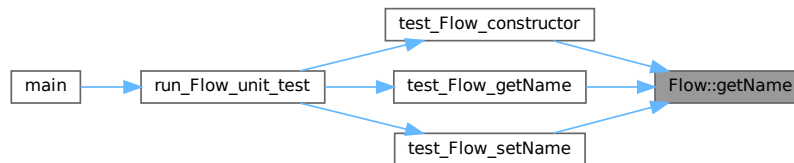
Returns

a string containing the name is returned

Implemented in [FlowIMP](#).

Referenced by [test_Flow_constructor\(\)](#), [test_Flow_getName\(\)](#), and [test_Flow_setName\(\)](#).

Here is the caller graph for this function:

**4.2.2.3 getSource()**

```
virtual System * Flow::getSource ( ) const [pure virtual]
```

This method returns the source system pointer.

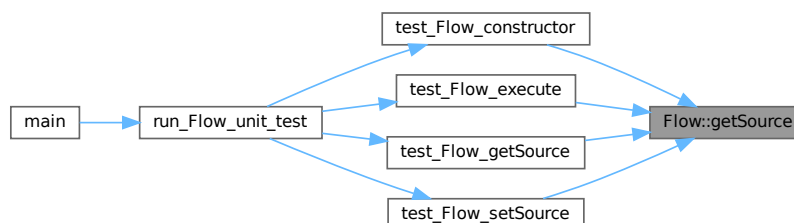
Returns

a system pointer containing the source memory address is returned

Implemented in [FlowIMP](#).

Referenced by [test_Flow_constructor\(\)](#), [test_Flow_execute\(\)](#), [test_Flow_getSource\(\)](#), and [test_Flow_setSource\(\)](#).

Here is the caller graph for this function:



4.2.2.4 getTarget()

```
virtual System * Flow::getTarget ( ) const [pure virtual]
```

This method returns the target system pointer.

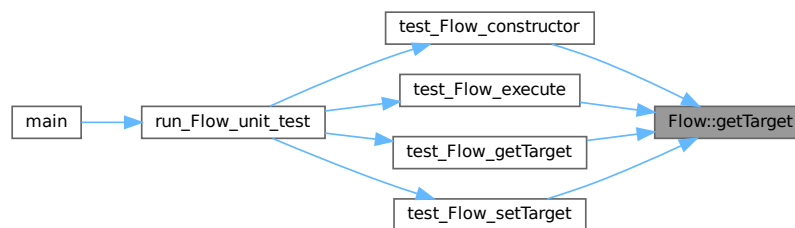
Returns

a system pointer containing the target memory address is returned

Implemented in [FlowIMP](#).

Referenced by [test_Flow_constructor\(\)](#), [test_Flow_execute\(\)](#), [test_Flow_getTarget\(\)](#), and [test_Flow_setTarget\(\)](#).

Here is the caller graph for this function:



4.2.2.5 setName()

```
virtual void Flow::setName (
    const std::string & name ) [pure virtual]
```

This method assigns a string to the name of a flow obj.

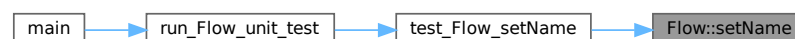
Parameters

| | |
|-------------|-------------------------------------|
| <i>name</i> | string must be passed to the method |
|-------------|-------------------------------------|

Implemented in [FlowIMP](#).

Referenced by [test_Flow_setName\(\)](#).

Here is the caller graph for this function:



4.2.2.6 setSource()

```
virtual void Flow::setSource (
    System * source ) [pure virtual]
```

This method assigns a system pointer to the source of a flow obj.

Parameters

| | |
|---------------|---|
| <i>source</i> | system pointer must be passed to the method |
|---------------|---|

Implemented in [FlowIMP](#).

Referenced by [test_Flow_setSource\(\)](#).

Here is the caller graph for this function:



4.2.2.7 setTarget()

```
virtual void Flow::setTarget (
    System * target ) [pure virtual]
```

This method assigns a system pointer to the target of a flow obj.

Parameters

| | |
|---------------|---|
| <i>target</i> | system pointer must be passed to the method |
|---------------|---|

Implemented in [FlowIMP](#).

Referenced by [test_Flow_setTarget\(\)](#).

Here is the caller graph for this function:



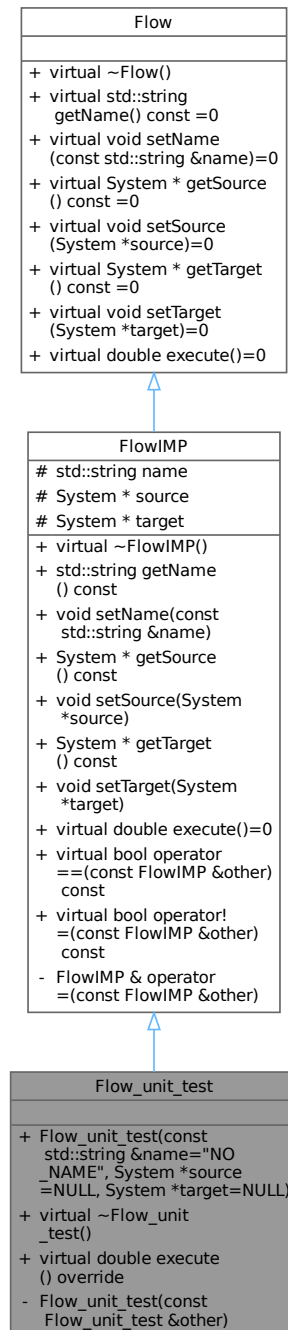
The documentation for this class was generated from the following file:

- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Flow.h](#)

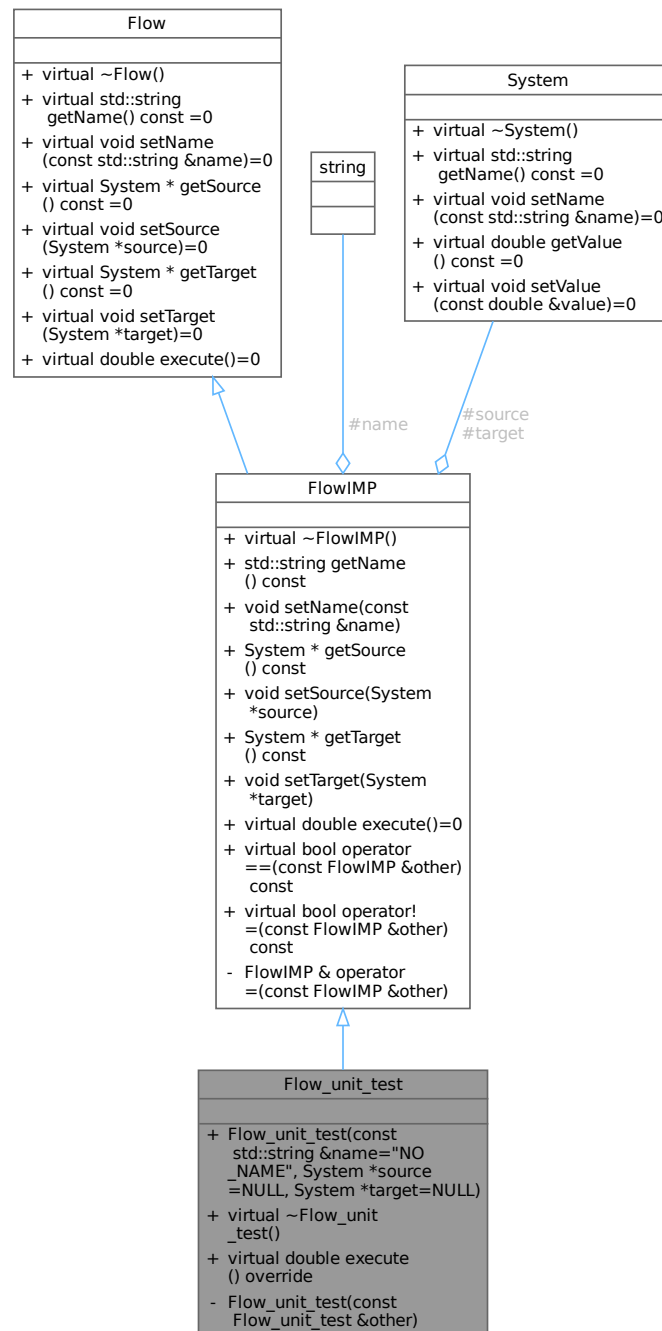
4.3 Flow_unit_test Class Reference

```
#include <unit_Flow.h>
```

Inheritance diagram for Flow_unit_test:



Collaboration diagram for Flow_unit_test:



Public Member Functions

- **Flow_unit_test** (const std::string &name="NO_NAME", System *source=NULL, System *target=NULL)
Construct a new **Flow_unit_test** by name, source and target.
- virtual **~Flow_unit_test** ()
This destructor is a virtual destructor of the Class.
- virtual double **execute** () override
Pure virtual method that will contain an equation that will be executed in the flow by the model.

Public Member Functions inherited from FlowIMP

- virtual `~FlowIMP()`
This destructor is a virtual destructor of the class.
- `std::string getName()` const
This method returns the name of a flow.
- `void setName(const std::string &name)`
This method assigns a string to the name of a flow obj.
- `System * getSource()` const
This method returns the source system pointer.
- `void setSource(System *source)`
This method assigns a system pointer to the source of a flow obj.
- `System * getTarget()` const
This method returns the target system pointer.
- `void setTarget(System *target)`
This method assigns a system pointer to the target of a flow obj.
- virtual `bool operator==(const FlowIMP &other)` const
This method is overloading the '=' operator, compare two flows objs.
- virtual `bool operator!=(const FlowIMP &other)` const
This method is overloading the '!=' operator, compare two flows objs.

Public Member Functions inherited from Flow

- virtual `~Flow()`
This destructor is a virtual destructor of the class.

Private Member Functions

- `Flow_unit_test(const Flow_unit_test &other)`
Construct a new Exponencial by a obj.

Additional Inherited Members

Protected Attributes inherited from FlowIMP

- `std::string name`
- `System * source`
- `System * target`

4.3.1 Constructor & Destructor Documentation

4.3.1.1 Flow_unit_test() [1/2]

```
Flow_unit_test::Flow_unit_test (
    const Flow_unit_test & other ) [private]
```

Construct a new Exponencial by a obj.

Parameters

| | |
|--------------|---------------------------------|
| <i>other</i> | Exponential obj |
|--------------|---------------------------------|

```

00010                                     {
00011     this->name = other.name;
00012     this->source = other.source;
00013     this->target = other.target;
00014 }
```

References [FlowIMP::name](#), [FlowIMP::source](#), and [FlowIMP::target](#).

4.3.1.2 Flow_unit_test() [2/2]

```

Flow_unit_test::Flow_unit_test (
    const std::string & name = "NO_NAME",
    System * source = NULL,
    System * target = NULL )
```

Construct a new [Flow_unit_test](#) by name, source and target.

Parameters

| | |
|---------------|--|
| <i>name</i> | string with default value "NO_NAME" |
| <i>source</i> | System pointer with default value NULL |
| <i>target</i> | System pointer with default value NULL |

```

00003                                     {
00004     this->name = name;
00005     this->source = source;
00006     this->target = target;
00007 }
```

References [FlowIMP::name](#), [FlowIMP::source](#), and [FlowIMP::target](#).

4.3.1.3 ~Flow_unit_test()

```
Flow_unit_test::~~Flow_unit_test ( ) [virtual]
```

This destructor is a virtual destructor of the Class.

```
00017 {}
```

4.3.2 Member Function Documentation

4.3.2.1 execute()

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

Pure virtual method that will contain an equation that will be executed in the flow by the model.

Returns

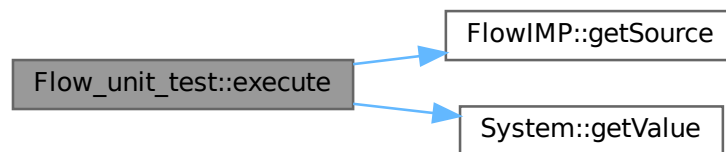
double

Implements [FlowIMP](#).

```
00019 {  
00020     return getSource()->getValue();  
00021 }
```

References [FlowIMP::getSource\(\)](#), and [System::getValue\(\)](#).

Here is the call graph for this function:



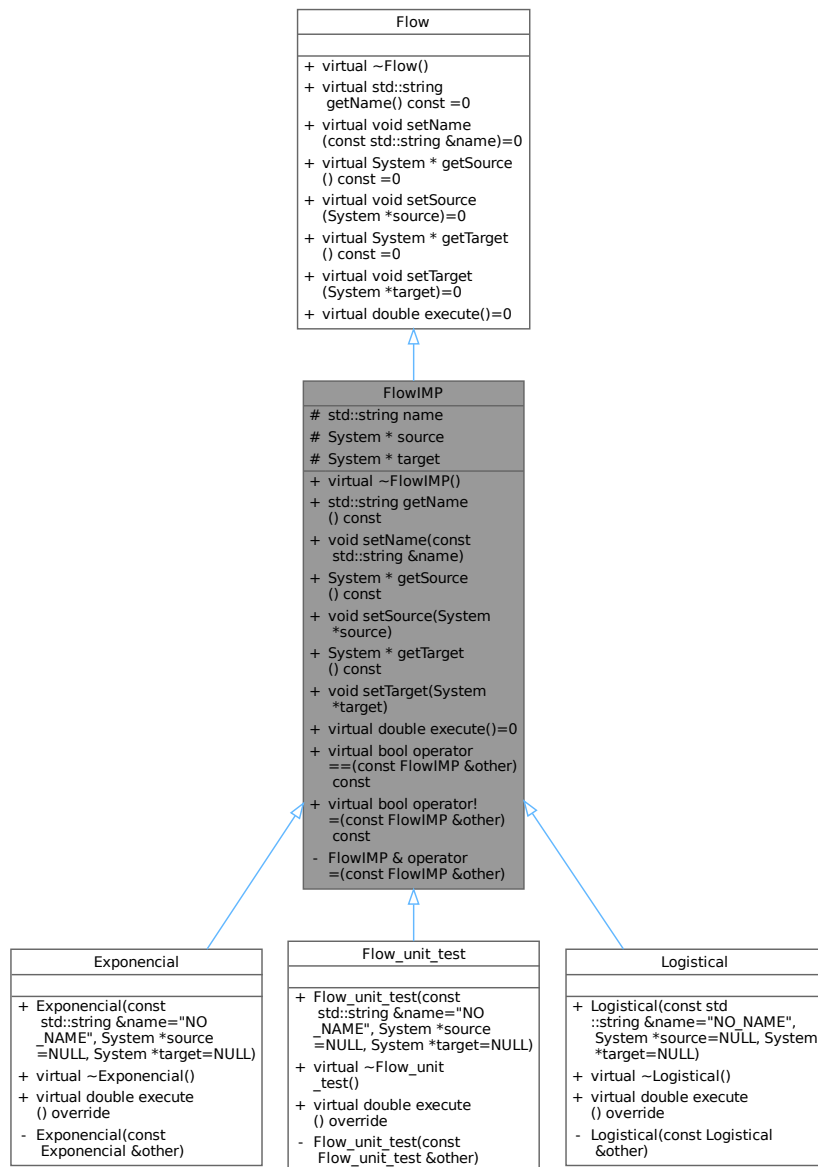
The documentation for this class was generated from the following files:

- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_↔ tests/src/unit_Flow.h](#)
- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_↔ tests/src/unit_Flow.cpp](#)

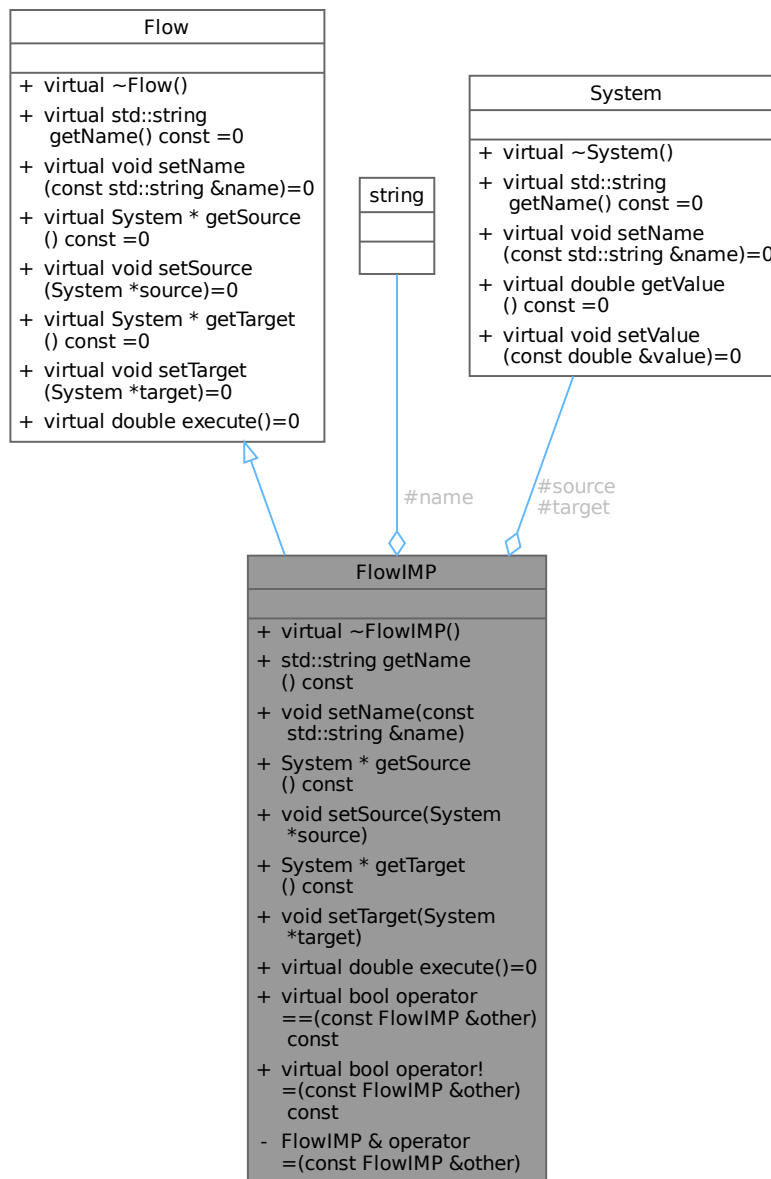
4.4 FlowIMP Class Reference

```
#include <FlowIMP.h>
```

Inheritance diagram for FlowIMP:



Collaboration diagram for FlowIMP:



Public Member Functions

- virtual ~FlowIMP ()
This destructor is a virtual destructor of the class.
- std::string getName () const
This method returns the name of a flow.
- void setName (const std::string &name)
This method assigns a string to the name of a flow obj.
- System * getSource () const
This method returns the source system pointer.

- void `setSource (System *source)`
This method assigns a system pointer to the source of a flow obj.
- `System * getTarget ()` const
This method returns the target system pointer.
- void `setTarget (System *target)`
This method assigns a system pointer to the target of a flow obj.
- virtual double `execute ()=0`
Pure virtual method that will be inherited by subclasses created by the user, this one will contain an equation that will be executed in the flow by the model.
- virtual bool `operator== (const FlowIMP &other)` const
This method is overloading the '==' operator, compare two flows objs.
- virtual bool `operator!= (const FlowIMP &other)` const
This method is overloading the '!=' operator, compare two flows objs.

Public Member Functions inherited from `Flow`

- virtual `~Flow ()`
This destructor is a virtual destructor of the class.

Protected Attributes

- `std::string name`
- `System * source`
- `System * target`

Private Member Functions

- `FlowIMP & operator= (const FlowIMP &other)`
This method is overloading the '=' operator, "cloning" from one flow to another.

4.4.1 Constructor & Destructor Documentation

4.4.1.1 `~FlowIMP()`

```
FlowIMP::~FlowIMP ( ) [virtual]
```

This destructor is a virtual destructor of the class.

```
00004 {}
```

4.4.2 Member Function Documentation

4.4.2.1 `execute()`

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

Pure virtual method that will be inherited by subclasses created by the user, this one will contain an equation that will be executed in the flow by the model.

Returns

double

Implements `Flow`.

Implemented in `Exponencial`, `Logistical`, and `Flow_unit_test`.

4.4.2.2 getName()

```
std::string FlowIMP::getName ( ) const [virtual]
```

This method returns the name of a flow.

Returns

a string containing the name is returned

Implements [Flow](#).

```
00008 { return name; }
```

References [name](#).

4.4.2.3 getSource()

```
System * FlowIMP::getSource ( ) const [virtual]
```

This method returns the source system pointer.

Returns

a system pointer containing the source memory address is returned

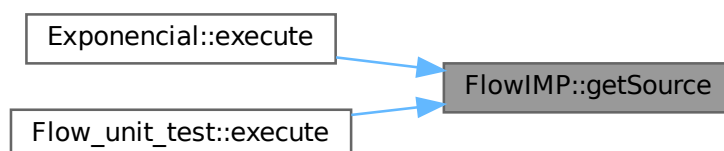
Implements [Flow](#).

```
00011 { return source; }
```

References [source](#).

Referenced by [Exponential::execute\(\)](#), and [Flow_unit_test::execute\(\)](#).

Here is the caller graph for this function:



4.4.2.4 `getTarget()`

```
System * FlowIMP::getTarget ( ) const [virtual]
```

This method returns the target system pointer.

Returns

a system pointer containing the target memory address is returned

Implements [Flow](#).

```
00014 { return target; }
```

References [target](#).

Referenced by [Logistical::execute\(\)](#).

Here is the caller graph for this function:



4.4.2.5 `operator!=()`

```
bool FlowIMP::operator!= (
    const FlowIMP & other ) const [virtual]
```

This method is overloading the '!=' operator, compare two flows objs.

Parameters

| | |
|--------------|---------------------------------------|
| <i>other</i> | flow obj to be compare must be passed |
|--------------|---------------------------------------|

Returns

A bool is returned, false if they are equal and true if not

```
00033                                     {
00034     return (name != other.name || source != other.source || target != other.target);
00035 }
```

References [name](#), [source](#), and [target](#).

4.4.2.6 `operator=()`

```
FlowIMP & FlowIMP::operator= (
    const FlowIMP & other ) [private]
```

This method is overloading the '=' operator, "cloning" from one flow to another.

Parameters

| | |
|--------------|--------------------------------------|
| <i>other</i> | flow obj to be cloned must be passed |
|--------------|--------------------------------------|

Returns

A flow is returned that is a clone of what was passed to the method

```
00019                                     {
00020     if (other == *this) return *this;
00021     name = other.name;
00022     source = other.source;
00023     target = other.target;
00024     return *this;
00025 }
```

References [name](#), [source](#), and [target](#).

4.4.2.7 operator==()

```
bool FlowIMP::operator==(
    const FlowIMP & other ) const [virtual]
```

This method is overloading the '==' operator, compare two flows objs.

Parameters

| | |
|--------------|---------------------------------------|
| <i>other</i> | flow obj to be compare must be passed |
|--------------|---------------------------------------|

Returns

A bool is returned, true if they are equal and false if not

```
00028                                     {
00029     return (name == other.name && source == other.source && target == other.target);
00030 }
```

References [name](#), [source](#), and [target](#).

4.4.2.8 setName()

```
void FlowIMP::setName (
    const std::string & name ) [virtual]
```

This method assigns a string to the name of a flow obj.

Parameters

| | |
|-------------|-------------------------------------|
| <i>name</i> | string must be passed to the method |
|-------------|-------------------------------------|

Implements [Flow](#).

```
00009 { this->name = name; }
```

References [name](#).

Referenced by [test_Flow_equal\(\)](#).

Here is the caller graph for this function:



4.4.2.9 setSource()

```
void FlowIMP::setSource (
    System * source ) [virtual]
```

This method assigns a system poiter to the source of a flow obj.

Parameters

| | |
|---------------|--|
| <i>source</i> | system poiter must be passed to the method |
|---------------|--|

Implements [Flow](#).

```
00012 { this->source = source; }
```

References [source](#).

4.4.2.10 setTarget()

```
void FlowIMP::setTarget (
    System * target ) [virtual]
```

This method assigns a system poiter to the target of a flow obj.

Parameters

| | |
|---------------|--|
| <i>target</i> | system poiter must be passed to the method |
|---------------|--|

Implements [Flow](#).

```
00015 { this->target = target; }
```

References [target](#).

4.4.3 Member Data Documentation

4.4.3.1 name

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


Name string attribute.

Referenced by [Exponencial::Exponencial\(\)](#), [Exponencial::Exponencial\(\)](#), [Flow_unit_test::Flow_unit_test\(\)](#), [Flow_unit_test::Flow_unit_test\(\)](#), [getName\(\)](#), [Logistical::Logistical\(\)](#), [Logistical::Logistical\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), and [setName\(\)](#).

4.4.3.2 source

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

Source system pointer attribute.

Referenced by [Exponencial::Exponencial\(\)](#), [Exponencial::Exponencial\(\)](#), [Flow_unit_test::Flow_unit_test\(\)](#), [Flow_unit_test::Flow_unit_test\(\)](#), [getSource\(\)](#), [Logistical::Logistical\(\)](#), [Logistical::Logistical\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), and [setSource\(\)](#).

4.4.3.3 target

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

Target system pointer attribute.

Referenced by [Exponencial::Exponencial\(\)](#), [Exponencial::Exponencial\(\)](#), [Flow_unit_test::Flow_unit_test\(\)](#), [Flow_unit_test::Flow_unit_test\(\)](#), [getTarget\(\)](#), [Logistical::Logistical\(\)](#), [Logistical::Logistical\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), and [setTarget\(\)](#).

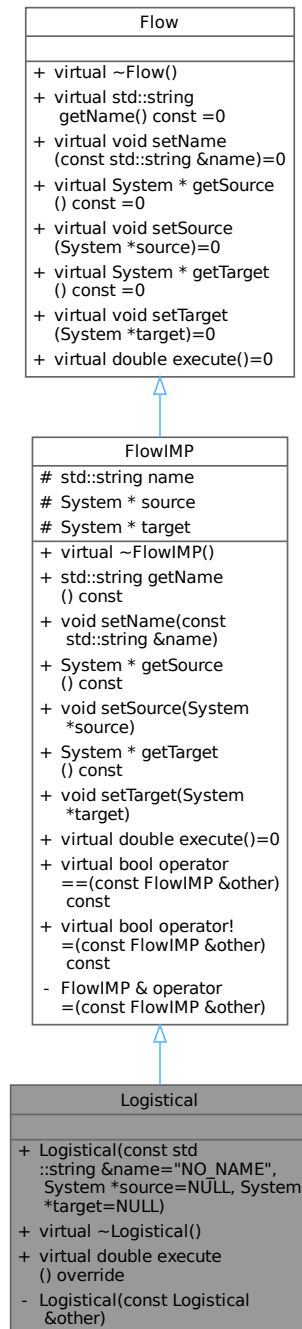
The documentation for this class was generated from the following files:

- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/FlowIMP.h](#)
- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/FlowIMP.cpp](#)

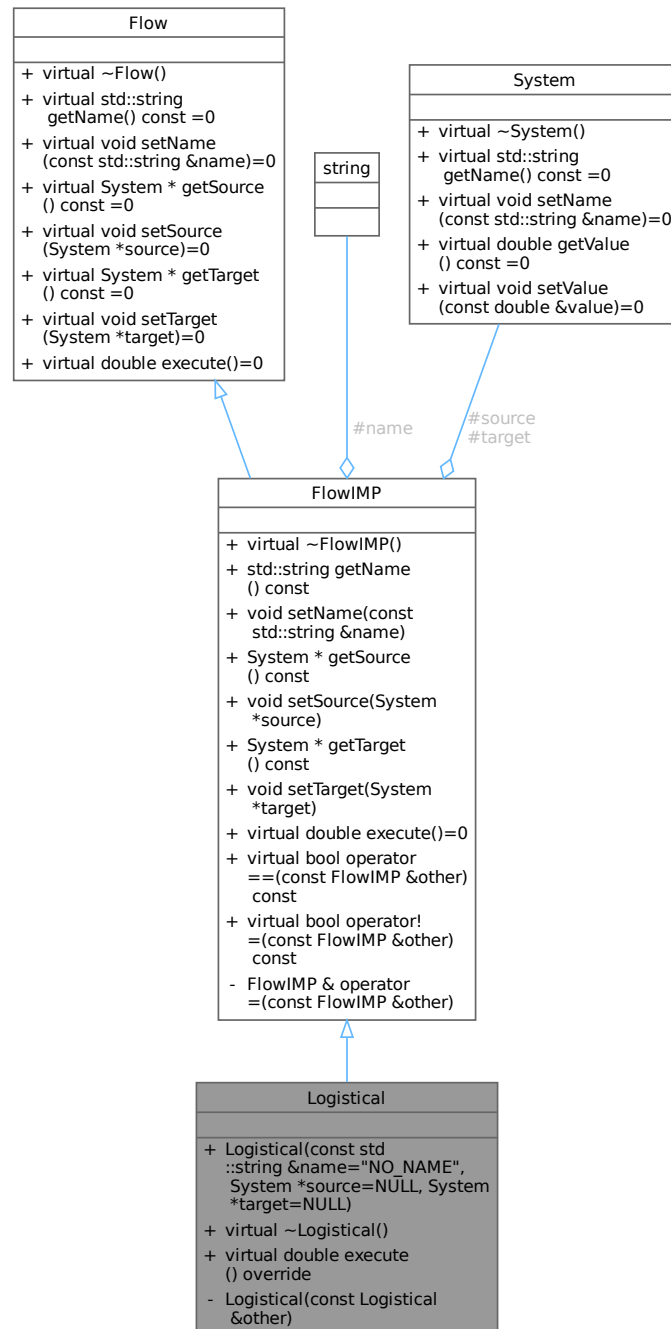
4.5 Logistical Class Reference

```
#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)
Construct a new **Logistical** by name, source and target.
- virtual **~Logistical** ()
This destructor is a virtual destructor of the Class.
- virtual double **execute** () override
Pure virtual method that will contain an equation that will be executed in the flow by the model.

Public Member Functions inherited from FlowIMP

- virtual `~FlowIMP()`
This destructor is a virtual destructor of the class.
- `std::string getName()` const
This method returns the name of a flow.
- void `setName(const std::string &name)`
This method assigns a string to the name of a flow obj.
- `System * getSource()` const
This method returns the source system pointer.
- void `setSource(System *source)`
This method assigns a system pointer to the source of a flow obj.
- `System * getTarget()` const
This method returns the target system pointer.
- void `setTarget(System *target)`
This method assigns a system pointer to the target of a flow obj.
- virtual bool `operator==(const FlowIMP &other)` const
This method is overloading the '=' operator, compare two flows objs.
- virtual bool `operator!=(const FlowIMP &other)` const
This method is overloading the '!=' operator, compare two flows objs.

Public Member Functions inherited from Flow

- virtual `~Flow()`
This destructor is a virtual destructor of the class.

Private Member Functions

- `Logistical(const Logistical &other)`
Construct a new Logistical by a obj.

Additional Inherited Members

Protected Attributes inherited from FlowIMP

- `std::string name`
- `System * source`
- `System * target`

4.5.1 Constructor & Destructor Documentation

4.5.1.1 Logistical() [1/2]

```
Logistical::Logistical (
    const Logistical & other ) [private]
```

Construct a new `Logistical` by a obj.

Parameters

| | |
|--------------|----------------|
| <i>other</i> | Logistical obj |
|--------------|----------------|

```

00011                                     {
00012     this->name = other.name;
00013     this->source = other.source;
00014     this->target = other.target;
00015 }
```

References [FlowIMP::name](#), [FlowIMP::source](#), and [FlowIMP::target](#).

4.5.1.2 Logistical() [2/2]

```

Logistical::Logistical (
    const std::string & name = "NO_NAME",
    System * source = NULL,
    System * target = NULL )
```

Construct a new [Logistical](#) by name, source and target.

Parameters

| | |
|---------------|--|
| <i>name</i> | string with default value "NO_NAME" |
| <i>source</i> | System pointer with default value NULL |
| <i>target</i> | System pointer with default value NULL |

```

00004                                     {
00005     this->name = name;
00006     this->source = source;
00007     this->target = target;
00008 }
```

References [FlowIMP::name](#), [FlowIMP::source](#), and [FlowIMP::target](#).

4.5.1.3 ~Logistical()

```

Logistical::~Logistical ( ) [virtual]
```

This destructor is a virtual destructor of the Class.

```

00018 {}
```

4.5.2 Member Function Documentation

4.5.2.1 execute()

```

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

Pure virtual method that will contain an equation that will be executed in the flow by the model.

Returns

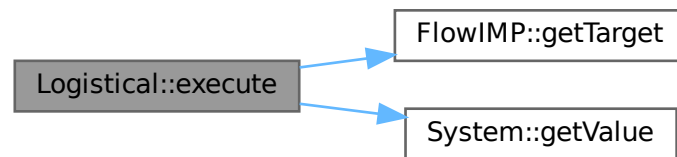
double

Implements [FlowIMP](#).

```
00020 {  
00021     return 0.01 * getTarget\(\)->getValue\(\) * (1.0 - getTarget\(\)->getValue\(\) / 70.0);  
00022 }
```

References [FlowIMP::getTarget\(\)](#), and [System::getValue\(\)](#).

Here is the call graph for this function:



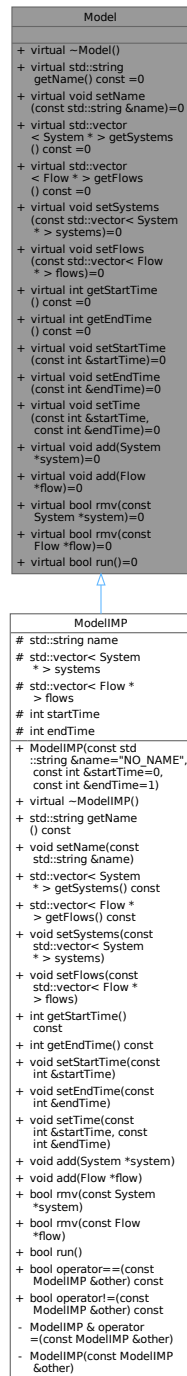
The documentation for this class was generated from the following files:

- [/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](#)

4.6 Model Class Reference

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

Inheritance diagram for Model:



Collaboration diagram for Model:

| Model |
|---|
| <ul style="list-style-type: none"> + virtual ~Model() + virtual std::string getName() const =0 + virtual void setName (const std::string &name)=0 + virtual std::vector < System * > getSystems () const =0 + virtual std::vector < Flow * > getFlows () const =0 + virtual void setSystems (const std::vector< System * > systems)=0 + virtual void setFlows (const std::vector< Flow * > flows)=0 + virtual int getStartTime () const =0 + virtual int getEndTime () const =0 + virtual void setStartTime (const int &startTime)=0 + virtual void setEndTime (const int &endTime)=0 + virtual void setTime (const int &startTime, const int &endTime)=0 + virtual void add(System *system)=0 + virtual void add(Flow *flow)=0 + virtual bool rmv(const System *system)=0 + virtual bool rmv(const Flow *flow)=0 + virtual bool run()=0 |

Public Types

- typedef std::vector< [System](#) * >::iterator [systemIterator](#)
 typedef vectors iterators
- typedef std::vector< [Flow](#) * >::iterator [flowIterator](#)

Public Member Functions

- virtual `~Model ()`
This destructor is a virtual destructor of the class.
- virtual `std::string getName () const =0`
This method returns the name of a [Model](#).
- virtual `void setName (const std::string &name)=0`
This method assigns a string to the name of a [Model](#).
- virtual `std::vector< System * > getSystems () const =0`
This method returns the vector of Systems.
- virtual `std::vector< Flow * > getFlows () const =0`
This method returns the vector of flows.
- virtual `void setSystems (const std::vector< System * > systems)=0`
This method assigns a vector to the systems of a [Model](#).
- virtual `void setFlows (const std::vector< Flow * > flows)=0`
This method assigns a vector to the flows of a [Model](#).
- virtual `int getStartTime () const =0`
This method returns the startTime of a [Model](#).
- virtual `int getEndTime () const =0`
This method returns the end of a [Model](#).
- virtual `void setStartTime (const int &startTime)=0`
This method assigns a int to the startTime of a [Model](#).
- virtual `void setEndTime (const int &endTime)=0`
This method assigns a int to the endTime of a [Model](#).
- virtual `void setTime (const int &startTime, const int &endTime)=0`
This method assigns a int to the startTime and endTime of a [Model](#).
- virtual `void add (System *system)=0`
This method add a [System](#) pointer to the vector of a [Model](#).
- virtual `void add (Flow *flow)=0`
This method add a [Flow](#) pointer to the vector of a [Model](#).
- virtual `bool rmv (const System *system)=0`
This method remove a [System](#) pointer of the vector of a [Model](#).
- virtual `bool rmv (const Flow *flow)=0`
This method remove a [Flow](#) pointer of the vector of a [Model](#).
- virtual `bool run ()=0`
This method run all model.

4.6.1 Member Typedef Documentation

4.6.1.1 flowIterator

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

4.6.1.2 systemIterator

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

```
typedef vectors iterators
```

4.6.2 Constructor & Destructor Documentation

4.6.2.1 ~Model()

```
virtual Model::~~Model ( ) [inline], [virtual]
```

This destructor is a virtual destructor of the class.

```
00032 {};
```

Referenced by [test_Model_destructor\(\)](#).

Here is the caller graph for this function:



4.6.3 Member Function Documentation

4.6.3.1 add() [1/2]

```
virtual void Model::add (
    Flow * flow ) [pure virtual]
```

This method add a [Flow](#) pointer to the vector of a [Model](#).

Parameters

| | |
|-------------|---|
| <i>flow</i> | Flow pointer must be passed to the method |
|-------------|---|

Implemented in [ModelIMP](#).

4.6.3.2 add() [2/2]

```
virtual void Model::add (
    System * system ) [pure virtual]
```

This method add a [System](#) pointer to the vector of a [Model](#).

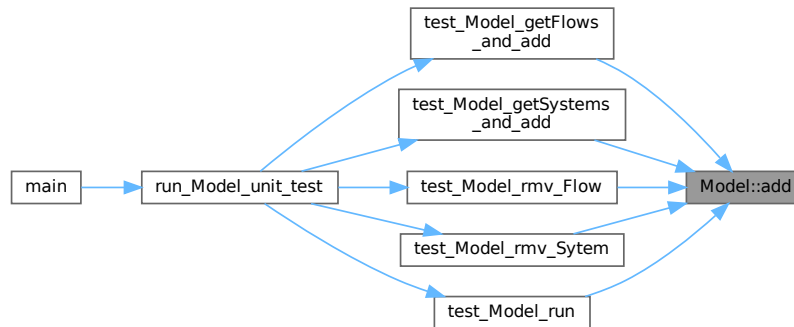
Parameters

| | |
|---------------|---|
| <i>system</i> | System pointer must be passed to the method |
|---------------|---|

Implemented in [ModelIMP](#).

Referenced by [test_Model_getFlows_and_add\(\)](#), [test_Model_getSystems_and_add\(\)](#), [test_Model_rmv_Flow\(\)](#), [test_Model_rmv_Sytem\(\)](#), and [test_Model_run\(\)](#).

Here is the caller graph for this function:



4.6.3.3 getEndTime()

```
virtual int Model::getEndTime ( ) const [pure virtual]
```

This method returns the end of a [Model](#).

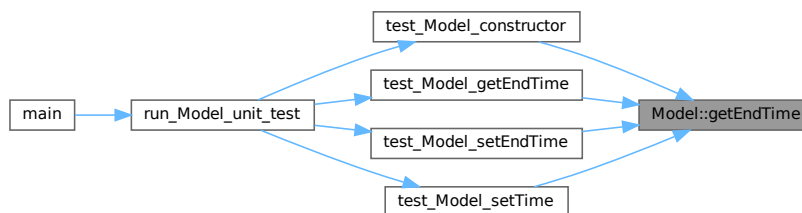
Returns

a int containing the end is returned

Implemented in [ModelIMP](#).

Referenced by [test_Model_constructor\(\)](#), [test_Model_getEndTime\(\)](#), [test_Model_setEndTime\(\)](#), and [test_Model_setTime\(\)](#).

Here is the caller graph for this function:



4.6.3.4 getFlows()

```
virtual std::vector< Flow * > Model::getFlows ( ) const [pure virtual]
```

This method returns the vector of flows.

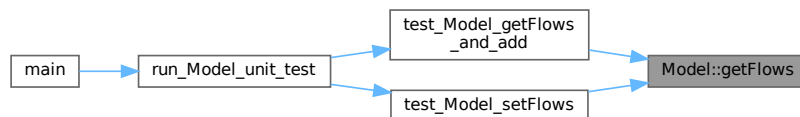
Returns

a vector containing Flows is returned

Implemented in [ModelIMP](#).

Referenced by [test_Model_getFlows_and_add\(\)](#), and [test_Model_setFlows\(\)](#).

Here is the caller graph for this function:



4.6.3.5 getName()

```
virtual std::string Model::getName ( ) const [pure virtual]
```

This method returns the name of a [Model](#).

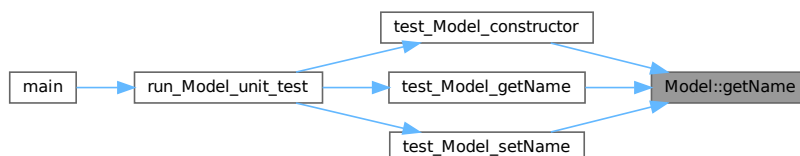
Returns

a string containing the name is returned

Implemented in [ModelIMP](#).

Referenced by [test_Model_constructor\(\)](#), [test_Model_getName\(\)](#), and [test_Model_setName\(\)](#).

Here is the caller graph for this function:



4.6.3.6 getStartTime()

```
virtual int Model::getStartTime ( ) const [pure virtual]
```

This method returns the startTime of a [Model](#).

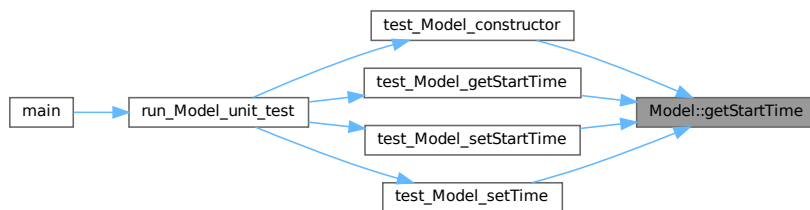
Returns

a int containing the startTime is returned

Implemented in [ModelIMP](#).

Referenced by [test_Model_constructor\(\)](#), [test_Model_getStartTime\(\)](#), [test_Model_setStartTime\(\)](#), and [test_Model_setTime\(\)](#).

Here is the caller graph for this function:



4.6.3.7 getSystems()

```
virtual std::vector< System * > Model::getSystems ( ) const [pure virtual]
```

This method returns the vector of Systems.

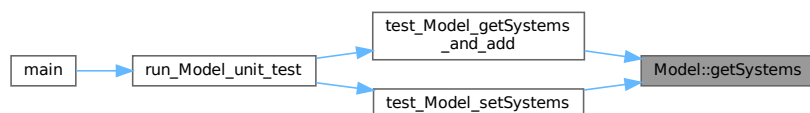
Returns

a vector containing Systems is returned

Implemented in [ModelIMP](#).

Referenced by [test_Model_getSystems_and_add\(\)](#), and [test_Model_setSystems\(\)](#).

Here is the caller graph for this function:



4.6.3.8 rmv() [1/2]

```
virtual bool Model::rmv (
    const Flow * flow ) [pure virtual]
```

This method remove a [Flow](#) pointer of the vector of a [Model](#).

Parameters

| | |
|-------------|--|
| <i>flow</i> | Flow pointer iterator must be passed to the method |
|-------------|--|

Returns

a bool value, true if can remove, false if not

Implemented in [ModelIMP](#).

4.6.3.9 `rmv()` [2/2]

```
virtual bool Model::rmv (
    const System * system ) [pure virtual]
```

This method remove a [System](#) pointer of the vector of a [Model](#).

Parameters

| | |
|---------------|--|
| <i>system</i> | System pointer iterator must be passed to the method |
|---------------|--|

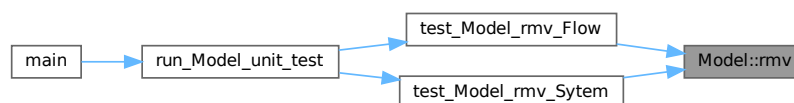
Returns

a bool value, true if can remove, false if not

Implemented in [ModelIMP](#).

Referenced by [test_Model_rmv_Flow\(\)](#), and [test_Model_rmv_Sytem\(\)](#).

Here is the caller graph for this function:

4.6.3.10 `run()`

```
virtual bool Model::run ( ) [pure virtual]
```

This method run all model.

Returns

a bool value, true if can run, false if not

Implemented in [ModelIMP](#).

Referenced by [test_Model_run\(\)](#).

Here is the caller graph for this function:

**4.6.3.11 setEndTime()**

```
virtual void Model::setEndTime (
    const int & endTime ) [pure virtual]
```

This method assigns a int to the endTime of a [Model](#).

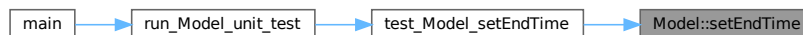
Parameters

| | |
|----------------|----------------------------------|
| <i>endTime</i> | int must be passed to the method |
|----------------|----------------------------------|

Implemented in [ModelIMP](#).

Referenced by [test_Model_setEndTime\(\)](#).

Here is the caller graph for this function:

**4.6.3.12 setFlows()**

```
virtual void Model::setFlows (
    const std::vector< Flow * > flows ) [pure virtual]
```

This method assigns a vector to the flows of a [Model](#).

Parameters

| | |
|--------------|----------------------------------|
| <i>flows</i> | int must be passed to the method |
|--------------|----------------------------------|

Implemented in [ModelIMP](#).

Referenced by [test_Model_setFlows\(\)](#).

Here is the caller graph for this function:

**4.6.3.13 setName()**

```
virtual void Model::setName (
    const std::string & name ) [pure virtual]
```

This method assigns a string to the name of a [Model](#).

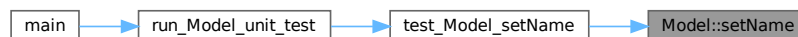
Parameters

| | |
|-------------|-------------------------------------|
| <i>name</i> | string must be passed to the method |
|-------------|-------------------------------------|

Implemented in [ModelIMP](#).

Referenced by [test_Model_setName\(\)](#).

Here is the caller graph for this function:

**4.6.3.14 setStartTime()**

```
virtual void Model::setStartTime (
    const int & startTime ) [pure virtual]
```

This method assigns a int to the startTime of a [Model](#).

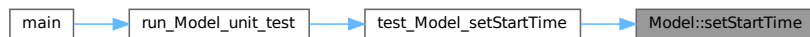
Parameters

| | |
|------------------|----------------------------------|
| <i>startTime</i> | int must be passed to the method |
|------------------|----------------------------------|

Implemented in [ModelIMP](#).

Referenced by [test_Model_setStartTime\(\)](#).

Here is the caller graph for this function:

**4.6.3.15 setSystems()**

```

virtual void Model::setSystems (
    const std::vector< System * > systems ) [pure virtual]
  
```

This method assigns a vector to the systems of a [Model](#).

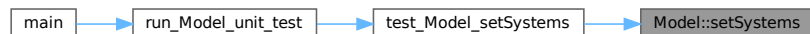
Parameters

| | |
|----------------|----------------------------------|
| <i>systems</i> | int must be passed to the method |
|----------------|----------------------------------|

Implemented in [ModelIMP](#).

Referenced by [test_Model_setSystems\(\)](#).

Here is the caller graph for this function:

**4.6.3.16 setTime()**

```

virtual void Model::setTime (
    const int & startTime,
    const int & endTime ) [pure virtual]
  
```

This method assigns a int to the startTime and endTime of a [Model](#).

Parameters

| | |
|------------------|----------------------------------|
| <i>startTime</i> | int must be passed to the method |
| <i>endTime</i> | int must be passed to the method |

Implemented in [ModelIMP](#).

Referenced by [test_Model_setTime\(\)](#).

Here is the caller graph for this function:



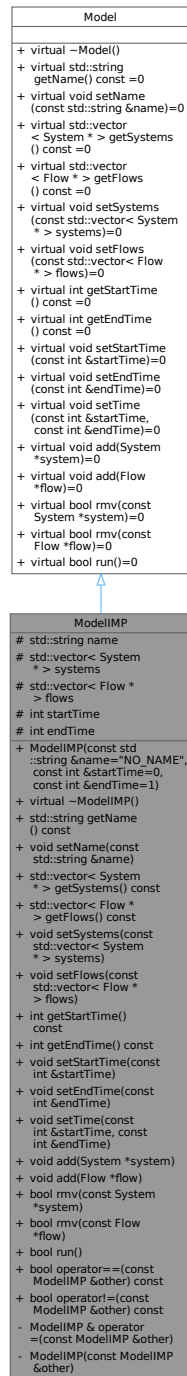
The documentation for this class was generated from the following file:

- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Model.h](#)

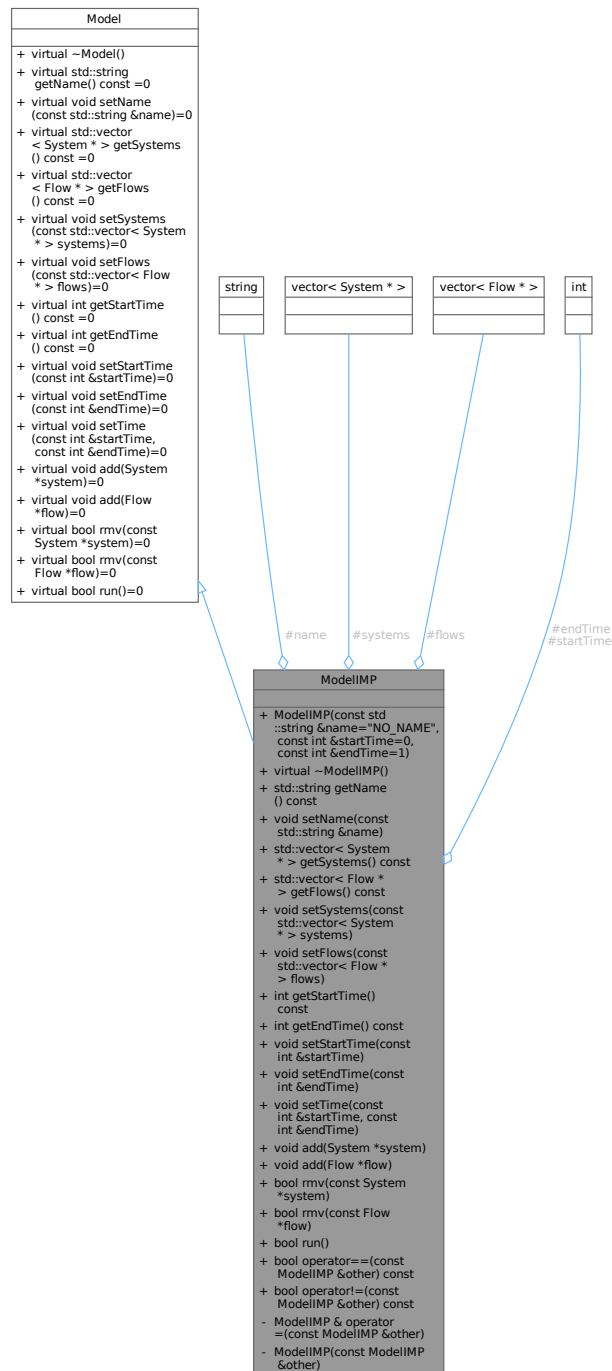
4.7 ModelIMP Class Reference

```
#include <ModelIMP.h>
```

Inheritance diagram for ModelIMP:



Collaboration diagram for ModelIMP:



Public Member Functions

- **ModelIMP** (const std::string &name="NO_NAME", const int &startTime=0, const int &endTime=1)
Construct a new **Model** by name and start and end time.
- virtual **~ModelIMP** ()
This destructor is a virtual destructor of the class.
- std::string **getName** () const

- This method returns the name of a [Model](#).*

 - void [setName](#) (const std::string &name)

This method assigns a string to the name of a [Model](#).
- std::vector< [System](#) * > [getSystems](#) () const

This method returns the vector of Systems.
- std::vector< [Flow](#) * > [getFlows](#) () const

This method returns the vector of flows.
- void [setSystems](#) (const std::vector< [System](#) * > systems)

This method assigns a vector to the systems of a [Model](#).
- void [setFlows](#) (const std::vector< [Flow](#) * > flows)

This method assigns a vector to the flows of a [Model](#).
- int [getStartTime](#) () const

This method returns the startTime of a [Model](#).
- int [getEndTime](#) () const

This method returns the end of a [Model](#).
- void [setStartTime](#) (const int &startTime)

This method assigns a int to the startTime of a [Model](#).
- void [setEndTime](#) (const int &endTime)

This method assigns a int to the endTime of a [Model](#).
- void [setTime](#) (const int &startTime, const int &endTime)

This method assigns a int to the startTime and endTime of a [Model](#).
- void [add](#) ([System](#) *system)

This method add a [System](#) pointer to the vector of a [Model](#).
- void [add](#) ([Flow](#) *flow)

This method add a [Flow](#) pointer to the vector of a [Model](#).
- bool [rmv](#) (const [System](#) *system)

This method remove a [System](#) pointer of the vector of a [Model](#).
- bool [rmv](#) (const [Flow](#) *flow)

This method remove a [Flow](#) pointer of the vector of a [Model](#).
- bool [run](#) ()

This method run all model.
- bool [operator==](#) (const [ModelIMP](#) &other) const

This method is overloading the '==' operator, compare two models objs.
- bool [operator!=](#) (const [ModelIMP](#) &other) const

This method is overloading the '!=' operator, compare two models objs.

Public Member Functions inherited from [Model](#)

- virtual [~Model](#) ()
- This destructor is a virtual destructor of the class.*

Protected Attributes

- std::string [name](#)
- std::vector< [System](#) * > [systems](#)
- std::vector< [Flow](#) * > [flows](#)
- int [startTime](#)
- int [endTime](#)

Private Member Functions

- [ModelIMP](#) & [operator=](#) (const [ModelIMP](#) &other)
This method is overloading the '=' operator, "cloning" from one [Model](#) to another.
- [ModelIMP](#) (const [ModelIMP](#) &other)
Construct a new [Model](#) by a obj.

Additional Inherited Members

Public Types inherited from [Model](#)

- typedef std::vector< [System](#) * >::iterator [systemIterator](#)
typedef vetors iterators
- typedef std::vector< [Flow](#) * >::iterator [flowIterator](#)

4.7.1 Constructor & Destructor Documentation

4.7.1.1 [ModelIMP](#)() [1/2]

```
ModelIMP::ModelIMP (
    const ModelIMP & other ) [private]
```

Construct a new [Model](#) by a obj.

Parameters

| | |
|--------------|---------------------------|
| <i>other</i> | Model obj |
|--------------|---------------------------|

```
00006                                     : name(other.name), startTime(other.startTime),
    endTime(other.endTime) {
00007     flows.clear();
00008     systems.clear();
00009     for (auto i : other.flows) flows.push_back(i);
00010     for (auto i : other.systems) systems.push_back(i);
00011 }
```

References [flows](#), and [systems](#).

4.7.1.2 [ModelIMP](#)() [2/2]

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

Construct a new [Model](#) by name and sart and end time.

Parameters

| | |
|------------------|-------------------------------------|
| <i>name</i> | string with default value "NO_NAME" |
| <i>startTime</i> | int with default value 0 |
| <i>endTime</i> | int with default value 1 |

```
00004 : name(name), startTime(startTime), endTime(endTime) {}
```

4.7.1.3 ~ModelIMP()

```
ModelIMP::~~ModelIMP ( ) [virtual]
```

This destructor is a virtual destructor of the class.

```
00014 {systems.clear(); flows.clear();}
```

References [flows](#), and [systems](#).

4.7.2 Member Function Documentation

4.7.2.1 add() [1/2]

```
void ModelIMP::add (
    Flow * flow ) [virtual]
```

This method add a [Flow](#) pointer to the vector of a [Model](#).

Parameters

| | |
|-------------|---|
| <i>flow</i> | Flow pointer must be passed to the method |
|-------------|---|

Implements [Model](#).

```
00035 { flows.push_back(flow); }
```

References [flows](#).

4.7.2.2 add() [2/2]

```
void ModelIMP::add (
    System * system ) [virtual]
```

This method add a [System](#) pointer to the vector of a [Model](#).

Parameters

| | |
|---------------|---|
| <i>system</i> | System pointer must be passed to the method |
|---------------|---|

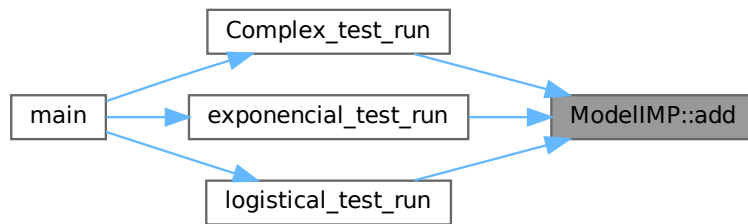
Implements [Model](#).

```
00034 { systems.push_back(system); }
```

References [systems](#).

Referenced by [Complex_test_run\(\)](#), [exponencial_test_run\(\)](#), and [logistical_test_run\(\)](#).

Here is the caller graph for this function:



4.7.2.3 `getEndTime()`

```
int ModelIMP::getEndTime ( ) const [virtual]
```

This method returns the end of a [Model](#).

Returns

a int containing the end is returned

Implements [Model](#).

```
00027 { return endTime; }
```

References [endTime](#).

4.7.2.4 `getFlows()`

```
std::vector< Flow * > ModelIMP::getFlows ( ) const [virtual]
```

This method returns the vector of flows.

Returns

a vector containing Flows is returned

Implements [Model](#).

```
00022 { return flows;};
```

References [flows](#).

4.7.2.5 getName()

```
std::string ModelIMP::getName ( ) const [virtual]
```

This method returns the name of a [Model](#).

Returns

a string containing the name is returned

Implements [Model](#).

```
00018 { return name; }
```

References [name](#).

4.7.2.6 getStartTime()

```
int ModelIMP::getStartTime ( ) const [virtual]
```

This method returns the startTime of a [Model](#).

Returns

a int containing the startTime is returned

Implements [Model](#).

```
00026 { return startTime; }
```

References [startTime](#).

4.7.2.7 getSystems()

```
std::vector< System * > ModelIMP::getSystems ( ) const [virtual]
```

This method returns the vector of Systems.

Returns

a vector containing Systems is returned

Implements [Model](#).

```
00021 { return systems; }
```

References [systems](#).

4.7.2.8 operator"!="()

```
bool ModelIMP::operator!= (
    const ModelIMP & other ) const
```

This method is overloading the '!=' operator, compare two models objs.

Parameters

| | |
|--------------|--|
| <i>other</i> | model obj to be compare must be passed |
|--------------|--|

Returns

A bool is returned, false if they are equal and true if not

```

00109                                     {
00110     return (name != other.name || systems != other.systems || flows != other.flows || startTime !=
other.startTime || endTime != other.endTime);
00111 }
```

References [endTime](#), [flows](#), [name](#), [startTime](#), and [systems](#).

4.7.2.9 operator=()

```

ModelIMP & ModelIMP::operator= (
    const ModelIMP & other ) [private]
```

This method is overloading the '=' operator, "cloning" from one [Model](#) to another.

Parameters

| | |
|--------------|---|
| <i>other</i> | Model obj to be cloned must be passed |
|--------------|---|

Returns

A [Model](#) is returned that is a clone of what was passed to the method

```

00092                                     {
00093     if(other == *this) return *this;
00094     name = other.name;
00095     systems = other.systems;
00096     flows.clear();
00097     systems.clear();
00098     for (auto i : other.flows) flows.push_back(i);
00099     for (auto i : other.systems) systems.push_back(i);
00100     startTime = other.startTime;
00101     endTime = other.endTime;
00102     return *this;
00103 }
```

References [endTime](#), [flows](#), [name](#), [startTime](#), and [systems](#).

4.7.2.10 operator==()

```

bool ModelIMP::operator== (
    const ModelIMP & other ) const
```

This method is overloading the '==' operator, compare two models objs.

Parameters

| | |
|--------------|--|
| <i>other</i> | model obj to be compare must be passed |
|--------------|--|

Returns

A bool is returned, true if they are equal and false if not

```
00105         {
00106     return (name == other.name && systems == other.systems && flows == other.flows && startTime ==
other.startTime && endTime == other.endTime);
00107 }
```

References [endTime](#), [flows](#), [name](#), [startTime](#), and [systems](#).

4.7.2.11 rmv() [1/2]

```
bool ModelIMP::rmv (
    const Flow * flow ) [virtual]
```

This method remove a [Flow](#) pointer of the vector of a [Model](#).

Parameters

| | |
|-------------|--|
| <i>flow</i> | Flow pointer iterator must be passed to the method |
|-------------|--|

Returns

a bool value, true if can remove, false if not

Implements [Model](#).

```
00045     {
00046     for(flowIterator i = flows.begin(); i < flows.end(); i++)
00047     if(*i == flow){
00048         flows.erase(i);
00049         return true;
00050     }
00051     return false;
00052 }
```

References [flows](#).

4.7.2.12 rmv() [2/2]

```
bool ModelIMP::rmv (
    const System * system ) [virtual]
```

This method remove a [System](#) pointer of the vector of a [Model](#).

Parameters

| | |
|---------------|--|
| <i>system</i> | System pointer iterator must be passed to the method |
|---------------|--|

Returns

a bool value, true if can remove, false if not

Implements [Model](#).

```
00037     {
```

```

00038     for(systemIterator i = systems.begin(); i < systems.end(); i++)
00039         if(*i == system){
00040             systems.erase(i);
00041             return true;
00042         }
00043     return false;
00044 }

```

References [systems](#).

4.7.2.13 run()

```
bool ModelIMP::run ( ) [virtual]
```

This method run all model.

Returns

a bool value, true if can run, false if not

Implements [Model](#).

```

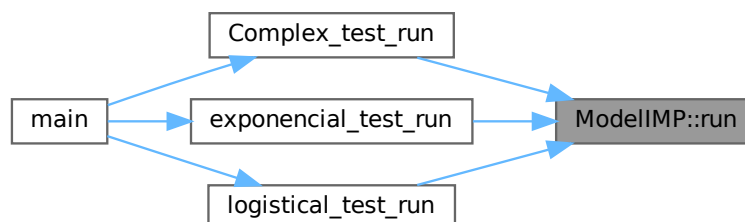
00056     {
00057         std::vector<double> flowValue;
00058         flowIterator f;
00059         std::vector<double>::iterator d;
00060         double calcValue;
00061
00062         for(int i = startTime; i < endTime; i++){
00063
00064             f = flows.begin();
00065
00066             while (f != flows.end()) {
00067                 flowValue.push_back ((*f)->execute());
00068                 f++;
00069             }
00070
00071             f = flows.begin();
00072             d = flowValue.begin();
00073
00074             while (f != flows.end()) {
00075                 calcValue = (*f)->getSource()->getValue() - (*d);
00076                 (*f)->getSource()->setValue(calcValue);
00077                 calcValue = (*f)->getTarget()->getValue() + (*d);
00078                 (*f)->getTarget()->setValue(calcValue);
00079                 f++;
00080                 d++;
00081             }
00082
00083             flowValue.clear();
00084
00085         }
00086
00087         return true;
00088     }

```

References [endTime](#), [flows](#), and [startTime](#).

Referenced by [Complex_test_run\(\)](#), [exponential_test_run\(\)](#), and [logistical_test_run\(\)](#).

Here is the caller graph for this function:



4.7.2.14 setEndTime()

```
void ModelIMP::setEndTime (
    const int & endTime ) [virtual]
```

This method assigns a int to the endTime of a [Model](#).

Parameters

| | |
|----------------|----------------------------------|
| <i>endTime</i> | int must be passed to the method |
|----------------|----------------------------------|

Implements [Model](#).

```
00029 { this->endTime = endTime; }
```

References [endTime](#).

4.7.2.15 setFlows()

```
void ModelIMP::setFlows (
    const std::vector< Flow * > flows ) [virtual]
```

This method assigns a vector to the flows of a [Model](#).

Parameters

| | |
|--------------|----------------------------------|
| <i>flows</i> | int must be passed to the method |
|--------------|----------------------------------|

Implements [Model](#).

```
00024 { for(auto i : flows) this->flows.push_back(i); }
```

References [flows](#).

4.7.2.16 setName()

```
void ModelIMP::setName (
    const std::string & name ) [virtual]
```

This method assigns a string to the name of a [Model](#).

Parameters

| | |
|-------------|-------------------------------------|
| <i>name</i> | string must be passed to the method |
|-------------|-------------------------------------|

Implements [Model](#).

```
00019 { this->name = name; }
```

References [name](#).

Referenced by [test_Model_equal\(\)](#).

Here is the caller graph for this function:



4.7.2.17 setStartTime()

```
void ModelIMP::setStartTime (
    const int & startTime ) [virtual]
```

This method assigns a int to the startTime of a [Model](#).

Parameters

| | |
|------------------|----------------------------------|
| <i>startTime</i> | int must be passed to the method |
|------------------|----------------------------------|

Implements [Model](#).

```
00028 { this->startTime = startTime; }
```

References [startTime](#).

4.7.2.18 setSystems()

```
void ModelIMP::setSystems (
    const std::vector< System * > systems ) [virtual]
```

This method assigns a vector to the systems of a [Model](#).

Parameters

| | |
|----------------|----------------------------------|
| <i>systems</i> | int must be passed to the method |
|----------------|----------------------------------|

Implements [Model](#).

```
00023 { for(auto i : systems) this->systems.push_back(i); }
```

References [systems](#).

4.7.2.19 setTime()

```
void ModelIMP::setTime (
    const int & startTime,
    const int & endTime ) [virtual]
```

This method assigns a int to the startTime and endTime of a [Model](#).

Parameters

| | |
|------------------|----------------------------------|
| <i>startTime</i> | int must be passed to the method |
| <i>endTime</i> | int must be passed to the method |

Implements [Model](#).

```
00030 { this->startTime = startTime; this->endTime = endTime; }
```

References [endTime](#), and [startTime](#).

4.7.3 Member Data Documentation

4.7.3.1 endTime

```
int ModelIMP::endTime [protected]
```

End time simulation integer attribute.

Referenced by [getEndTime\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), [run\(\)](#), [setEndTime\(\)](#), and [setTime\(\)](#).

4.7.3.2 flows

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

[Flow](#) pointers vector.

Referenced by [add\(\)](#), [getFlows\(\)](#), [ModelIMP\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), [rmv\(\)](#), [run\(\)](#), [setFlows\(\)](#), and [~ModelIMP\(\)](#).

4.7.3.3 name

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

Name string attribute.

Referenced by [getName\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), and [setName\(\)](#).

4.7.3.4 startTime

```
int ModelIMP::startTime [protected]
```

Start time simulation integer attribute.

Referenced by [getStartTime\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), [run\(\)](#), [setStartTime\(\)](#), and [setTime\(\)](#).

4.7.3.5 systems

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

[System](#) pointers vector.

Referenced by [add\(\)](#), [getSystems\(\)](#), [ModelIMP\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), [rmv\(\)](#), [setSystems\(\)](#), and [~ModelIMP\(\)](#).

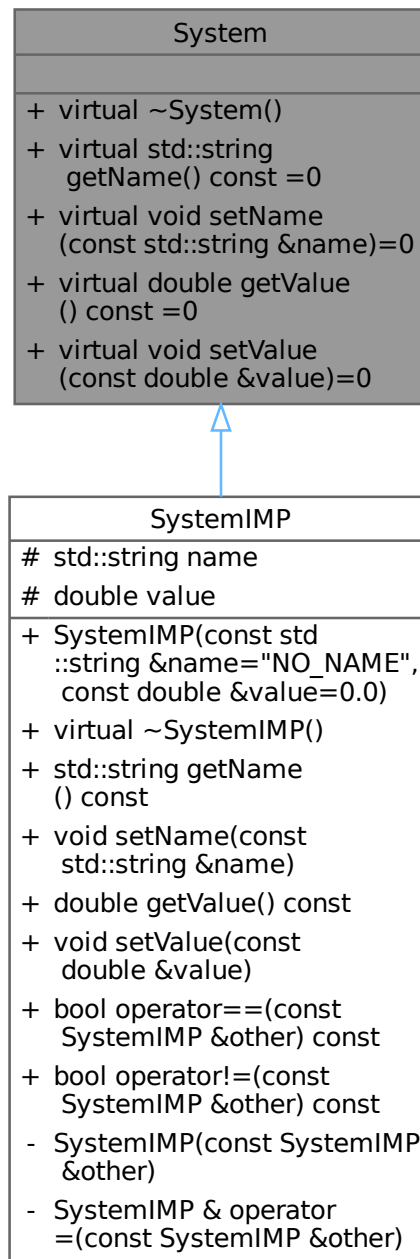
The documentation for this class was generated from the following files:

- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/ModelIMP.h](#)
- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/ModelIMP.cpp](#)

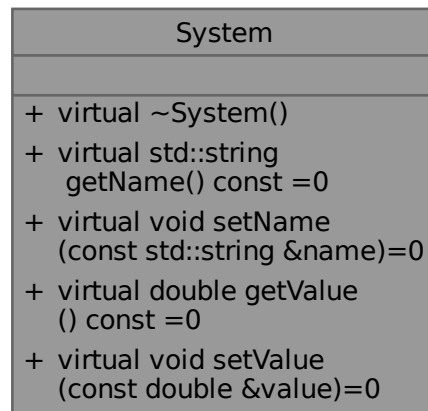
4.8 System Class Reference

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


Inheritance diagram for System:



Collaboration diagram for System:



Public Member Functions

- virtual [~System](#) ()
This destructor is a virtual destructor of the Class.
- virtual std::string [getName](#) () const =0
This method returns the name of a system.
- virtual void [setName](#) (const std::string &name)=0
This method assigns a string to the name of a system.
- virtual double [getValue](#) () const =0
This method returns the value of a system.
- virtual void [setValue](#) (const double &value)=0
This method assigns a double to the value of a system.

4.8.1 Constructor & Destructor Documentation

4.8.1.1 ~System()

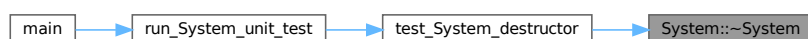
```
virtual System::~System ( ) [inline], [virtual]
```

This destructor is a virtual destructor of the Class.

```
00024 {};
```

Referenced by [test_System_destructor\(\)](#).

Here is the caller graph for this function:



4.8.2 Member Function Documentation

4.8.2.1 getName()

```
virtual std::string System::getName ( ) const [pure virtual]
```

This method returns the name of a system.

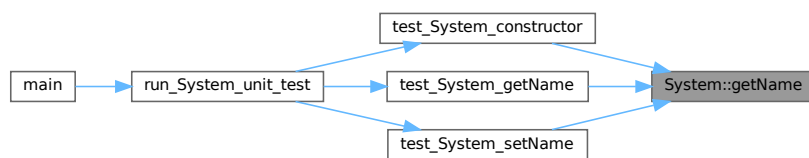
Returns

a string containing the name is returned

Implemented in [SystemIMP](#).

Referenced by [test_System_constructor\(\)](#), [test_System_getName\(\)](#), and [test_System_setName\(\)](#).

Here is the caller graph for this function:



4.8.2.2 getValue()

```
virtual double System::getValue ( ) const [pure virtual]
```

This method returns the value of a system.

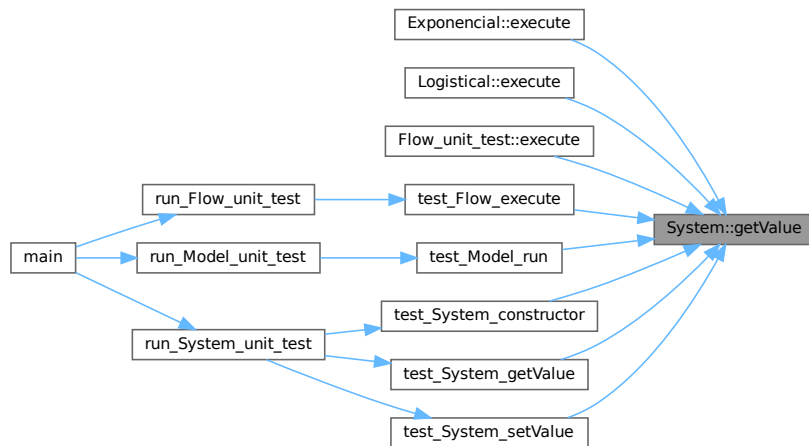
Returns

a double containing the value is returned

Implemented in [SystemIMP](#).

Referenced by [Exponencial::execute\(\)](#), [Logistical::execute\(\)](#), [Flow_unit_test::execute\(\)](#), [test_Flow_execute\(\)](#), [test_Model_run\(\)](#), [test_System_constructor\(\)](#), [test_System_getValue\(\)](#), and [test_System_setValue\(\)](#).

Here is the caller graph for this function:



4.8.2.3 setName()

```
virtual void System::setName (
    const std::string & name ) [pure virtual]
```

This method assigns a string to the name of a system.

Parameters

| | |
|-------------|-------------------------------------|
| <i>name</i> | string must be passed to the method |
|-------------|-------------------------------------|

Implemented in [SystemIMP](#).

Referenced by [test_System_setName\(\)](#).

Here is the caller graph for this function:



4.8.2.4 setValue()

```
virtual void System::setValue (
    const double & value ) [pure virtual]
```

This method assigns a double to the value of a system.

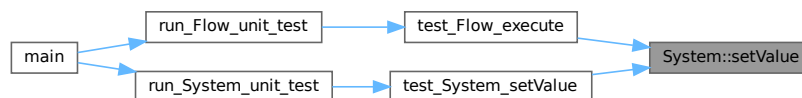
Parameters

| | |
|--------------|-------------------------------------|
| <i>value</i> | double must be passed to the method |
|--------------|-------------------------------------|

Implemented in [SystemIMP](#).

Referenced by [test_Flow_execute\(\)](#), and [test_System_setValue\(\)](#).

Here is the caller graph for this function:



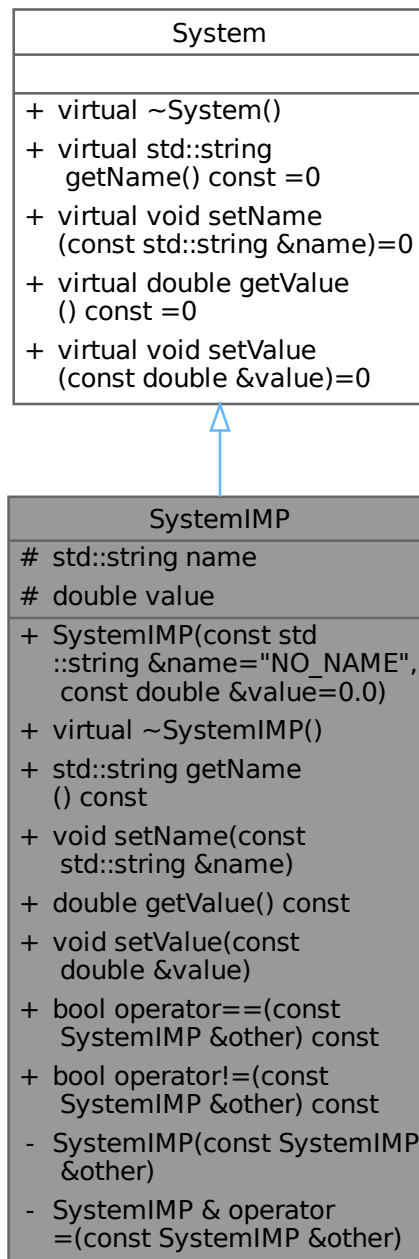
The documentation for this class was generated from the following file:

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

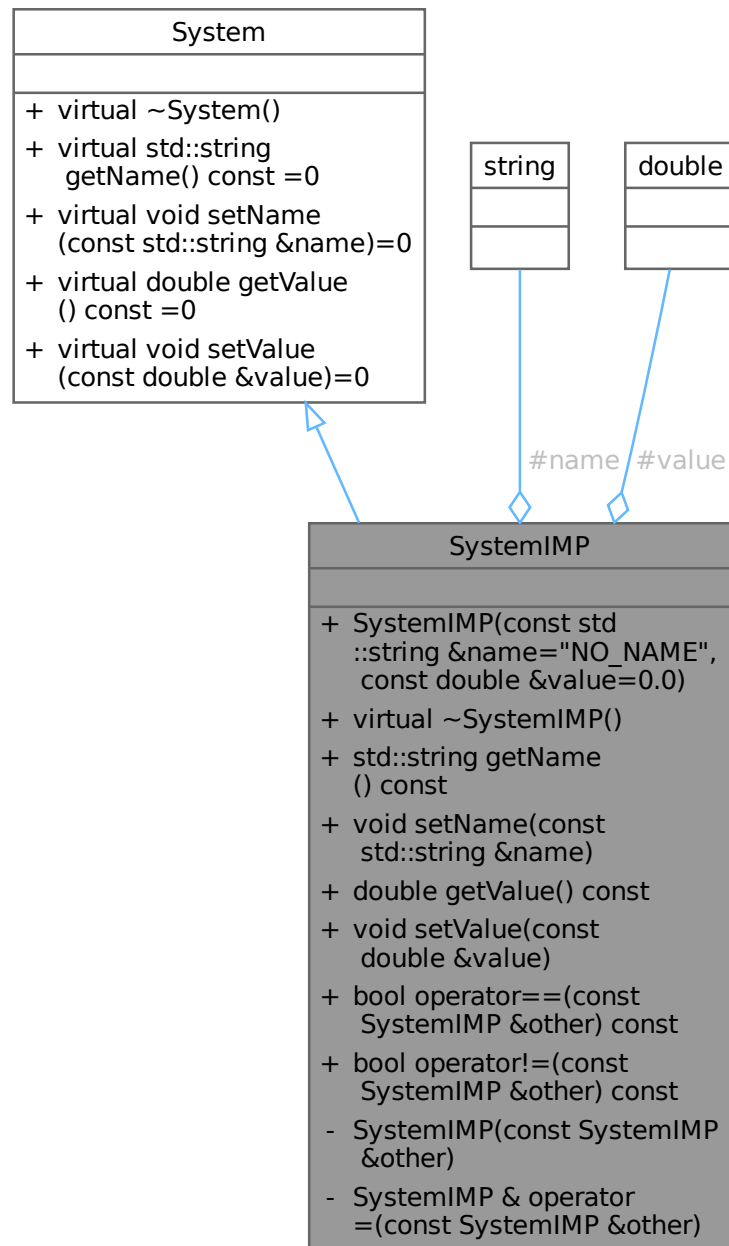
4.9 SystemIMP Class Reference

```
#include <SystemIMP.h>
```

Inheritance diagram for SystemIMP:



Collaboration diagram for SystemIMP:



Public Member Functions

- [SystemIMP](#) (const std::string &name="NO_NAME", const double &value=0.0)
Construct a new [System](#) by name and value.
- virtual `~SystemIMP ()`
This destructor is a virtual destructor of the Class.
- std::string [getName](#) () const

This method returns the name of a system.

- void `setName` (const std::string &`name`)

This method assigns a string to the name of a system.

- double `getValue` () const

This method returns the value of a system.

- void `setValue` (const double &`value`)

This method assigns a double to the value of a system.

- bool `operator==` (const `SystemIMP` &`other`) const

This method is overloading the '==' operator, compare two systems objs.

- bool `operator!=` (const `SystemIMP` &`other`) const

This method is overloading the '!=' operator, compare two systems objs.

Public Member Functions inherited from `System`

- virtual `~System` ()

This destructor is a virtual destructor of the Class.

Protected Attributes

- std::string `name`
- double `value`

Private Member Functions

- `SystemIMP` (const `SystemIMP` &`other`)

Construct a new `System` by a obj.

- `SystemIMP` & `operator=` (const `SystemIMP` &`other`)

This method is overloading the '=' operator, "cloning" from one system to another.

4.9.1 Constructor & Destructor Documentation

4.9.1.1 `SystemIMP()` [1/2]

```
SystemIMP::SystemIMP (
    const SystemIMP & other ) [private]
```

Construct a new `System` by a obj.

Parameters

| | |
|--------------|-------------------------|
| <i>other</i> | <code>System</code> obj |
|--------------|-------------------------|

```
00006 : name(other.name), value(other.value) {}
```

4.9.1.2 `SystemIMP()` [2/2]

```
SystemIMP::SystemIMP (
```



```
const std::string & name = "NO_NAME",
const double & value = 0.0 )
```

Construct a new [System](#) by name and value.

Parameters

| | |
|--------------|-------------------------------------|
| <i>name</i> | string with default value "NO_NAME" |
| <i>value</i> | double with default value 0.0 |

```
00004 : name(name), value(value) {}
```

4.9.1.3 ~SystemIMP()

```
SystemIMP::~~SystemIMP ( ) [virtual]
```

This destructor is a virtual destructor of the Class.

```
00009 {};
```

4.9.2 Member Function Documentation

4.9.2.1 getName()

```
std::string SystemIMP::getName ( ) const [virtual]
```

This method returns the name of a system.

Returns

a string containing the name is returned

Implements [System](#).

```
00013 { return name; }
```

References [name](#).

4.9.2.2 getValue()

```
double SystemIMP::getValue ( ) const [virtual]
```

This method returns the value of a system.

Returns

a double containing the value is returned

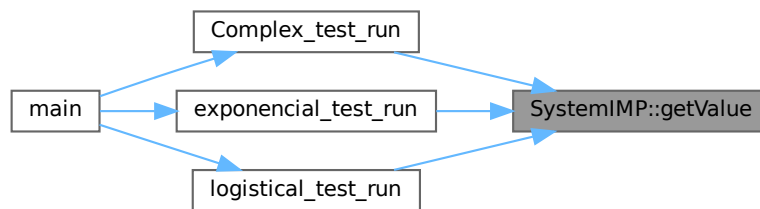
Implements [System](#).

```
00016 { return value; }
```

References [value](#).

Referenced by [Complex_test_run\(\)](#), [exponencial_test_run\(\)](#), and [logistical_test_run\(\)](#).

Here is the caller graph for this function:

**4.9.2.3 operator!=()**

```
bool SystemIMP::operator!= (
    const SystemIMP & other ) const
```

This method is overloading the '!=' operator, compare two systems objs.

Parameters

| | |
|--------------|---|
| <i>other</i> | system obj to be compare must be passed |
|--------------|---|

Returns

A bool is returned, false if they are equal and true if not

```
00034 {
00035     return (name != other.name || value != other.value);
00036     // Compare todos os membros para verificar igualdade
00037 }
```

References [name](#), and [value](#).

4.9.2.4 operator=()

```
SystemIMP & SystemIMP::operator= (
    const SystemIMP & other ) [private]
```

This method is overloading the '=' operator, "cloning" from one system to another.

Parameters

| | |
|--------------|--|
| <i>other</i> | system obj to be cloned must be passed |
|--------------|--|

Returns

A system is returned that is a clone of what was passed to the method

```

00021                                     {
00022     if(other == *this) return *this;
00023     name = other.name;
00024     value = other.value;
00025     return *this;
00026 }
```

References [name](#), and [value](#).

4.9.2.5 operator==()

```

bool SystemIMP::operator== (
    const SystemIMP & other ) const
```

This method is overloading the '==' operator, compare two systems objs.

Parameters

| | |
|--------------|---|
| <i>other</i> | system obj to be compare must be passed |
|--------------|---|

Returns

A bool is returned, true if they are equal and false if not

```

00028                                     {
00029     return (name == other.name && value == other.value);
00030     // Compare todos os membros para verificar igualdade
00031 }
```

References [name](#), and [value](#).

4.9.2.6 setName()

```

void SystemIMP::setName (
    const std::string & name ) [virtual]
```

This method assigns a string to the name of a system.

Parameters

| | |
|-------------|-------------------------------------|
| <i>name</i> | string must be passed to the method |
|-------------|-------------------------------------|

Implements [System](#).

```

00014 { this->name = name; }
```

References [name](#).

4.9.2.7 setValue()

```
void SystemIMP::setValue (
    const double & value ) [virtual]
```

This method assigns a double to the value of a system.

Parameters

| | |
|--------------|-------------------------------------|
| <i>value</i> | double must be passed to the method |
|--------------|-------------------------------------|

Implements [System](#).

```
00017 { this->value = value; }
```

References [value](#).

4.9.3 Member Data Documentation

4.9.3.1 name

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

Name string attribute.

Referenced by [getName\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), and [setName\(\)](#).

4.9.3.2 value

```
double SystemIMP::value [protected]
```

Value double attribute.

Referenced by [getValue\(\)](#), [operator!=\(\)](#), [operator=\(\)](#), [operator==\(\)](#), and [setValue\(\)](#).

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

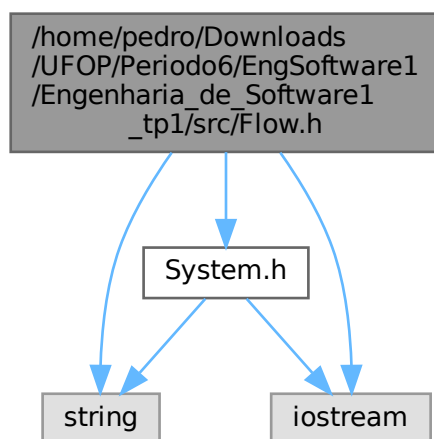
- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/SystemIMP.h](#)
- [/home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/SystemIMP.cpp](#)

Chapter 5

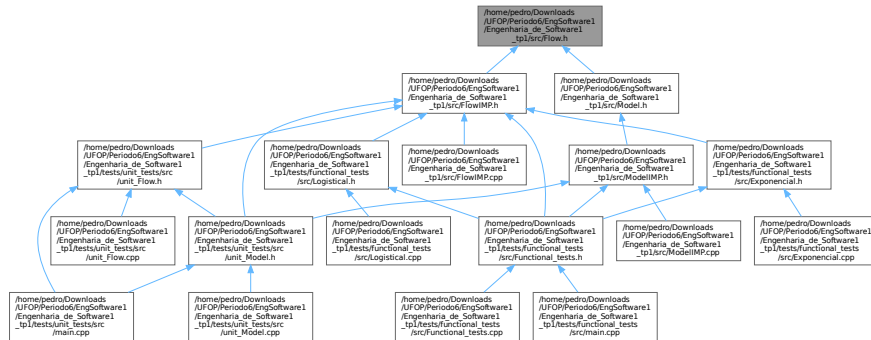
File Documentation

5.1 /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:



Classes

- class [Flow](#)

5.2 Flow.h

[Go to the documentation of this file.](#)

```

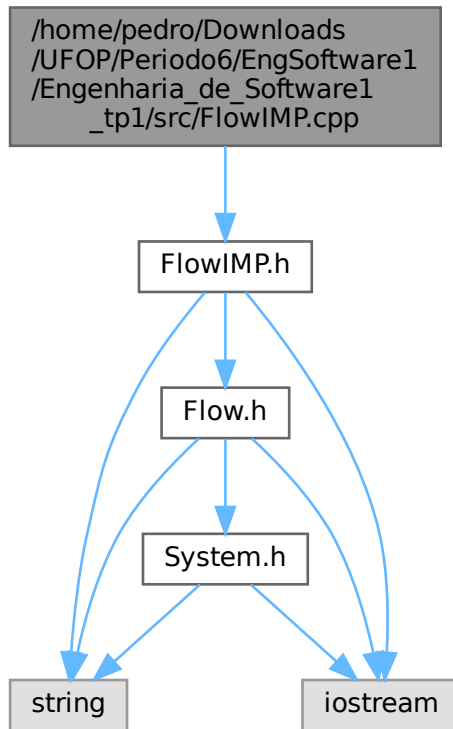
00001 /*****
00002  * @file Flow.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the flow Interface
00005  *****/
00006
00007 #ifndef FLOW_H
00008 #define FLOW_H
00009
00010 #include "System.h"
00011 #include <string>
00012 #include <iostream>
00013
00014 /*****
00015  * @brief The Flow Interface is the Interface that defines the methods to be implemented
00016  *****/
00017
00018 class Flow{
00019 public:
00020     //Destructor
00021     virtual ~Flow() {};
00022
00023     //Getters e setters
00024     //Name
00025     virtual std::string getName() const = 0;
00026     virtual void setName(const std::string& name) = 0;
00027     //Source
00028     virtual System* getSource() const = 0;
00029     virtual void setSource(System* source) = 0;
00030     //Target
00031     virtual System* getTarget() const = 0;
00032     virtual void setTarget(System* target) = 0;
00033
00034     //Metodos
00035     virtual double execute() = 0;
00036 };
00037
00038 #endif

```

5.3 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/FlowIMP.cpp File Reference

```
#include "FlowIMP.h"
```

Include dependency graph for FlowIMP.cpp:



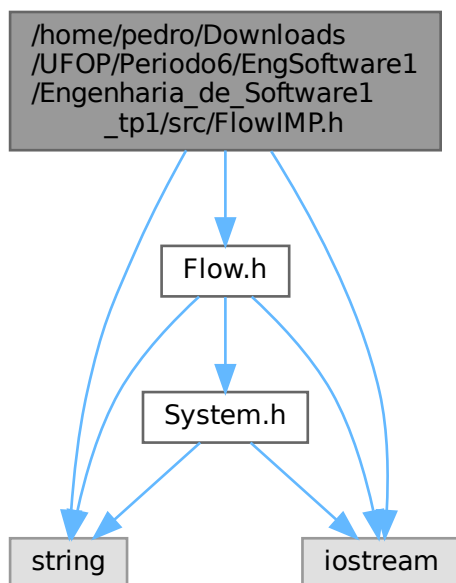
5.4 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/FlowIMP.h File Reference

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

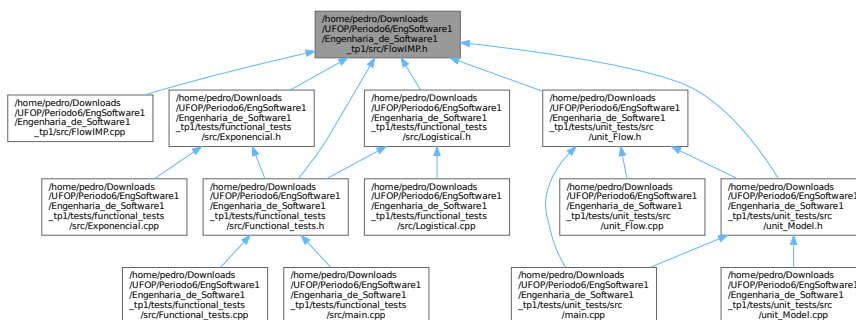
```
#include <string>
```

```
#include <iostream>
```

Include dependency graph for FlowIMP.h:



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



Classes

- class [FlowIMP](#)

5.5 FlowIMP.h

[Go to the documentation of this file.](#)

```

00001 /*****
00002  * @file FlowIMP.h
00003  * @author Pedro Augusto Sousa Gonçalves

```

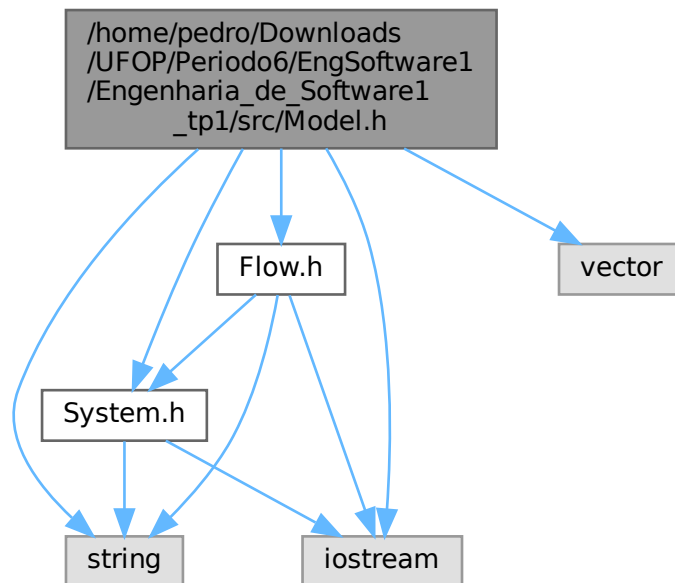


```
00004  * @brief This file represents the flow implementation
00005  *****/
00006
00007 #ifndef FLOWIMP_H
00008 #define FLOWIMP_H
00009
00010 #include "Flow.h"
00011 #include <string>
00012 #include <iostream>
00013
00014 /*****
00015  * @brief The Flow implementation defines the attributes and implements the methods
00016  *****/
00017
00018 class FlowIMP : public Flow{
00019     private:
00020         FlowIMP& operator=(const FlowIMP& other); // Operador de atribuição
00021
00022     protected:
00023         std::string name;
00024         System* source;
00025         System* target;
00026     public:
00027         //Destructor
00028         virtual ~FlowIMP();
00029
00030         //Getters e setters
00031         //Name
00032         std::string getName() const;
00033         void setName(const std::string& name);
00034         //Source
00035         System* getSource() const;
00036         void setSource(System* source);
00037         //Target
00038         System* getTarget() const;
00039         void setTarget(System* target);
00040
00041         //Metodos
00042         virtual double execute() = 0;
00043
00044         //Sobrecarga de operadores
00045         virtual bool operator==(const FlowIMP& other) const; // Operador de igualdade
00046         virtual bool operator!=(const FlowIMP& other) const; // Operador de diferença
00047 };
00048
00049 #endif
```

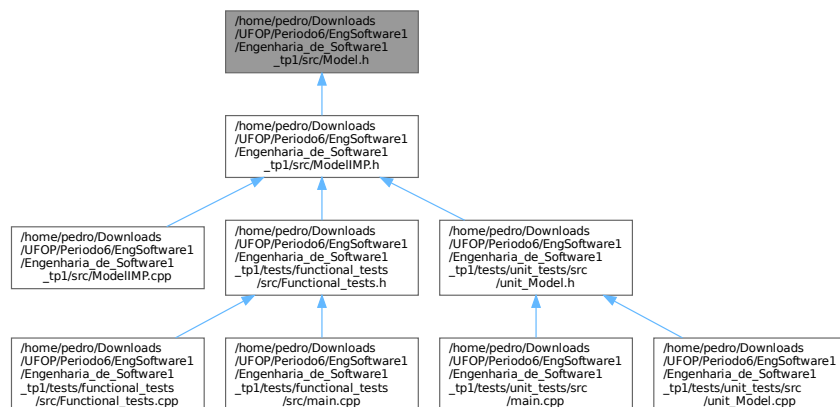
5.6 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/Model.h File Reference ↩

```
#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:



Classes

- class [Model](#)

5.7 Model.h

[Go to the documentation of this file.](#)

```

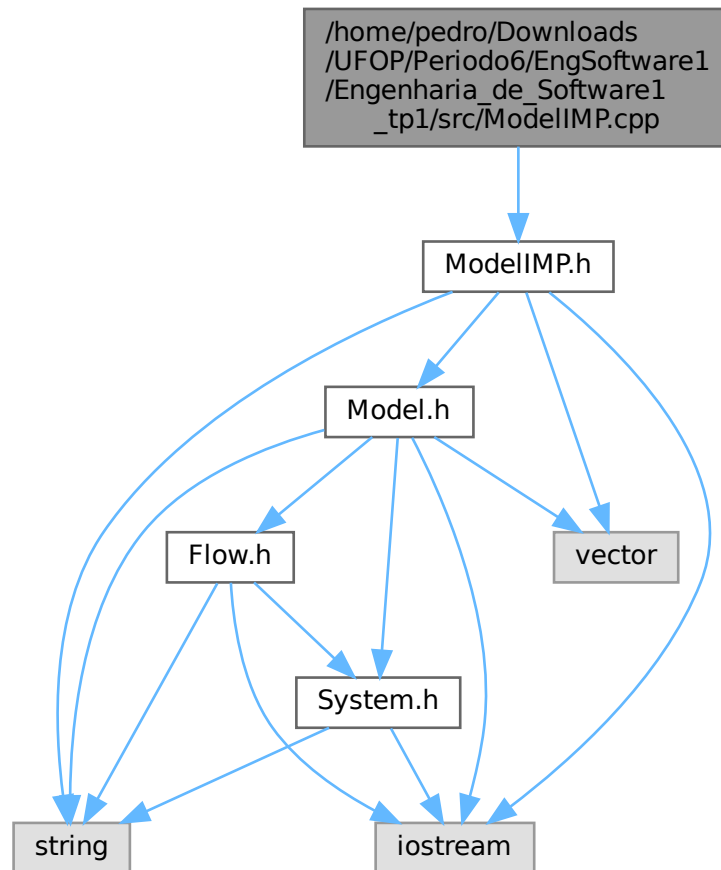
00001 /*****
00002  * @file Model.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the simulation model
00005  *****/
00006
00007 #ifndef MODEL_H
00008 #define MODEL_H
00009
00010 #include "System.h"
00011 #include "Flow.h"
00012 #include <string>
00013 #include <iostream>
00014 #include <vector>
00015
00016
00017 /*****
00018  * @brief This class represents the general simulation model, it contains figures for simulation and
00019  its execution.
00020  *****/
00021
00022 class Model{
00023     public:
00024         //Iteradores
00025         typedef std::vector<System*>::iterator systemIterator;
00026         typedef std::vector<Flow*>::iterator flowIterator;
00027
00028         //Destrutor
00029         virtual ~Model() {};
00030
00031         //Getters e setters
00032         //Name
00033         virtual std::string getName() const = 0;
00034         virtual void setName(const std::string& name) = 0;
00035         //Vector
00036         virtual std::vector<System*> getSystems() const = 0;
00037         virtual std::vector<Flow*> getFlows() const = 0;
00038         virtual void setSystems(const std::vector<System*> systems) = 0;
00039         virtual void setFlows(const std::vector<Flow*> flows) = 0;
00040         //Time
00041         virtual int getStartTime() const = 0;
00042         virtual int getEndTime() const = 0;
00043         virtual void setStartTime(const int& startTime) = 0;
00044         virtual void setEndTime(const int& endTime) = 0;
00045         virtual void setTime(const int& startTime, const int& endTime) = 0;
00046
00047         //Metodos
00048         //add
00049         virtual void add(System* system) = 0;
00050         virtual void add(Flow* flow) = 0;
00051         //remove
00052         virtual bool rmv(const System* system) = 0;
00053         virtual bool rmv(const Flow* flow) = 0;
00054         //Others
00055         virtual bool run() = 0;
00056
00057 };
00058 #endif

```

5.8 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/ModelIMP.cpp File Reference

```
#include "ModelIMP.h"
```

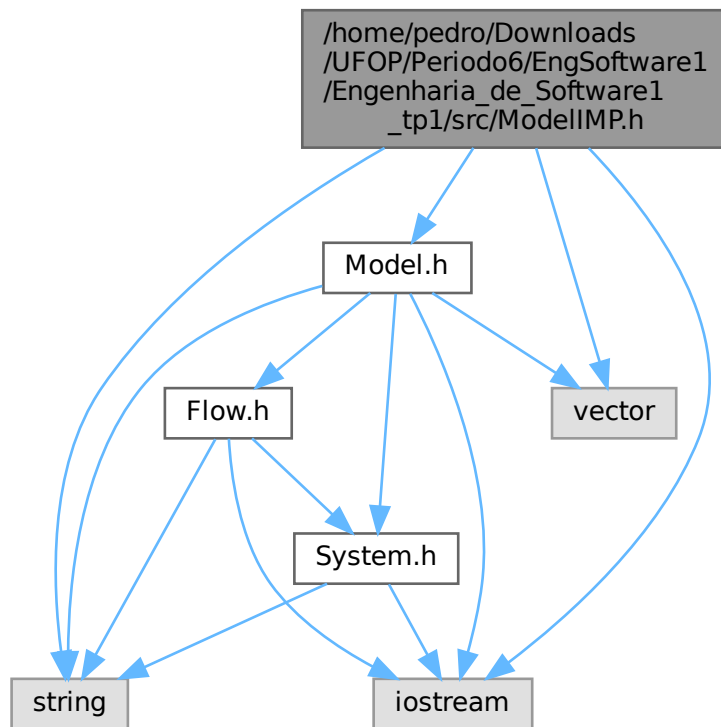
Include dependency graph for ModelIMP.cpp:



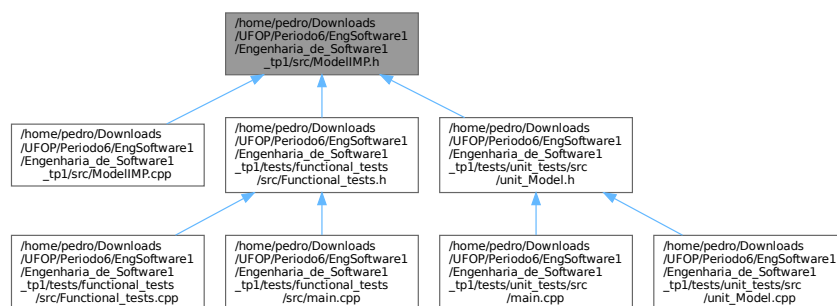
5.9 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/ModelIMP.h File Reference

```
#include "Model.h"
#include <string>
#include <iostream>
#include <vector>
```

Include dependency graph for ModelIMP.h:



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



Classes

- class `ModelIMP`

5.10 ModelIMP.h

[Go to the documentation of this file.](#)

```

00001 /*****
00002  * @file ModelIMP.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the model implementation
00005  *****/
00006
00007 #ifndef MODELIMP_H
00008 #define MODELIMP_H
00009
00010 #include "Model.h"
00011 #include <string>
00012 #include <iostream>
00013 #include <vector>
00014
00015 /*****
00016  *@brief This class implementation defines the attributes and implements the methods
00017  *****/
00018 class ModelIMP : public Model{
00019     private:
00020         ModelIMP& operator=(const ModelIMP& other); // Operador de atribuição
00021         ModelIMP(const ModelIMP& other); //Copia outro flow
00022     protected:
00023         std::string name;
00024         std::vector<System*> systems;
00025         std::vector<Flow*> flows;
00026         int startTime;
00027         int endTime;
00028     public:
00029         //Constructors
00030         ModelIMP(const std::string& name = "NO_NAME", const int& startTime = 0, const int& endTime =
00031 1);
00032
00033         //Destrutor
00034         virtual ~ModelIMP();
00035
00036         //Getters e setters
00037         //Name
00038         std::string getName() const;
00039         void setName(const std::string& name);
00040         //Vector
00041         std::vector<System*> getSystems() const;
00042         std::vector<Flow*> getFlows() const;
00043         void setSystems(const std::vector<System*> systems);
00044         void setFlows(const std::vector<Flow*> flows);
00045         //Time
00046         int getStartTime() const;
00047         int getEndTime() const;
00048         void setStartTime(const int& startTime);
00049         void setEndTime(const int& endTime);
00050         void setTime(const int& startTime, const int& endTime);
00051
00052         //Metodos
00053         //add
00054         void add(System* system);
00055         void add(Flow* flow);
00056         //remove
00057         bool rmv(const System* system);
00058         bool rmv(const Flow* flow);
00059         //Others
00060         bool run();
00061
00062         //Sobrecarga de operadores
00063         bool operator==(const ModelIMP& other) const; // Operador de igualdade
00064         bool operator!=(const ModelIMP& other) const; // Operador de igualdade
00065 };
00066
00067 #endif

```

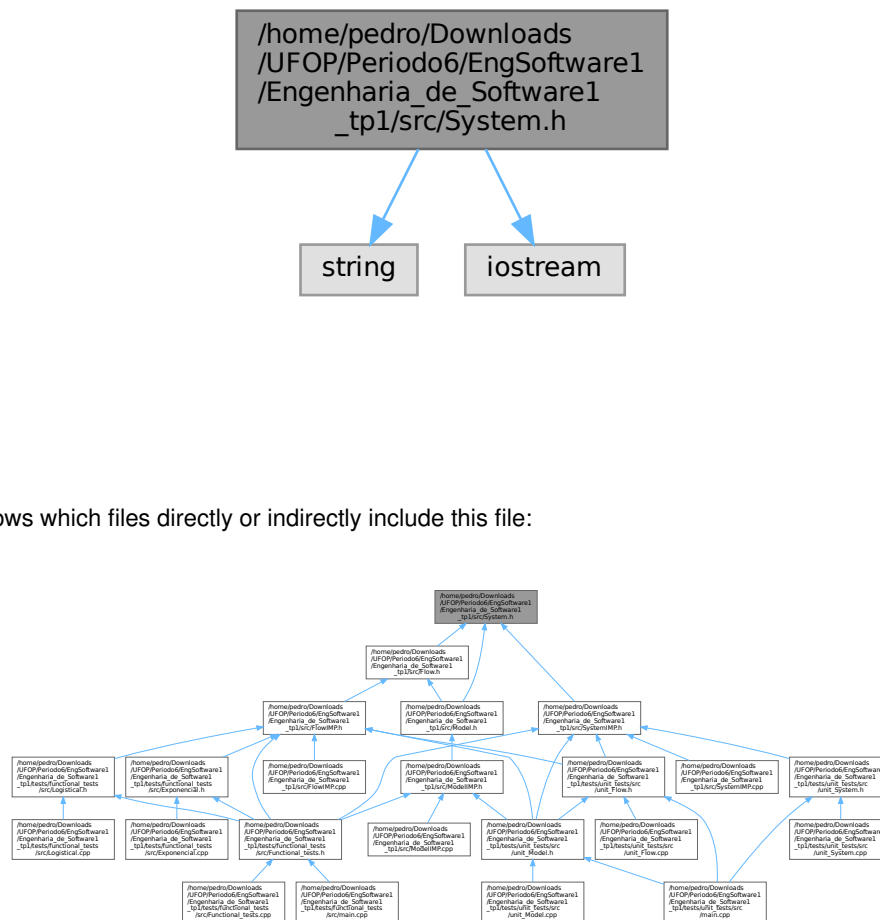
5.11 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/System.h File Reference

```

#include <string>
#include <iostream>

```

Include dependency graph for System.h:



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

Classes

- class [System](#)

5.12 System.h

[Go to the documentation of this file.](#)

```

00001 /*****
00002  * @file System.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the System interface
00005  *****/
00006
00007 #ifndef SYSTEM_H
00008 #define SYSTEM_H
00009
00010 //Bibliotecas
00011 #include <string>
00012 #include <iostream>
00013
00014 /*****
00015  * @brief The System Interface is the Interface that defines the methods to be implemented
00016  *****/

```

```

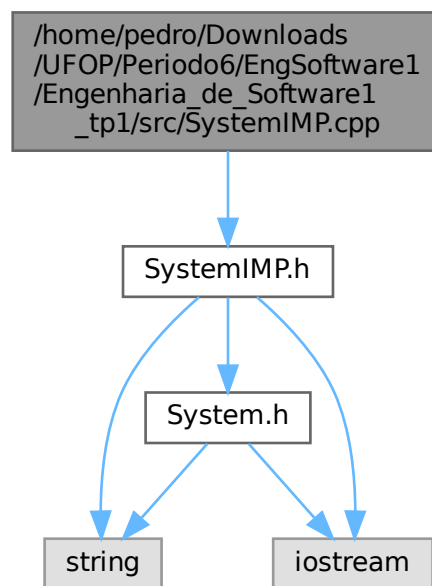
00017
00018 class System{
00019     public:
00020         //Destructors
00024         virtual ~System() {};
00025
00026         //Getters e setters
00027         //Nome
00032         virtual std::string getName() const = 0;
00037         virtual void setName(const std::string& name) = 0;
00038         //Value
00043         virtual double getValue() const = 0;
00048         virtual void setValue(const double& value) = 0;
00049 };
00050
00051 #endif

```

5.13 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/SystemIMP.cpp File Reference

```
#include "SystemIMP.h"
```

Include dependency graph for SystemIMP.cpp:



5.14 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/src/SystemIMP.h File Reference

```

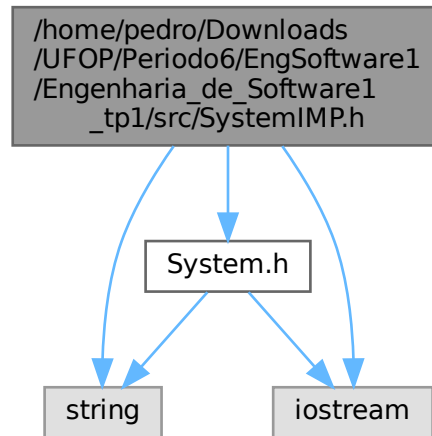
#include "System.h"
#include <string>

```

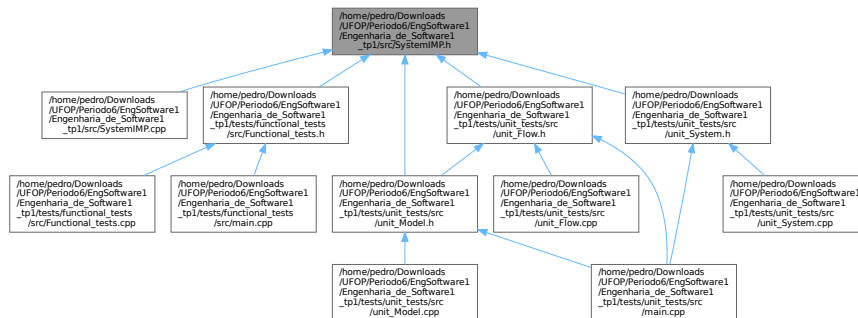


```
#include <iostream>
```

Include dependency graph for SystemIMP.h:



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



Classes

- class [SystemIMP](#)

5.15 SystemIMP.h

[Go to the documentation of this file.](#)

```

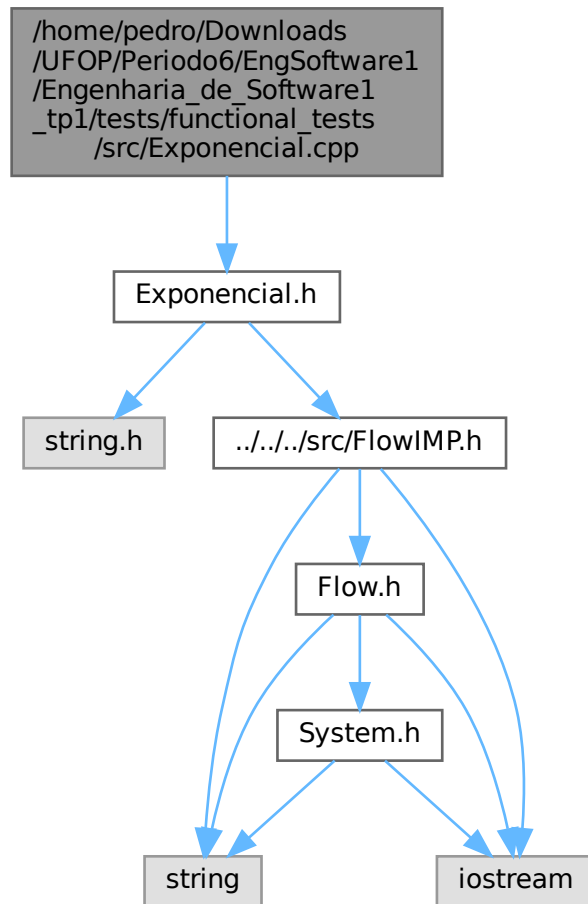
00001 /*****
00002  * @file SystemIMP.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the system implementation
00005  *****/
00006
00007 #ifndef SYSTEMIMP_H
00008 #define SYSTEMIMP_H
  
```

```
00009
00010 //Bibliotecas
00011 #include "System.h"
00012 #include <string>
00013 #include <iostream>
00014
00015 /*****
00016  *@brief The System implementation defines the attributes and implements the methods
00017  *****/
00018
00019 class SystemIMP : public System{
00020     private:
00025         SystemIMP(const SystemIMP& other); //Copia outro system
00031         SystemIMP& operator=(const SystemIMP& other); // Operador de atribuição
00032
00033     protected:
00034         std::string name;
00035         double value;
00037     public:
00038         //Constructors
00044         SystemIMP(const std::string& name = "NO_NAME", const double& value = 0.0);
00045
00049         //Destructors
00050         virtual ~SystemIMP();
00051
00052         //Getters e setters
00053         //Nome
00058         std::string getName() const;
00063         void setName(const std::string& name);
00064         //Value
00069         double getValue() const;
00074         void setValue(const double& value);
00075
00076         //Sobrecarga de operadores
00082         bool operator==(const SystemIMP& other) const; // Operador de igualdade
00088         bool operator!=(const SystemIMP& other) const; // Operador de diferença
00089 };
00090
00091 #endif
```

5.16 /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:

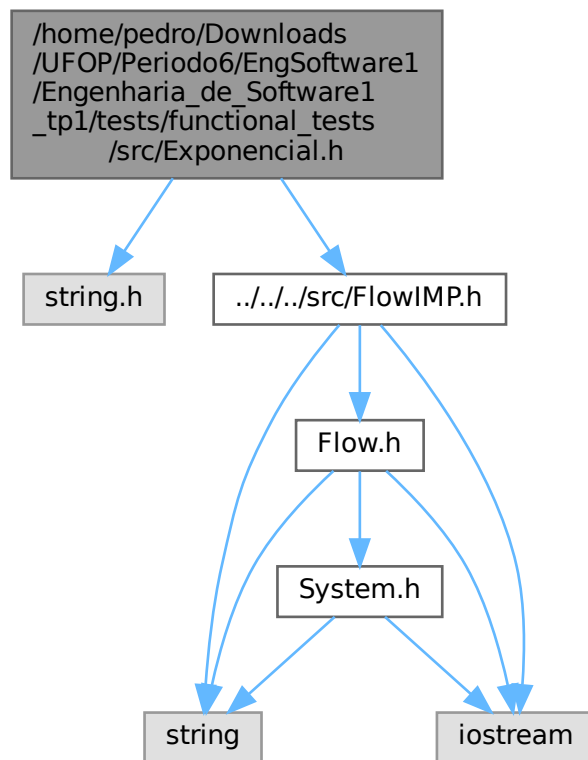


5.17 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/Exponencial.h File Reference

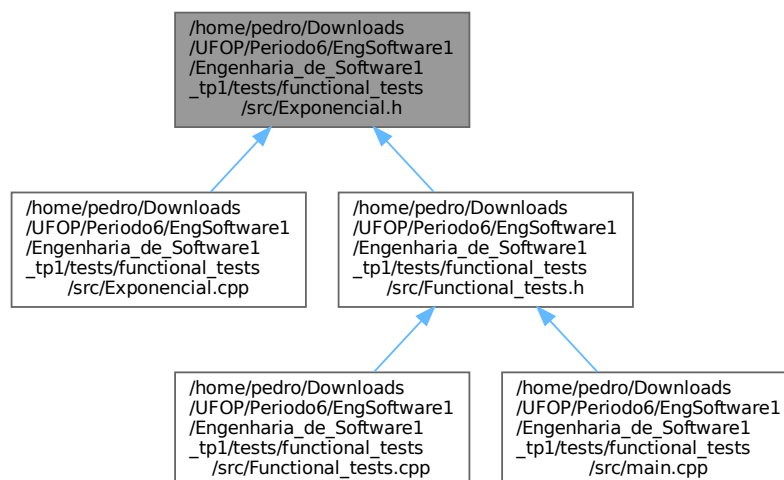
```
#include <string.h>
```

```
#include "../../src/FlowIMP.h"
```

Include dependency graph for Exponencial.h:



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



Classes

- class [Exponencial](#)

5.18 Exponencial.h

[Go to the documentation of this file.](#)

```

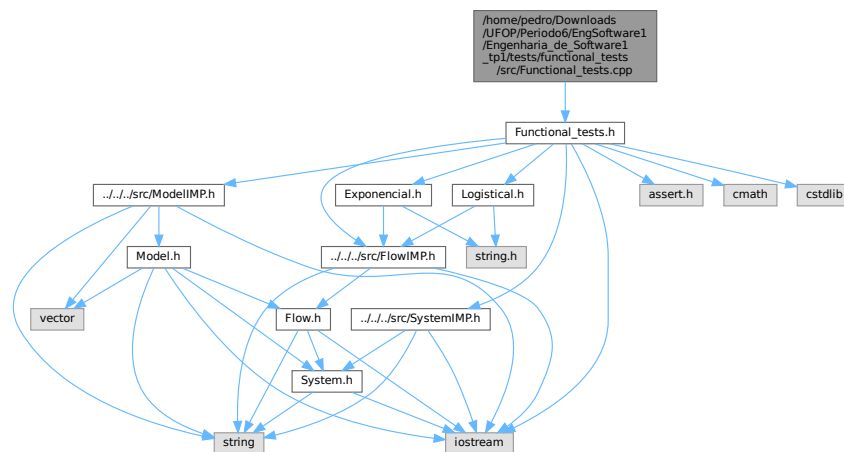
00001 /*****
00002  * @file Exponencial.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the exponential simulation flow
00005  *****/
00006
00007 #ifndef EXPONENCIAL_DEF
00008 #define EXPONENCIAL_DEF
00009
00010 #include <string.h>
00011 #include "../src/FlowIMP.h"
00012
00013 /*****
00014  * @brief This Flow class connects two systems and through the entered equation transfers values from
00015  one system to another
00016  *****/
00016 class Exponencial : public FlowIMP{
00017     private:
00022         Exponencial(const Exponencial& other);
00023
00024     public:
00025         //Constructor
00032         Exponencial(const std::string& name = "NO_NAME", System* source = NULL, System* target =
00033 NULL);
00034
00034         //Destructor
00038         virtual ~Exponencial();
00039
00040         //Metodos
00045         virtual double execute() override;
00046 };
00047
00048 #endif

```

5.19 /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\(\)](#)
This function performs the exponential functional test.
- void [logistical_test_run\(\)](#)
This function performs the logistic test.
- void [Complex_test_run\(\)](#)
This function runs the "complex" test, which has multiple systems and flows.

5.19.1 Function Documentation

5.19.1.1 Complex_test_run()

```
void Complex_test_run ( )
```

This function runs the "complex" test, which has multiple systems and flows.

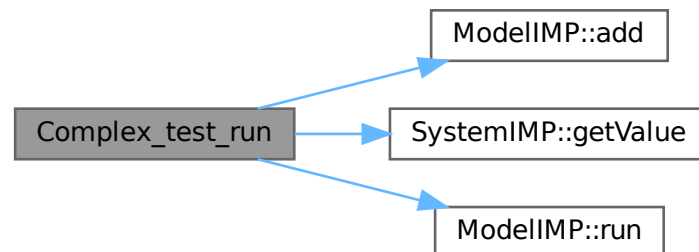
```
00057     {
00058         std::cout << "   Complex functional test" << std::endl;
00059
00060         ModelIMP* model = new ModelIMP("Model", 0, 100);
00061         SystemIMP* q1 = new SystemIMP("q1", 100.0);
00062         SystemIMP* q2 = new SystemIMP("q2", 0.0);
00063         SystemIMP* q3 = new SystemIMP("q3", 100.0);
00064         SystemIMP* q4 = new SystemIMP("q4", 0.0);
00065         SystemIMP* q5 = new SystemIMP("q5", 0.0);
00066         Exponencial* f = new Exponencial("f", q1, q2);
00067         Exponencial* t = new Exponencial("t", q2, q3);
00068         Exponencial* u = new Exponencial("u", q3, q4);
00069         Exponencial* v = new Exponencial("v", q4, q1);
00070         Exponencial* g = new Exponencial("g", q1, q3);
00071         Exponencial* r = new Exponencial("r", q2, q5);
```

```
00072
00073     model->add(q1);
00074     model->add(q2);
00075     model->add(q3);
00076     model->add(q4);
00077     model->add(q5);
00078     model->add(f);
00079     model->add(t);
00080     model->add(u);
00081     model->add(v);
00082     model->add(g);
00083     model->add(r);
00084
00085     model->run();
00086
00087     assert(fabs((round((q1->getValue() * 10000)) - 10000 * 31.8513)) < 0.0001);
00088     assert(fabs((round((q2->getValue() * 10000)) - 10000 * 18.4003)) < 0.0001);
00089     assert(fabs((round((q3->getValue() * 10000)) - 10000 * 77.1143)) < 0.0001);
00090     assert(fabs((round((q4->getValue() * 10000)) - 10000 * 56.1728)) < 0.0001);
00091     assert(fabs((round((q5->getValue() * 10000)) - 10000 * 16.4612)) < 0.0001);
00092
00093     delete model;
00094     delete q1;
00095     delete q2;
00096     delete q3;
00097     delete q4;
00098     delete q5;
00099     delete f;
00100     delete t;
00101     delete u;
00102     delete v;
00103     delete g;
00104     delete r;
00105
00106     std::cout << "   Complex functional test passed" << std::endl;
00107 }
```

References [ModelIMP::add\(\)](#), [SystemIMP::getValue\(\)](#), and [ModelIMP::run\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.19.1.2 exponencial_test_run()

```
void exponencial_test_run ( )
```

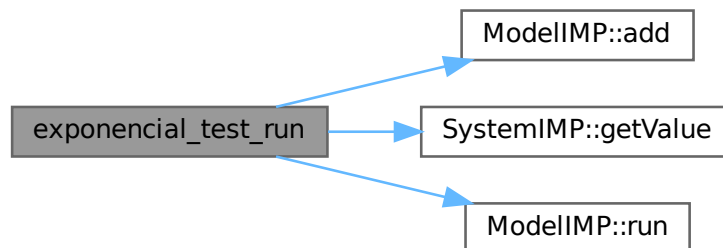
This function performs the exponential functional test.

```
00003      {
00004          std::cout << "   Exponencial functional test" << std::endl;
00005
00006          SystemIMP* pop1 = new SystemIMP("pop1", 100.0);
00007          SystemIMP* pop2 = new SystemIMP("pop2", 0.0);
00008          Exponencial* exp = new Exponencial("exp", pop1, pop2);
00009          ModelIMP* exponencial = new ModelIMP("Exponencial", 0, 100);
00010
00011          //Add os systems e flows ao modelo
00012          exponencial->add(pop1);
00013          exponencial->add(pop2);
00014          exponencial->add(exp);
00015
00016          //Roda o modelo
00017          exponencial->run();
00018
00019          assert(fabs((round(pop1->getValue() * 10000) - 10000 * 36.6032)) < 0.0001);
00020          assert(fabs((round(pop2->getValue() * 10000) - 10000 * 63.3968)) < 0.0001);
00021
00022          delete(exponencial);
00023          delete(exp);
00024          delete(pop1);
00025          delete(pop2);
00026
00027          std::cout << "   Exponencial functional test passed\n" << std::endl;
00028      }
```

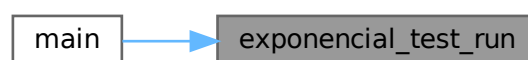
References [ModelIMP::add\(\)](#), [SystemIMP::getValue\(\)](#), and [ModelIMP::run\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.19.1.3 logistical_test_run()

```
void logistical_test_run ( )
```

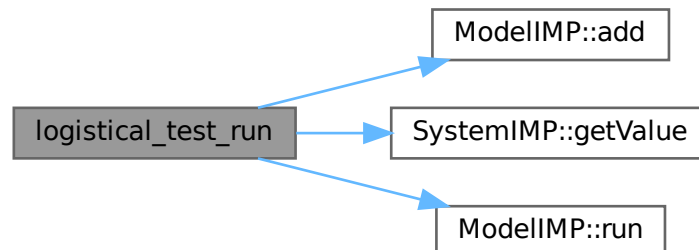
This function performs the logistic test.

```
00030     {
00031         std::cout << "   Logistical functional test" << std::endl;
00032
00033         SystemIMP* p1 = new SystemIMP("p1", 100.0);
00034         SystemIMP* p2 = new SystemIMP("p2", 10.0);
00035         Logistical* log = new Logistical("log", p1, p2);
00036         ModelIMP* logistical = new ModelIMP("Logistical", 0, 100);
00037
00038         //Add os systems e flows ao modelo
00039         logistical->add(p1);
00040         logistical->add(p2);
00041         logistical->add(log);
00042
00043         //Roda o modelo
00044         logistical->run();
00045
00046         assert(fabs(round(p1->getValue() * 10000) - 10000 * 88.2167) < 0.0001);
00047         assert(fabs(round(p2->getValue() * 10000) - 10000 * 21.7833) < 0.0001);
00048
00049         delete(logistical);
00050         delete(log);
00051         delete(p1);
00052         delete(p2);
00053
00054         std::cout << "   Logistical functional test passed\n" << std::endl;
00055     }
```

References [ModelIMP::add\(\)](#), [SystemIMP::getValue\(\)](#), and [ModelIMP::run\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



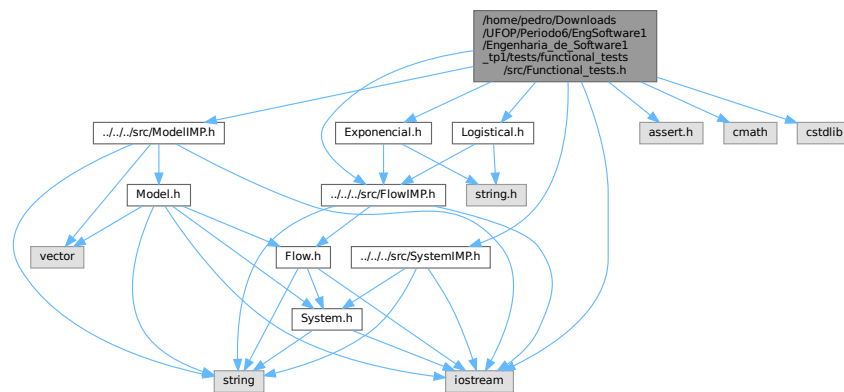
Here is the caller graph for this function:



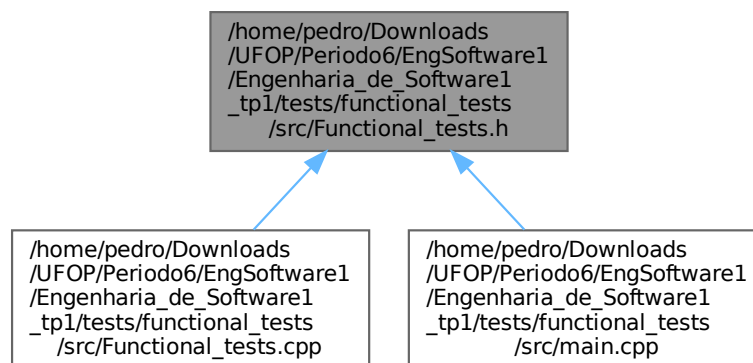
5.20 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/Functional_tests.h File Reference

```
#include "../src/ModelIMP.h"
#include "../src/SystemIMP.h"
#include "../src/FlowIMP.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:



Functions

- void `exponencial_test_run()`

This function performs the exponential functional test.

- void [logistical_test_run](#) ()

This function performs the logistic test.

- void [Complex_test_run](#) ()

This function runs the "complex" test, which has multiple systems and flows.

5.20.1 Function Documentation

5.20.1.1 Complex_test_run()

```
void Complex_test_run ( )
```

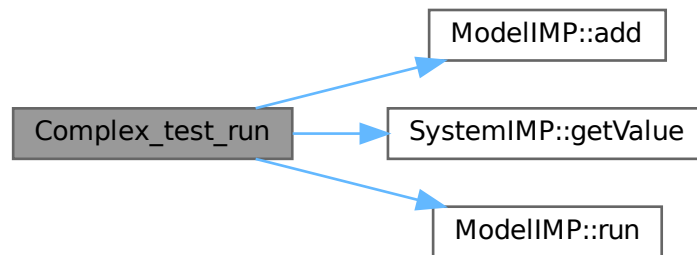
This function runs the "complex" test, which has multiple systems and flows.

```
00057     {
00058         std::cout << "   Complex functional test" << std::endl;
00059
00060         ModelIMP* model = new ModelIMP("Model", 0, 100);
00061         SystemIMP* q1 = new SystemIMP("q1", 100.0);
00062         SystemIMP* q2 = new SystemIMP("q2", 0.0);
00063         SystemIMP* q3 = new SystemIMP("q3", 100.0);
00064         SystemIMP* q4 = new SystemIMP("q4", 0.0);
00065         SystemIMP* q5 = new SystemIMP("q5", 0.0);
00066         Exponencial* f = new Exponencial("f", q1, q2);
00067         Exponencial* t = new Exponencial("t", q2, q3);
00068         Exponencial* u = new Exponencial("u", q3, q4);
00069         Exponencial* v = new Exponencial("v", q4, q1);
00070         Exponencial* g = new Exponencial("g", q1, q3);
00071         Exponencial* r = new Exponencial("r", q2, q5);
00072
00073         model->add(q1);
00074         model->add(q2);
00075         model->add(q3);
00076         model->add(q4);
00077         model->add(q5);
00078         model->add(f);
00079         model->add(t);
00080         model->add(u);
00081         model->add(v);
00082         model->add(g);
00083         model->add(r);
00084
00085         model->run();
00086
00087         assert(fabs((round((q1->getValue() * 10000)) - 10000 * 31.8513)) < 0.0001);
00088         assert(fabs((round((q2->getValue() * 10000)) - 10000 * 18.4003)) < 0.0001);
00089         assert(fabs((round((q3->getValue() * 10000)) - 10000 * 77.1143)) < 0.0001);
00090         assert(fabs((round((q4->getValue() * 10000)) - 10000 * 56.1728)) < 0.0001);
00091         assert(fabs((round((q5->getValue() * 10000)) - 10000 * 16.4612)) < 0.0001);
00092
00093         delete model;
00094         delete q1;
00095         delete q2;
00096         delete q3;
00097         delete q4;
00098         delete q5;
00099         delete f;
00100         delete t;
00101         delete u;
00102         delete v;
00103         delete g;
00104         delete r;
00105
00106         std::cout << "   Complex functional test passed" << std::endl;
00107     }
```

References [ModelIMP::add\(\)](#), [SystemIMP::getValue\(\)](#), and [ModelIMP::run\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.20.1.2 exponencial_test_run()

```
void exponencial_test_run ( )
```

This function performs the exponential functional test.

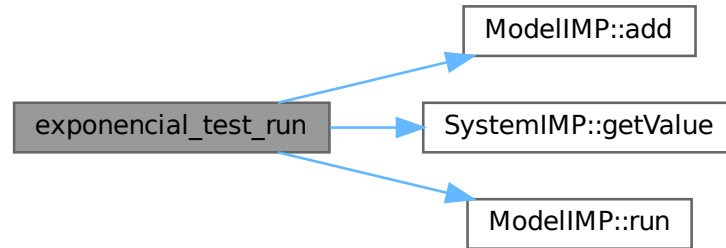
```

00003      {
00004      std::cout << "   Exponencial functional test" << std::endl;
00005
00006      SystemIMP* pop1 = new SystemIMP("pop1", 100.0);
00007      SystemIMP* pop2 = new SystemIMP("pop2", 0.0);
00008      Exponencial* exp = new Exponencial("exp", pop1, pop2);
00009      ModelIMP* exponencial = new ModelIMP("Exponencial", 0, 100);
00010
00011      //Add os systems e flows ao modelo
00012      exponencial->add(pop1);
00013      exponencial->add(pop2);
00014      exponencial->add(exp);
00015
00016      //Roda o modelo
00017      exponencial->run();
00018
00019      assert(fabs((round(pop1->getValue() * 10000) - 10000 * 36.6032)) < 0.0001);
00020      assert(fabs((round(pop2->getValue() * 10000) - 10000 * 63.3968)) < 0.0001);
00021
00022      delete(exponencial);
00023      delete(exp);
00024      delete(pop1);
00025      delete(pop2);
00026
00027      std::cout << "   Exponencial functional test passed\n" << std::endl;
00028  }
```

References [ModelIMP::add\(\)](#), [SystemIMP::getValue\(\)](#), and [ModelIMP::run\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.20.1.3 logistical_test_run()

```
void logistical_test_run ( )
```

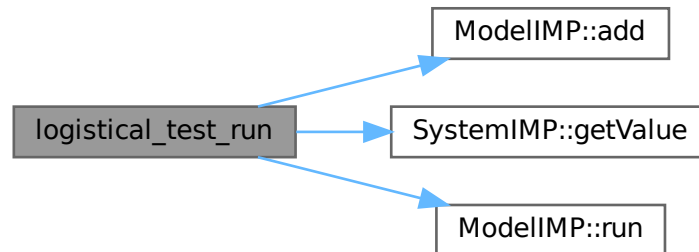
This function performs the logistic test.

```
00030     {
00031         std::cout << "    Logistical functional test" << std::endl;
00032
00033         SystemIMP* p1 = new SystemIMP("p1", 100.0);
00034         SystemIMP* p2 = new SystemIMP("p2", 10.0);
00035         Logistical* log = new Logistical("log", p1, p2);
00036         ModelIMP* logistical = new ModelIMP("Logistical", 0, 100);
00037
00038         //Add os systems e flows ao modelo
00039         logistical->add(p1);
00040         logistical->add(p2);
00041         logistical->add(log);
00042
00043         //Roda o modelo
00044         logistical->run();
00045
00046         assert(fabs(round(p1->getValue() * 10000) - 10000 * 88.2167) < 0.0001);
00047         assert(fabs(round(p2->getValue() * 10000) - 10000 * 21.7833) < 0.0001);
00048
00049         delete(logistical);
00050         delete(log);
00051         delete(p1);
00052         delete(p2);
00053
00054         std::cout << "    Logistical functional test passed\n" << std::endl;
00055     }
```

References [ModelIMP::add\(\)](#), [SystemIMP::getValue\(\)](#), and [ModelIMP::run\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.21 Functional_tests.h

[Go to the documentation of this file.](#)

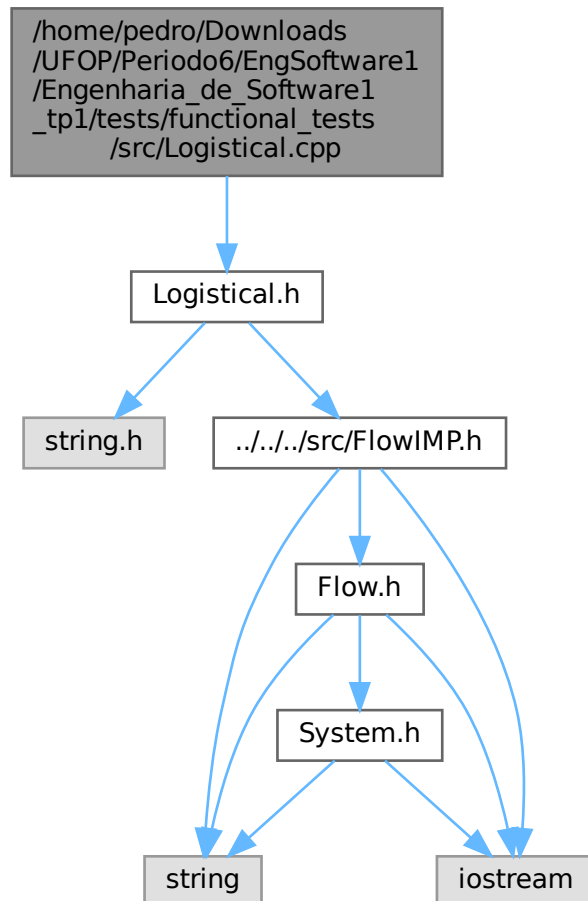
```

00001 /*****
00002  * @file Exponencial.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the logistical simulation flow
00005  *****/
00006
00007 #ifndef FUNCTIONAL_TESTS_H
00008 #define FUNCTIONAL_TESTS_H
00009
00010 #include "../src/ModelIMP.h"
00011 #include "../src/SystemIMP.h"
00012 #include "../src/FlowIMP.h"
00013 #include "Exponencial.h"
00014 #include "Logistical.h"
00015 #include <assert.h>
00016 #include <cmath>
00017 #include <iostream>
00018 #include <cstdlib>
00019
00020 /*****
00021  * @brief execution of functional tests
00022  *****/
00023
00027 void exponencial_test_run();
00028
00032 void logistical_test_run();
00033
00037 void Complex_test_run();
00038
00039 #endif
  
```

5.22 /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:

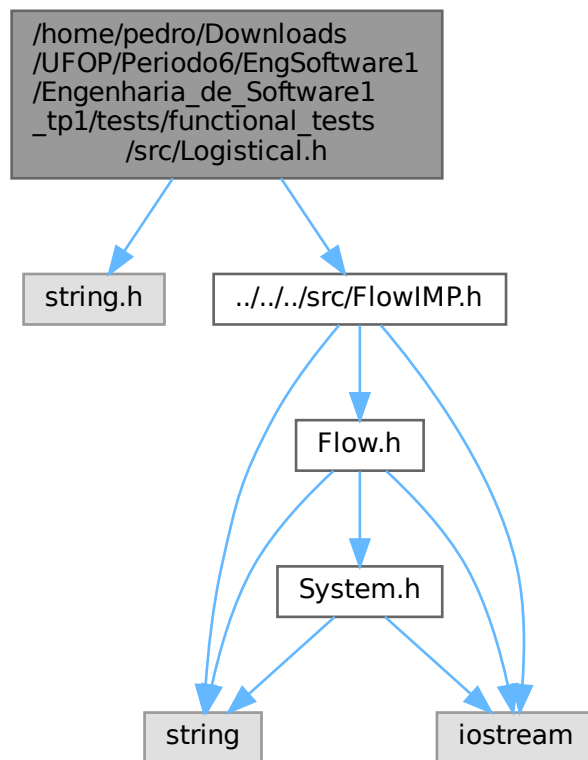


5.23 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/functional_tests/src/Logistical.h File Reference

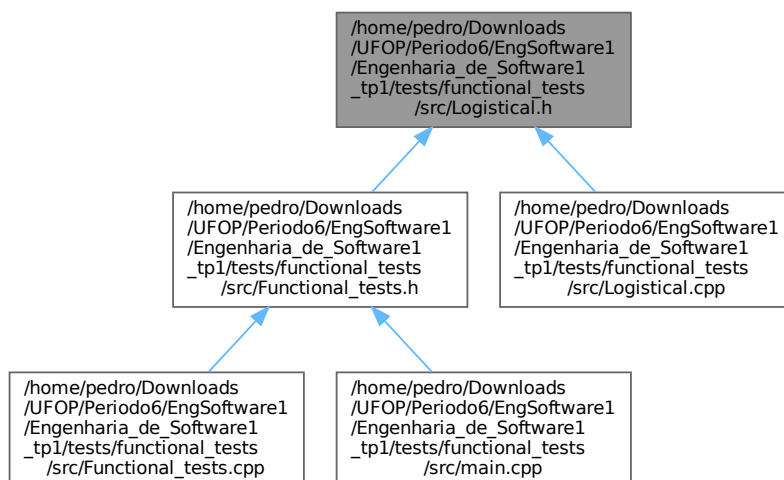
```
#include <string.h>
```

```
#include "../../src/FlowIMP.h"
```

Include dependency graph for Logistical.h:



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



Classes

- class [Logistical](#)

5.24 Logistical.h

[Go to the documentation of this file.](#)

```

00001 /*****
00002  * @file Logistical.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the logistical simulation flow
00005  *****/
00006
00007 #ifndef LOGISTICAL_DEF
00008 #define LOGISTICAL_DEF
00009
00010 #include <string.h>
00011 #include "../src/FlowIMP.h"
00012
00013 class Logistical : public FlowIMP{
00014     private:
00015         Logistical(const Logistical& other);
00016
00017     public:
00018         //Constructor
00019         Logistical(const std::string& name = "NO_NAME", System* source = NULL, System* target = NULL);
00020
00021         //Destructor
00022         virtual ~Logistical();
00023
00024         //Metodos
00025         virtual double execute() override;
00026 };
00027 #endif

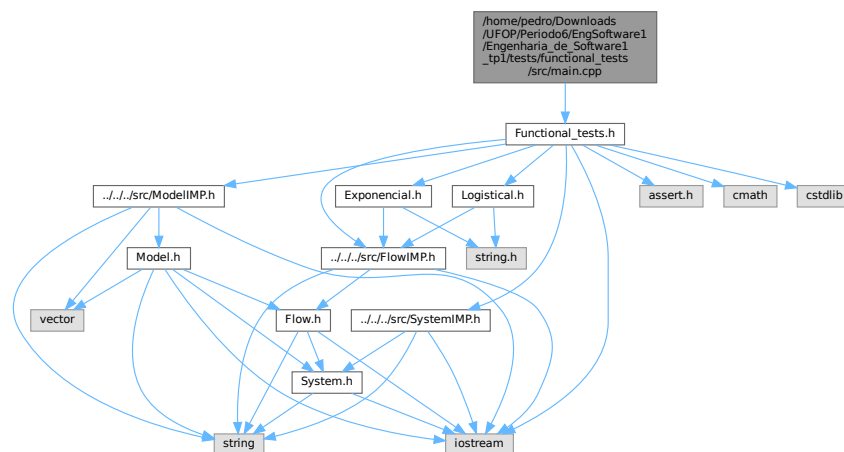
```

5.25 /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](#) ()

5.25.1 Function Documentation

5.25.1.1 main()

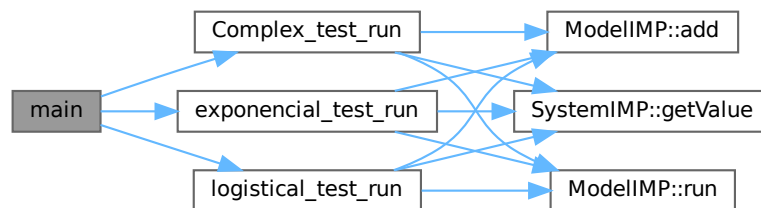
```

int main ( )
00003 {
00004     std::cout << "\nStart functional tests\n"
00005               << "*****\n";
00006     exponencial_test_run();
00007     logistical_test_run();
00008     Complex_test_run();
00009     std::cout << "*****\n"
00010               << "End functional tests\n\n";
00011     return 0;
00012 }

```

References [Complex_test_run\(\)](#), [exponencial_test_run\(\)](#), and [logistical_test_run\(\)](#).

Here is the call graph for this function:



5.26 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↵ Engenharia_de_Software1_tp1/tests/unit_tests/src/main.cpp File Reference

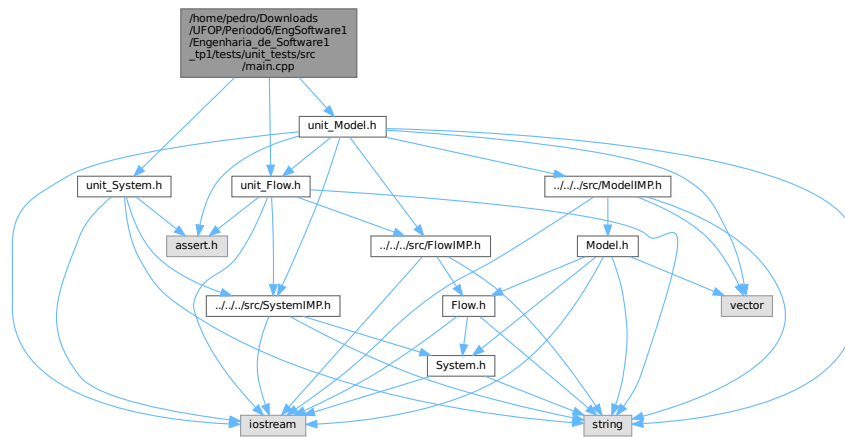
```

#include "unit_System.h"
#include "unit_Flow.h"

```

```
#include "unit_Model.h"
```

Include dependency graph for main.cpp:



Functions

- int [main](#) ()

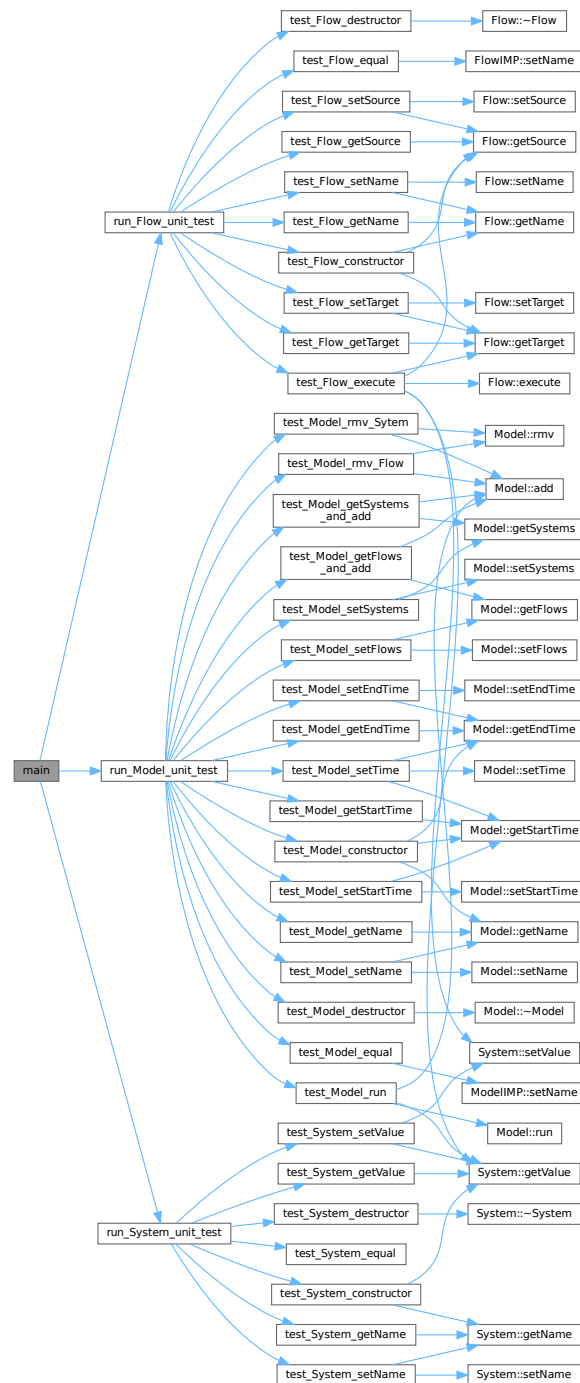
5.26.1 Function Documentation

5.26.1.1 main()

```
int main ( )
00005     {
00006         std::cout << "\nStart unit tests\n"
00007                 << "*****\n";
00008         run_System_unit_test();
00009         run_Flow_unit_test();
00010         run_Model_unit_test();
00011         std::cout << "*****\n"
00012                 << "End unit tests\n\n";
00013         return 0;
00014     }
```

References [run_Flow_unit_test\(\)](#), [run_Model_unit_test\(\)](#), and [run_System_unit_test\(\)](#).

Here is the call graph for this function:

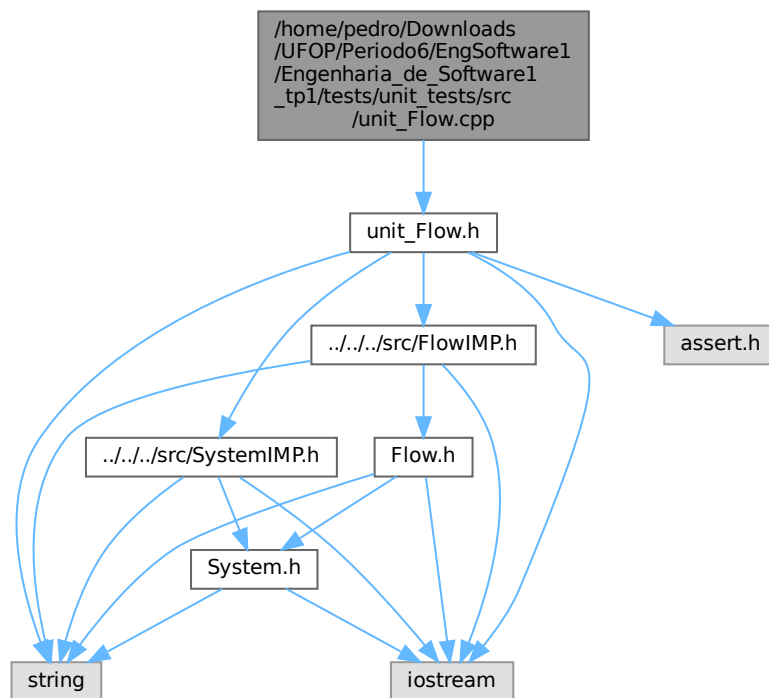


5.27 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_tests/src/unit_Flow.cpp

File Reference

```
#include "unit_Flow.h"
```

Include dependency graph for unit_Flow.cpp:



Functions

- void [test_Flow_constructor](#) ()
 This function run the unit test of the flow constructor.
- void [test_Flow_destructor](#) ()
 This function run the unit test of the flow destructor.
- void [test_Flow_getName](#) ()
 This function run the unit test of the flow getName.
- void [test_Flow_getSource](#) ()
 This function run the unit test of the flow getSource.
- void [test_Flow_getTarget](#) ()
 This function run the unit test of the flow getTarge.
- void [test_Flow_setName](#) ()
 This function run the unit test of the flow setName.
- void [test_Flow_setSource](#) ()
 This function run the unit test of the flow setSource.
- void [test_Flow_setTarget](#) ()
 This function run the unit test of the flow setTarge.
- void [test_Flow_execute](#) ()
 This function run the unit test of the flow execute.
- void [test_Flow_equal](#) ()
 This function run the unit test of the flow equal comparison.
- void [run_Flow_unit_test](#) ()
 This function run the unit tests of the flow.

5.27.1 Function Documentation

5.27.1.1 run_Flow_unit_test()

```
void run_Flow_unit_test ( )
```

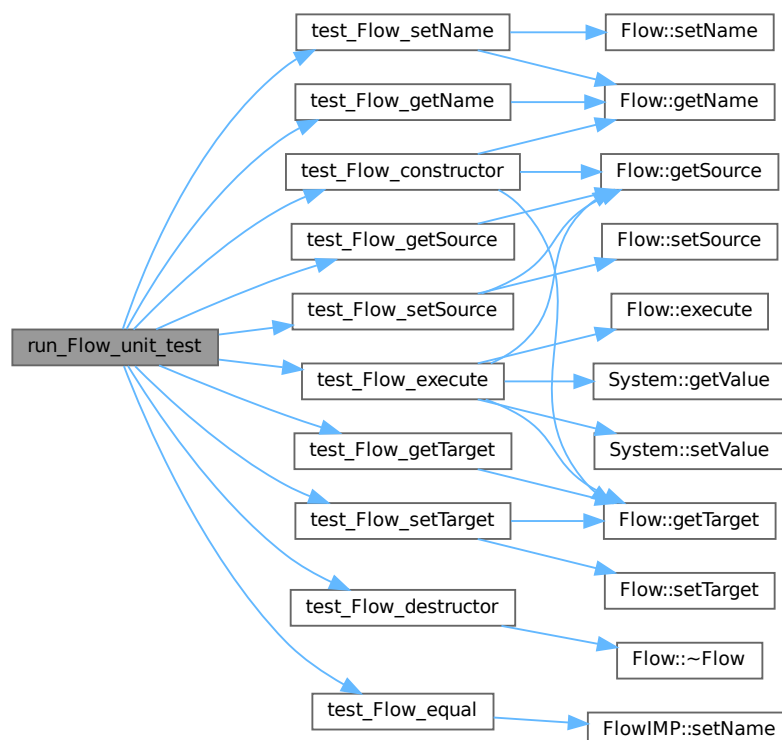
This function run the unit tests of the flow.

```
00189      {
00190      std::cout << "      Start Flow unit tests\n";
00191      test_Flow_constructor();
00192      test_Flow_destructor();
00193      test_Flow_getName();
00194      test_Flow_getSource();
00195      test_Flow_getTarget();
00196      test_Flow_setName();
00197      test_Flow_setSource();
00198      test_Flow_setTarget();
00199      test_Flow_execute();
00200      test_Flow_equal();
00201      std::cout << "      End Flow unit tests\n\n";
00202  }
```

References [test_Flow_constructor\(\)](#), [test_Flow_destructor\(\)](#), [test_Flow_equal\(\)](#), [test_Flow_execute\(\)](#), [test_Flow_getName\(\)](#), [test_Flow_getSource\(\)](#), [test_Flow_getTarget\(\)](#), [test_Flow_setName\(\)](#), [test_Flow_setSource\(\)](#), and [test_Flow_setTarget\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.2 test_Flow_constructor()

```
void test_Flow_constructor ( )
```

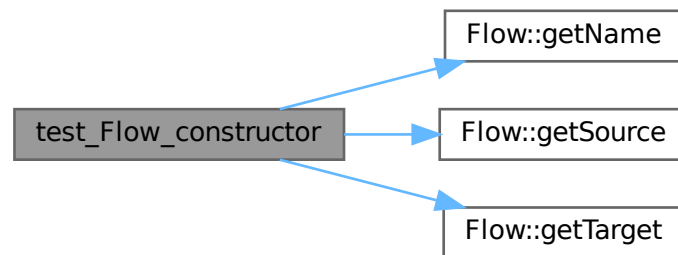
This function run the unit test of the flow constructor.

```
00023     {
00024         std::cout << "          * Constructor tests\n";
00025         Flow* f1 = new Flow_unit_test();
00026         assert(f1->getName() == "NO_NAME");
00027         assert(f1->getSource() == NULL);
00028         assert(f1->getTarget() == NULL);
00029
00030         Flow* f2 = new Flow_unit_test("f2");
00031         assert(f2->getName() == "f2");
00032         assert(f2->getSource() == NULL);
00033         assert(f2->getTarget() == NULL);
00034
00035         System* s1 = new SystemIMP();
00036         Flow* f3 = new Flow_unit_test("f3", s1);
00037         assert(f3->getName() == "f3");
00038         assert(f3->getSource() == s1);
00039         assert(f3->getTarget() == NULL);
00040
00041         System* s2 = new SystemIMP();
00042         System* s3 = new SystemIMP();
00043         Flow* f4 = new Flow_unit_test("f4", s2, s3);
00044         assert(f4->getName() == "f4");
00045         assert(f4->getSource() == s2);
00046         assert(f4->getTarget() == s3);
00047
00048         delete f1;
00049         delete f2;
00050         delete s1;
00051         delete f3;
00052         delete s2;
00053         delete s3;
00054         delete f4;
00055     }
```

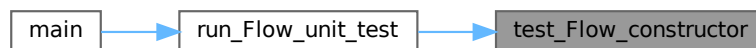
References [Flow::getName\(\)](#), [Flow::getSource\(\)](#), and [Flow::getTarget\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.3 test_Flow_destructor()

```
void test_Flow_destructor ( )
```

This function run the unit test of the flow destructor.

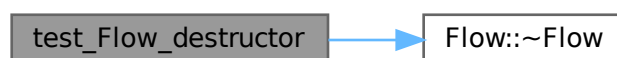
```

00057         {
00058     std::cout << "          * Destructor tests\n";
00059     Flow* f1 = new Flow_unit_test();
00060     f1->~Flow();
00061 }
  
```

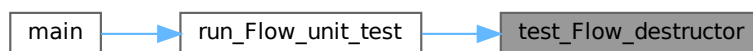
References [Flow::~~Flow\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.4 test_Flow_equal()

```
void test_Flow_equal ( )
```

This function run the unit test of the flow equal comparison.

```

00175     {
00176         std::cout << "          * Equal tests\n";
00177
00178         FlowIMP* f1 = new Flow_unit_test();
00179         FlowIMP* f2 = new Flow_unit_test();
00180         assert(*f1 == *f2);
00181
00182         f1->setName("f1");
00183         assert(*f1 != *f2);
00184
00185         delete f1;
00186         delete f2;
00187     }

```

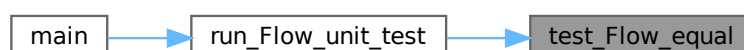
References [FlowIMP::setName\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.5 test_Flow_execute()

```
void test_Flow_execute ( )
```

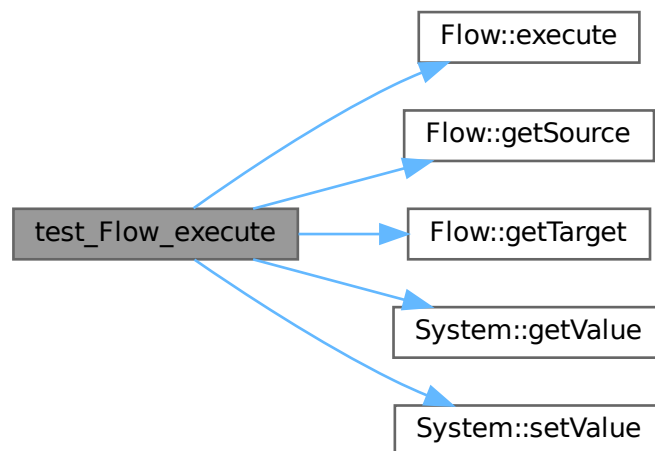
This function run the unit test of the flow execute.

```
00157     {
00158         std::cout << "          * Execute tests\n";
00159
00160         System* s1 = new SystemIMP("s1", 100);
00161         System* s2 = new SystemIMP("s2", 0.0);
00162         Flow* f1 = new Flow_unit_test("f1", s1, s2);
00163         double result = f1->execute();
00164         f1->getTarget()->setValue(f1->getTarget()->getValue() + result);
00165         f1->getSource()->setValue(f1->getSource()->getValue() - result);
00166
00167         assert(s1->getValue() == 0);
00168         assert(s2->getValue() == 100);
00169
00170         delete s1;
00171         delete s2;
00172         delete f1;
00173     }
```

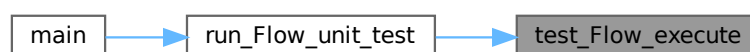
References [Flow::execute\(\)](#), [Flow::getSource\(\)](#), [Flow::getTarget\(\)](#), [System::getValue\(\)](#), and [System::setValue\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.6 test_Flow_getName()

```
void test_Flow_getName ( )
```

This function run the unit test of the flow getName.

```
00063     {
00064         std::cout << "          * getName tests\n";
00065         Flow* f1 = new Flow_unit_test();
00066         assert(f1->getName() == "NO_NAME");
00067
00068         Flow* f2 = new Flow_unit_test("f2");
00069         assert(f2->getName() == "f2");
00070
00071         delete f1;
00072         delete f2;
00073     }
```

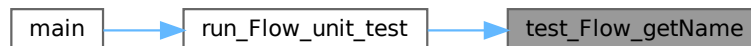
References [Flow::getName\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.7 test_Flow_getSource()

```
void test_Flow_getSource ( )
```

This function run the unit test of the flow getSource.

```
00075     {
00076         std::cout << "          * getSource tests\n";
00077         Flow* f1 = new Flow_unit_test();
00078         assert(f1->getSource() == NULL);
00079
00080         System* s1 = new SystemIMP();
00081         Flow* f2 = new Flow_unit_test("f2", s1);
00082         assert(f2->getSource() == s1);
00083
00084         delete f1;
00085         delete s1;
00086         delete f2;
00087     }
```

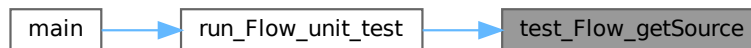
References [Flow::getSource\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.8 test_Flow_getTarget()

```
void test_Flow_getTarget ( )
```

This function run the unit test of the flow getTarge.

```

00089      {
00090      std::cout << "          * getTarget tests\n";
00091      Flow* f1 = new Flow_unit_test();
00092      assert(f1->getTarget() == NULL);
00093
00094      System* s1 = new SystemIMP();
00095      System* s2 = new SystemIMP();
00096      Flow* f2 = new Flow_unit_test("f2", s1, s2);
00097      assert(f2->getTarget() == s2);
00098
00099      delete f1;
00100      delete s1;
00101      delete s2;
00102      delete f2;
00103  }
```

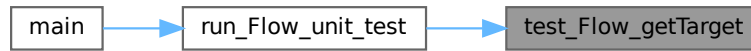
References [Flow::getTarget\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.9 test_Flow_setName()

```
void test_Flow_setName ( )
```

This function run the unit test of the flow setName.

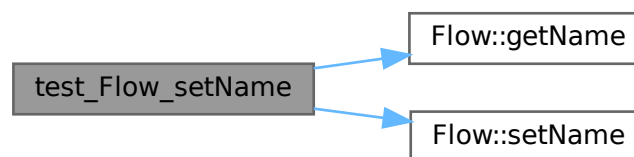
```

00105     {
00106     std::cout << "          * setName tests\n";
00107     Flow* f1 = new Flow_unit_test();
00108     f1->setName("f1");
00109     assert(f1->getName() != "NO_NAME");
00110
00111     Flow* f2 = new Flow_unit_test("f");
00112     f2->setName("f2");
00113     assert(f2->getName() == "f2");
00114
00115     delete f1;
00116     delete f2;
00117 }
    
```

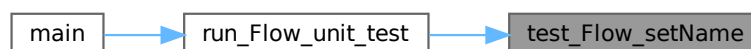
References [Flow::getName\(\)](#), and [Flow::setName\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.10 test_Flow_setSource()

```
void test_Flow_setSource ( )
```

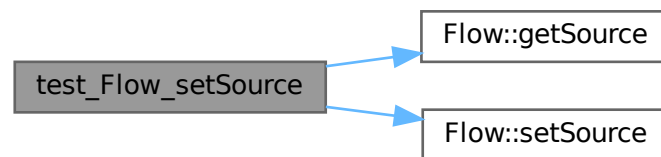
This function run the unit test of the flow setSource.

```
00119         {
00120             std::cout << "          * setSource tests\n";
00121             System* s1 = new SystemIMP();
00122             Flow* f1 = new Flow_unit_test();
00123             f1->setSource(s1);
00124             assert(f1->getSource() != NULL);
00125
00126             System* s2 = new SystemIMP();
00127             Flow* f2 = new Flow_unit_test("f2", s1);
00128             f2->setSource(s2);
00129             assert(f2->getSource() == s2);
00130
00131             delete s1;
00132             delete s2;
00133             delete f1;
00134             delete f2;
00135     }
```

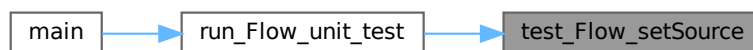
References [Flow::getSource\(\)](#), and [Flow::setSource\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.27.1.11 test_Flow_setTarget()

```
void test_Flow_setTarget ( )
```

This function run the unit test of the flow setTarge.

```
00137         {
00138             std::cout << "          * setTarget tests\n";
00139             System* s1 = new SystemIMP();
```

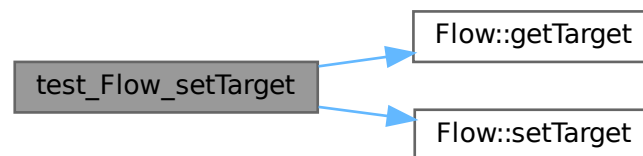
```

00140     Flow* f1 = new Flow_unit_test();
00141     f1->setTarget(s1);
00142     assert(f1->getTarget() != NULL);
00143
00144     System* s2 = new SystemIMP();
00145     System* s3 = new SystemIMP();
00146     Flow* f2 = new Flow_unit_test("f2", s1, s2);
00147     f2->setTarget(s3);
00148     assert(f2->getTarget() == s3);
00149
00150     delete s1;
00151     delete s2;
00152     delete s3;
00153     delete f1;
00154     delete f2;
00155 }
    
```

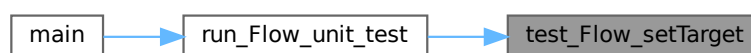
References [Flow::getTarget\(\)](#), and [Flow::setTarget\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



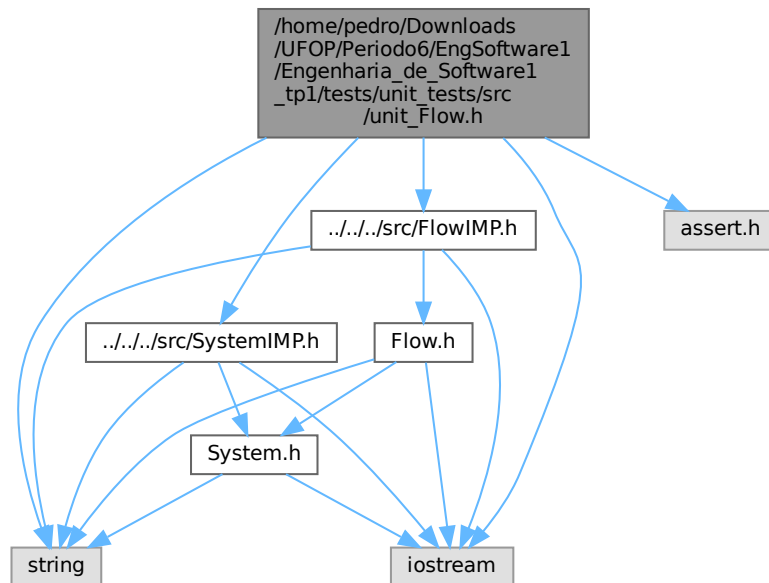
5.28 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↵ Engenharia_de_Software1_tp1/tests/unit_tests/src/unit_Flow.h File Reference

```

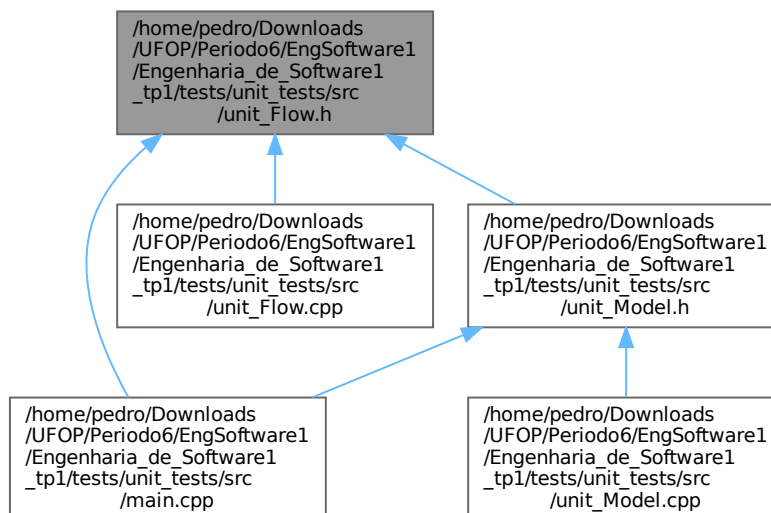
#include "../.../src/FlowIMP.h"
#include "../.../src/SystemIMP.h"
#include <iostream>
#include <string>
    
```

```
#include <assert.h>
```

Include dependency graph for unit_Flow.h:



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



Classes

- class [Flow_unit_test](#)

Functions

- void [test_Flow_constructor](#) ()
This function run the unit test of the flow constructor.
- void [test_Flow_destructor](#) ()
This function run the unit test of the flow destructor.
- void [test_Flow_getName](#) ()
This function run the unit test of the flow getName.
- void [test_Flow_getSource](#) ()
This function run the unit test of the flow getSource.
- void [test_Flow_getTarget](#) ()
This function run the unit test of the flow getTarge.
- void [test_Flow_setName](#) ()
This function run the unit test of the flow setName.
- void [test_Flow_setSource](#) ()
This function run the unit test of the flow setSource.
- void [test_Flow_setTarget](#) ()
This function run the unit test of the flow setTarge.
- void [test_Flow_execute](#) ()
This function run the unit test of the flow execute.
- void [test_Flow_equal](#) ()
This function run the unit test of the flow equal comparison.
- void [run_Flow_unit_test](#) ()
This function run the unit tests of the flow.

5.28.1 Function Documentation

5.28.1.1 [run_Flow_unit_test\(\)](#)

```
void run_Flow_unit_test ( )
```

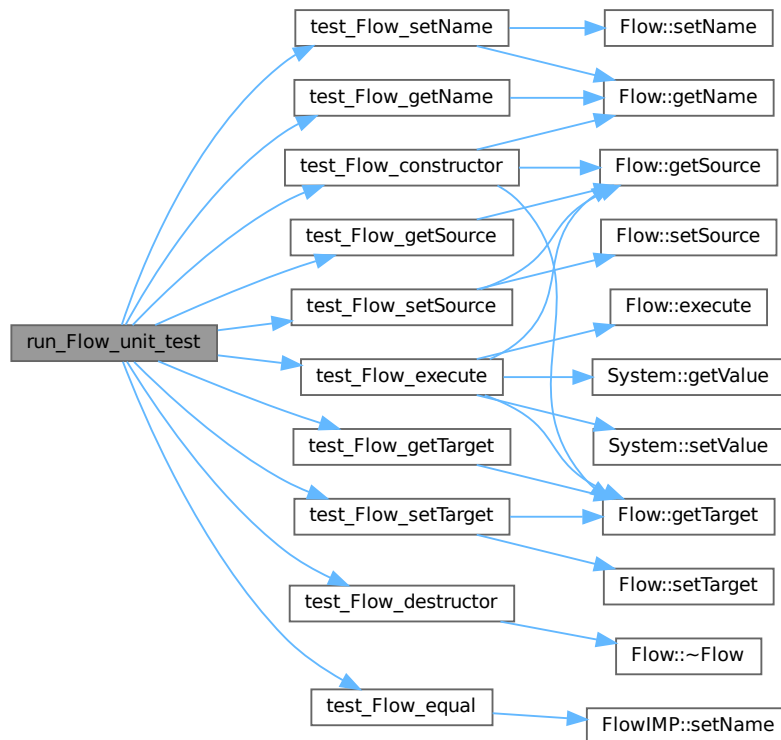
This function run the unit tests of the flow.

```
00189      {  
00190          std::cout << "      Start Flow unit tests\n";  
00191          test\_Flow\_constructor();  
00192          test\_Flow\_destructor();  
00193          test\_Flow\_getName();  
00194          test\_Flow\_getSource();  
00195          test\_Flow\_getTarget();  
00196          test\_Flow\_setName();  
00197          test\_Flow\_setSource();  
00198          test\_Flow\_setTarget();  
00199          test\_Flow\_execute();  
00200          test\_Flow\_equal();  
00201          std::cout << "      End Flow unit tests\n\n";  
00202      }
```

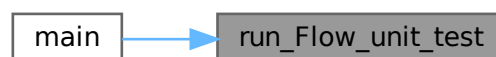
References [test_Flow_constructor\(\)](#), [test_Flow_destructor\(\)](#), [test_Flow_equal\(\)](#), [test_Flow_execute\(\)](#), [test_Flow_getName\(\)](#), [test_Flow_getSource\(\)](#), [test_Flow_getTarget\(\)](#), [test_Flow_setName\(\)](#), [test_Flow_setSource\(\)](#), and [test_Flow_setTarget\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.2 test_Flow_constructor()

```
void test_Flow_constructor ( )
```

This function run the unit test of the flow constructor.

```

00023         {
00024     std::cout << "          * Constructor tests\n";
00025     Flow* f1 = new Flow_unit_test();
00026     assert(f1->getName() == "NO_NAME");
00027     assert(f1->getSource() == NULL);
00028     assert(f1->getTarget() == NULL);
00029
00030     Flow* f2 = new Flow_unit_test("f2");
00031     assert(f2->getName() == "f2");
  
```

```

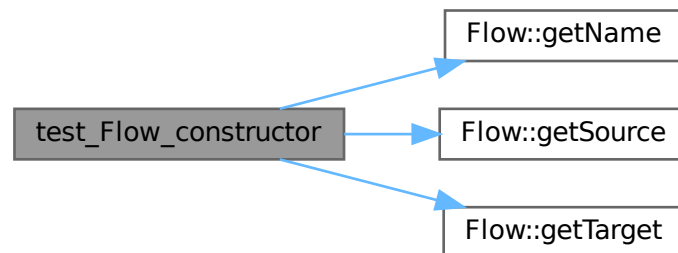
00032     assert(f2->getSource() == NULL);
00033     assert(f2->getTarget() == NULL);
00034
00035     System* s1 = new SystemIMP();
00036     Flow* f3 = new Flow_unit_test("f3", s1);
00037     assert(f3->getName() == "f3");
00038     assert(f3->getSource() == s1);
00039     assert(f3->getTarget() == NULL);
00040
00041     System* s2 = new SystemIMP();
00042     System* s3 = new SystemIMP();
00043     Flow* f4 = new Flow_unit_test("f4", s2, s3);
00044     assert(f4->getName() == "f4");
00045     assert(f4->getSource() == s2);
00046     assert(f4->getTarget() == s3);
00047
00048     delete f1;
00049     delete f2;
00050     delete s1;
00051     delete f3;
00052     delete s2;
00053     delete s3;
00054     delete f4;
00055 }

```

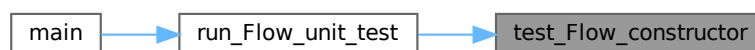
References [Flow::getName\(\)](#), [Flow::getSource\(\)](#), and [Flow::getTarget\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.3 test_Flow_destructor()

```
void test_Flow_destructor ( )
```

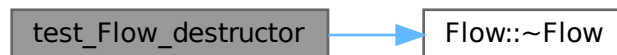
This function run the unit test of the flow destructor.

```
00057     {
00058         std::cout << "          * Destructor tests\n";
00059         Flow* f1 = new Flow_unit_test();
00060         f1->~Flow();
00061     }
```

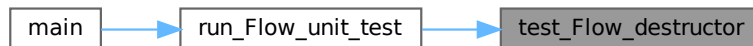
References [Flow::~~Flow\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.4 test_Flow_equal()

```
void test_Flow_equal ( )
```

This function run the unit test of the flow equal comparison.

```
00175     {
00176         std::cout << "          * Equal tests\n";
00177
00178         FlowIMP* f1 = new Flow_unit_test();
00179         FlowIMP* f2 = new Flow_unit_test();
00180         assert(*f1 == *f2);
00181
00182         f1->setName("f1");
00183         assert(*f1 != *f2);
00184
00185         delete f1;
00186         delete f2;
00187     }
```

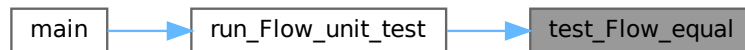
References [FlowIMP::setName\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.5 test_Flow_execute()

```
void test_Flow_execute ( )
```

This function run the unit test of the flow execute.

```

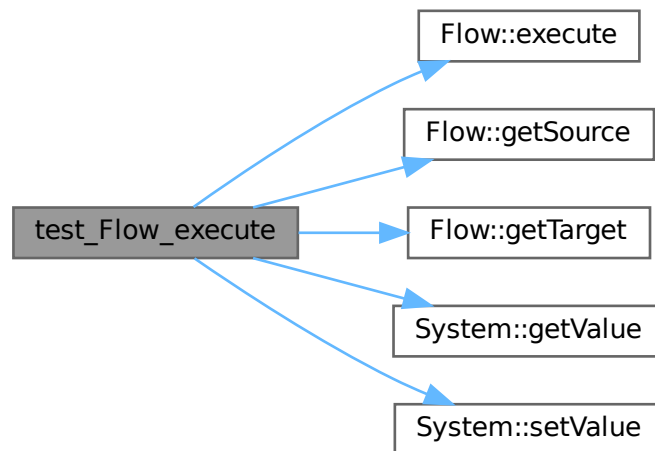
00157     {
00158         std::cout << "          * Execute tests\n";
00159
00160         System* s1 = new SystemIMP("s1", 100);
00161         System* s2 = new SystemIMP("s2", 0.0);
00162         Flow* f1 = new Flow_unit_test("f1", s1, s2);
00163         double result = f1->execute();
00164         f1->getTarget()->setValue(f1->getTarget()->getValue() + result);
00165         f1->getSource()->setValue(f1->getSource()->getValue() - result);
00166
00167         assert(s1->getValue() == 0);
00168         assert(s2->getValue() == 100);
00169
00170         delete s1;
00171         delete s2;
00172         delete f1;
00173     }

```

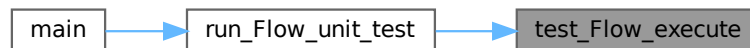
References [Flow::execute\(\)](#), [Flow::getSource\(\)](#), [Flow::getTarget\(\)](#), [System::getValue\(\)](#), and [System::setValue\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.6 test_Flow_getName()

```
void test_Flow_getName ( )
```

This function run the unit test of the flow getName.

```

00063     {
00064         std::cout << "          * getName tests\n";
00065         Flow* f1 = new Flow_unit_test ();
00066         assert (f1->getName() == "NO_NAME");
00067
00068         Flow* f2 = new Flow_unit_test ("f2");
00069         assert (f2->getName() == "f2");
00070
00071         delete f1;
00072         delete f2;
00073     }
  
```

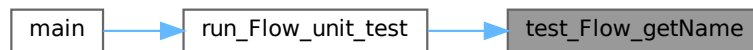
References [Flow::getName\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.7 test_Flow_getSource()

```
void test_Flow_getSource ( )
```

This function run the unit test of the flow getSource.

```

00075     {
00076     std::cout << "          * getSource tests\n";
00077     Flow* f1 = new Flow_unit_test();
00078     assert(f1->getSource() == NULL);
00079
00080     System* s1 = new SystemIMP();
00081     Flow* f2 = new Flow_unit_test("f2", s1);
00082     assert(f2->getSource() == s1);
00083
00084     delete f1;
00085     delete s1;
00086     delete f2;
00087 }
```

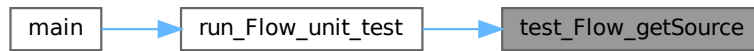
References [Flow::getSource\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.8 test_Flow_getTarget()

```
void test_Flow_getTarget ( )
```

This function run the unit test of the flow getTarge.

```

00089      {
00090          std::cout << "          * getTarget tests\n";
00091          Flow* f1 = new Flow_unit_test();
00092          assert(f1->getTarget() == NULL);
00093
00094          System* s1 = new SystemIMP();
00095          System* s2 = new SystemIMP();
00096          Flow* f2 = new Flow_unit_test("f2", s1, s2);
00097          assert(f2->getTarget() == s2);
00098
00099          delete f1;
00100          delete s1;
00101          delete s2;
00102          delete f2;
00103  }
```

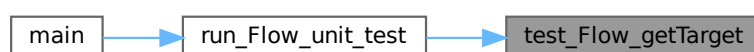
References [Flow::getTarget\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.9 test_Flow_setName()

```
void test_Flow_setName ( )
```

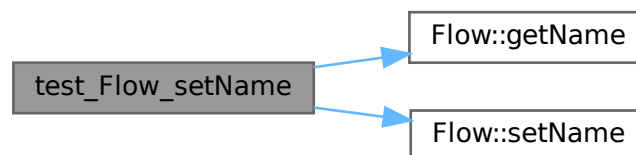
This function run the unit test of the flow setName.

```
00105      {
00106      std::cout << "      * setName tests\n";
00107      Flow* f1 = new Flow_unit_test();
00108      f1->setName("f1");
00109      assert(f1->getName() != "NO_NAME");
00110
00111      Flow* f2 = new Flow_unit_test("f");
00112      f2->setName("f2");
00113      assert(f2->getName() == "f2");
00114
00115      delete f1;
00116      delete f2;
00117 }
```

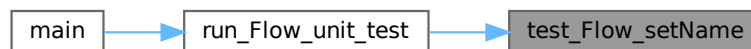
References [Flow::getName\(\)](#), and [Flow::setName\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.10 test_Flow_setSource()

```
void test_Flow_setSource ( )
```

This function run the unit test of the flow setSource.

```
00119      {
00120      std::cout << "      * setSource tests\n";
00121      System* s1 = new SystemIMP();
00122      Flow* f1 = new Flow_unit_test();
00123      f1->setSource(s1);
00124      assert(f1->getSource() != NULL);
00125 }
```

```

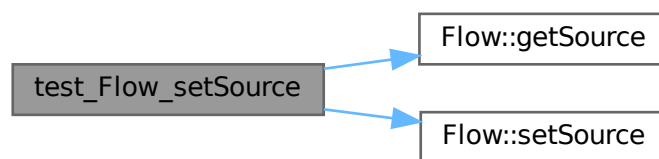
00126     System* s2 = new SystemIMP();
00127     Flow* f2 = new Flow_unit_test("f2", s1);
00128     f2->setSource(s2);
00129     assert(f2->getSource() == s2);
00130
00131     delete s1;
00132     delete s2;
00133     delete f1;
00134     delete f2;
00135 }

```

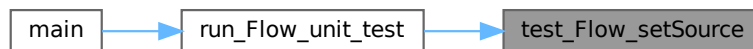
References [Flow::getSource\(\)](#), and [Flow::setSource\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.28.1.11 test_Flow_setTarget()

```
void test_Flow_setTarget ( )
```

This function run the unit test of the flow setTarge.

```

00137     {
00138         std::cout << "          * setTarget tests\n";
00139         System* s1 = new SystemIMP();
00140         Flow* f1 = new Flow_unit_test();
00141         f1->setTarget(s1);
00142         assert(f1->getTarget() != NULL);
00143
00144         System* s2 = new SystemIMP();
00145         System* s3 = new SystemIMP();
00146         Flow* f2 = new Flow_unit_test("f2", s1, s2);
00147         f2->setTarget(s3);
00148         assert(f2->getTarget() == s3);
00149
00150         delete s1;
00151         delete s2;
00152         delete s3;
00153         delete f1;

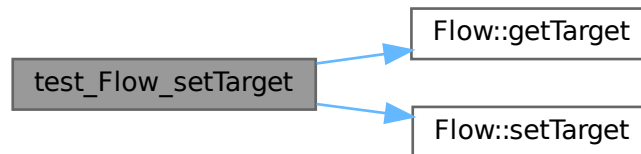
```

```
00154     delete f2;
00155 }
```

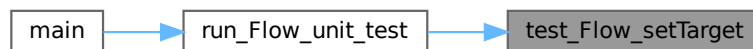
References [Flow::getTarget\(\)](#), and [Flow::setTarget\(\)](#).

Referenced by [run_Flow_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.29 unit_Flow.h

[Go to the documentation of this file.](#)

```
00001 /*****
00002  * @file unit_Flow.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the flow units tests
00005  *****/
00006
00007 #ifndef UNIT_FLOW_H
00008 #define UNIT_FLOW_H
00009
00010 #include "../src/FlowIMP.h"
00011 #include "../src/SystemIMP.h"
00012
00013 #include <iostream>
00014 #include <string>
00015 #include <assert.h>
00016
00017 /*****
00018  * @brief This Flow class connects two systems and through the entered equation transfers values from
00019  one system to another
00020 *****/
00021 class Flow_unit_test : public FlowIMP{
00022     private:
00026         Flow_unit_test(const Flow_unit_test& other);
00027
00028     public:
00029         //Constructor
```

```

00036     Flow_unit_test(const std::string& name = "NO_NAME", System* source = NULL, System* target =
    NULL);
00037
00038     //Destructor
00042     virtual ~Flow_unit_test();
00043
00044     //Metodos
00049     virtual double execute() override;
00050 };
00051
00055 void test_Flow_constructor();
00059 void test_Flow_destructor();
00063 void test_Flow_getName();
00067 void test_Flow_getSource();
00071 void test_Flow_getTarget();
00075 void test_Flow_setName();
00079 void test_Flow_setSource();
00083 void test_Flow_setTarget();
00087 void test_Flow_execute();
00091 void test_Flow_equal();
00095 void run_Flow_unit_test();
00096
00097 #endif

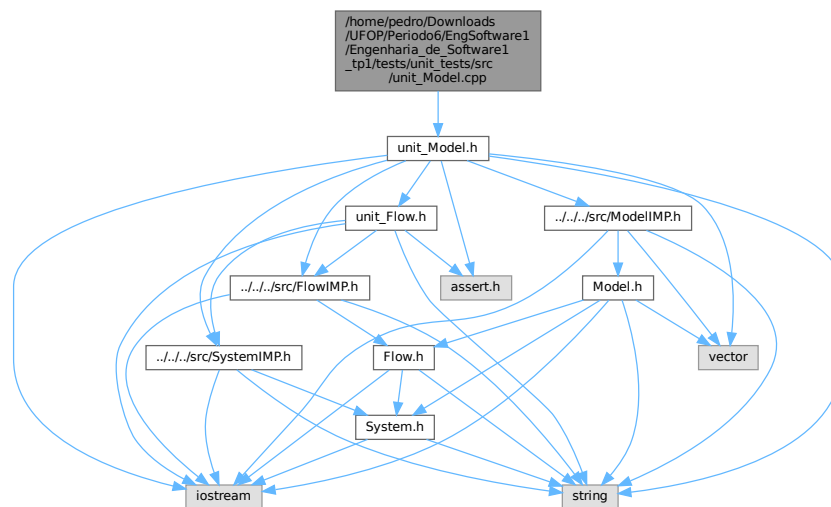
```

5.30 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_tests/src/unit_Model.cpp

File Reference

```
#include "unit_Model.h"
```

Include dependency graph for unit_Model.cpp:



Functions

- void `test_Model_constructor()`
This function run the unit test of the model constructor.
- void `test_Model_destructor()`
This function run the unit test of the model destructor.
- void `test_Model_getName()`
This function run the unit test of the model getName.

- void [test_Model_getSystems_and_add](#) ()
This function run the unit test of the model getSystems and add [System](#).
- void [test_Model_getFlows_and_add](#) ()
This function run the unit test of the model getFlows and add [Flow](#).
- void [test_Model_getStartTime](#) ()
This function run the unit test of the model getStartTime.
- void [test_Model_getEndTime](#) ()
This function run the unit test of the model getEndTime.
- void [test_Model_setName](#) ()
This function run the unit test of the model setName.
- void [test_Model_setSystems](#) ()
This function run the unit test of the model setSystems.
- void [test_Model_setFlows](#) ()
This function run the unit test of the model setFlows.
- void [test_Model_setStartTime](#) ()
This function run the unit test of the model setStartTime.
- void [test_Model_setEndTime](#) ()
This function run the unit test of the model setEndTime.
- void [test_Model_setTime](#) ()
This function run the unit test of the model setTime.
- void [test_Model_equal](#) ()
This function run the unit test of the model equal.
- void [test_Model_rmv_Sytem](#) ()
This function run the unit test of the model rmv [System](#).
- void [test_Model_rmv_Flow](#) ()
This function run the unit test of the model rmv [Flow](#).
- void [test_Model_run](#) ()
This function run the unit test of the model run.
- void [run_Model_unit_test](#) ()
This function run the unit tests of the model.

5.30.1 Function Documentation

5.30.1.1 run_Model_unit_test()

```
void run_Model_unit_test ( )
```

This function run the unit tests of the model.

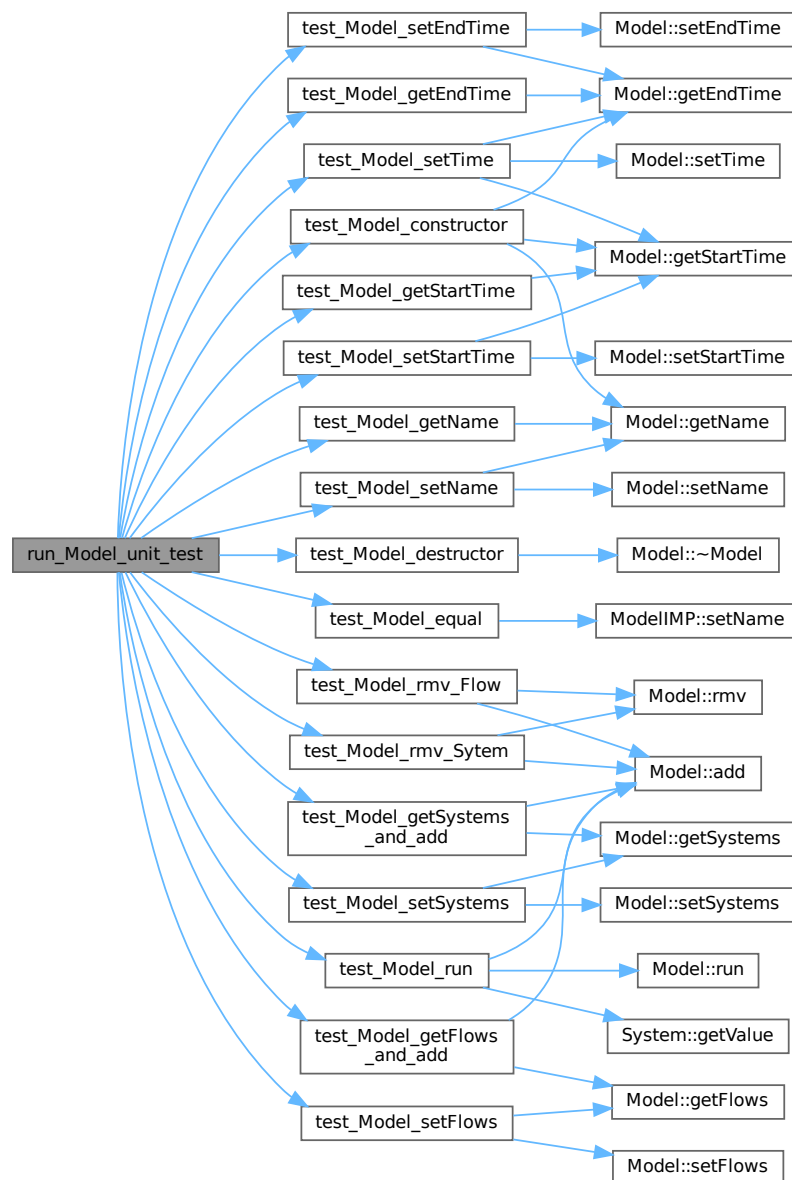
```
00245         {  
00246     std::cout << "      Start Model unit tests\n";  
00247     test_Model_constructor();  
00248     test_Model_destructor();  
00249     test_Model_getName();  
00250     test_Model_getSystems_and_add();  
00251     test_Model_getFlows_and_add();  
00252     test_Model_getStartTime();  
00253     test_Model_getEndTime();  
00254     test_Model_setName();  
00255     test_Model_setSystems();  
00256     test_Model_setFlows();  
00257     test_Model_setStartTime();  
00258     test_Model_setEndTime();  
00259     test_Model_setTime();  
00260     test_Model_rmv_Sytem();  
00261     test_Model_rmv_Flow();  
00262     test_Model_run();  
00263     test_Model_equal();  
00264     std::cout << "      End Model unit tests\n";
```

```
00265 }
```

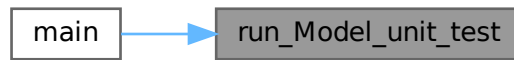
References [test_Model_constructor\(\)](#), [test_Model_destructor\(\)](#), [test_Model_equal\(\)](#), [test_Model_getEndTime\(\)](#), [test_Model_getFlows_and_add\(\)](#), [test_Model_getName\(\)](#), [test_Model_getStartTime\(\)](#), [test_Model_getSystems_and_add\(\)](#), [test_Model_rmv_Flow\(\)](#), [test_Model_rmv_Sytem\(\)](#), [test_Model_run\(\)](#), [test_Model_setEndTime\(\)](#), [test_Model_setFlows\(\)](#), [test_Model_setName\(\)](#), [test_Model_setStartTime\(\)](#), [test_Model_setSystems\(\)](#), and [test_Model_setTime\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.2 test_Model_constructor()

```
void test_Model_constructor ( )
```

This function run the unit test of the model constructor.

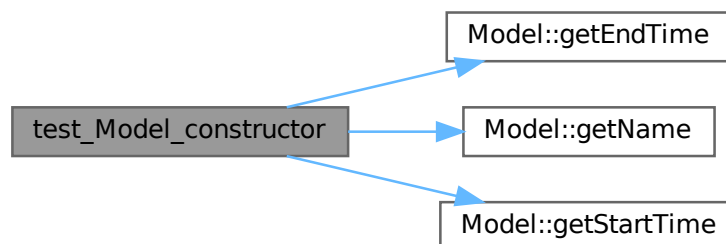
```

00003      {
00004          std::cout << "          * Constructor tests\n";
00005          Model* m1 = new ModelIMP();
00006          assert(m1->getName() == "NO_NAME");
00007          assert(m1->getStartTime() == 0);
00008          assert(m1->getEndTime() == 1);
00009
00010          Model* m2 = new ModelIMP("m2");
00011          assert(m2->getName() == "m2");
00012          assert(m2->getStartTime() == 0);
00013          assert(m2->getEndTime() == 1);
00014
00015          Model* m3 = new ModelIMP("m3", 2);
00016          assert(m3->getName() == "m3");
00017          assert(m3->getStartTime() == 2);
00018          assert(m3->getEndTime() == 1);
00019
00020          Model* m4 = new ModelIMP("m4", 2, 5);
00021          assert(m4->getName() == "m4");
00022          assert(m4->getStartTime() == 2);
00023          assert(m4->getEndTime() == 5);
00024
00025          delete m1;
00026          delete m2;
00027          delete m3;
00028          delete m4;
00029      }
  
```

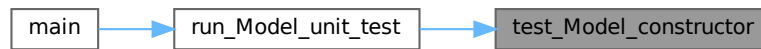
References [Model::getEndTime\(\)](#), [Model::getName\(\)](#), and [Model::getStartTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.3 test_Model_destructor()

```
void test_Model_destructor ( )
```

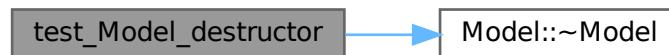
This function run the unit test of the model destructor.

```
00031     {
00032     std::cout << "          * Destructor tests\n";
00033     Model* m1 = new ModelIMP();
00034     m1->~Model();
00035 }
```

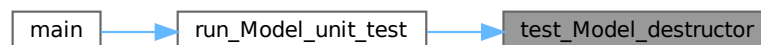
References [Model::~~Model\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.4 test_Model_equal()

```
void test_Model_equal ( )
```

This function run the unit test of the model equal.

```
00183     {
00184         std::cout << "          * Equal tests\n";
00185
00186         ModelIMP* m1 = new ModelIMP();
00187         ModelIMP* m2 = new ModelIMP();
00188         assert(*m1 == *m2);
00189
00190         m1->setName("m1");
00191         assert(m1 != m2);
00192
00193         delete m1;
00194         delete m2;
00195     }
```

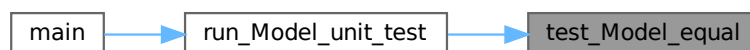
References [ModelIMP::setName\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.5 test_Model_getEndTime()

```
void test_Model_getEndTime ( )
```

This function run the unit test of the model getEndTime.

```
00087     {
00088         std::cout << "          * getEndTime tests\n";
00089         Model* m1 = new ModelIMP();
00090         assert(m1->getEndTime() == 1);
00091
00092         Model* m2 = new ModelIMP("m2", 0, 2);
00093         assert(m2->getEndTime() == 2);
00094
00095         delete m1;
00096         delete m2;
00097     }
```

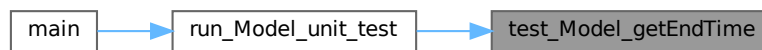
References [Model::getEndTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.6 test_Model_getFlows_and_add()

```
void test_Model_getFlows_and_add ( )
```

This function run the unit test of the model `getFlows` and add [Flow](#).

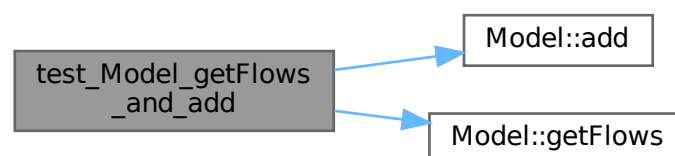
```

00062         {
00063     std::cout << "          * getFlows and add Flows tests\n";
00064     Flow* f1 = new Flow_unit_test("f1");
00065     Model* m1 = new ModelIMP("m1");
00066     std::vector<Flow*> flows;
00067     flows.push_back(f1);
00068     m1->add(f1);
00069     assert(m1->getFlows() == flows);
00070
00071     delete f1;
00072     delete m1;
00073 }
```

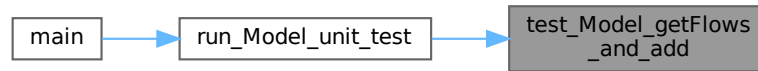
References [Model::add\(\)](#), and [Model::getFlows\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.7 test_Model_getName()

```
void test_Model_getName ( )
```

This function run the unit test of the model getName.

```

00037         {
00038     std::cout << "      * getName tests\n";
00039     Model* m1 = new ModelIMP();
00040     assert(m1->getName() == "NO_NAME");
00041
00042     Model* m2 = new ModelIMP("m2");
00043     assert(m2->getName() == "m2");
00044
00045     delete m1;
00046     delete m2;
00047 }

```

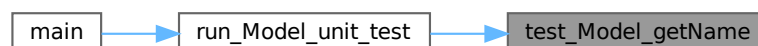
References [Model::getName\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.8 test_Model_getStartTime()

```
void test_Model_getStartTime ( )
```

This function run the unit test of the model getStartTime.

```
00075      {
00076      std::cout << "          * getStartTime tests\n";
00077      Model* m1 = new ModelIMP();
00078      assert(m1->getStartTime() == 0);
00079
00080      Model* m2 = new ModelIMP("m2", 1);
00081      assert(m2->getStartTime() == 1);
00082
00083      delete m1;
00084      delete m2;
00085  }
```

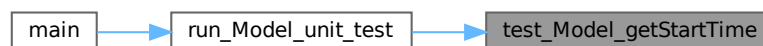
References [Model::getStartTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.9 test_Model_getSystems_and_add()

```
void test_Model_getSystems_and_add ( )
```

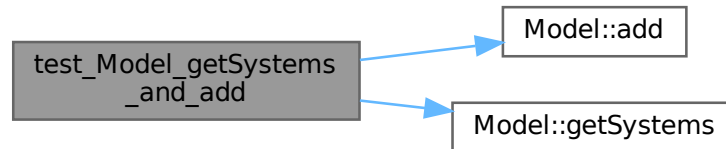
This function run the unit test of the model getSystems and add [System](#).

```
00049      {
00050      std::cout << "          * getSystems and add Systems tests\n";
00051      System* s1 = new SystemIMP("s1");
00052      Model* m1 = new ModelIMP("m1");
00053      std::vector<System*> systems;
00054      systems.push_back(s1);
00055      m1->add(s1);
00056      assert(m1->getSystems() == systems);
00057
00058      delete s1;
00059      delete m1;
00060  }
```

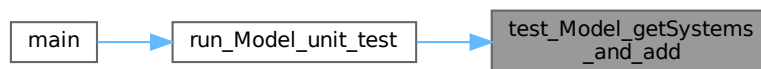
References [Model::add\(\)](#), and [Model::getSystems\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.10 test_Model_rmv_Flow()

```
void test_Model_rmv_Flow ( )
```

This function run the unit test of the model rmv [Flow](#).

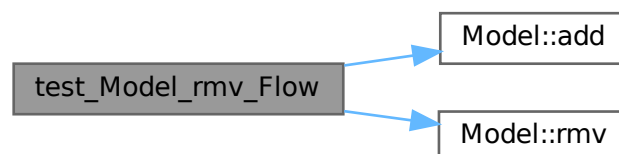
```

00210     {
00211         std::cout << "          * Remove Flow tests\n";
00212
00213         Model* model1 = new ModelIMP();
00214         FlowIMP* flow1 = new Flow_unit_test("flow1");
00215
00216         model1->add(flow1);
00217         assert(model1->rmv(flow1));
00218
00219         delete model1;
00220         delete flow1;
00221     }
    
```

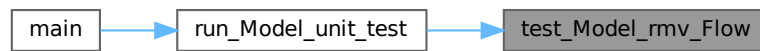
References [Model::add\(\)](#), and [Model::rmv\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.11 test_Model_rmv_Sytem()

```
void test_Model_rmv_Sytem ( )
```

This function run the unit test of the model rmv [System](#).

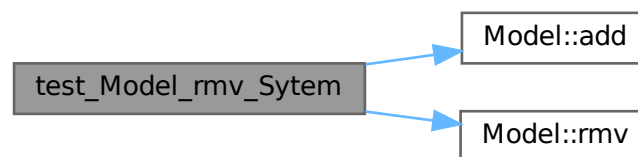
```

00197         {
00198     std::cout << "          * Remove System tests\n";
00199
00200     Model* modell = new ModelIMP();
00201     System* system1 = new SystemIMP("system1");
00202
00203     modell->add(system1);
00204     assert(modell->rmv(system1));
00205
00206     delete modell;
00207     delete system1;
00208 }
  
```

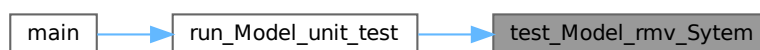
References [Model::add\(\)](#), and [Model::rmv\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.12 test_Model_run()

```
void test_Model_run ( )
```

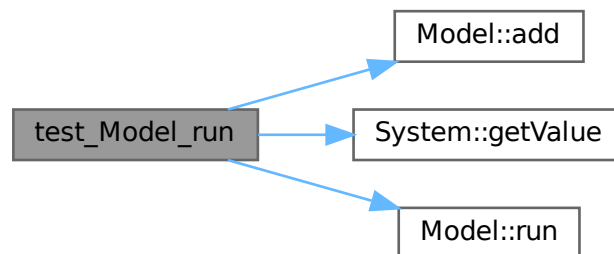
This function run the unit test of the model run.

```
00223     {
00224         std::cout << "          * Run tests\n";
00225
00226         System* s1 = new SystemIMP("s1", 100);
00227         System* s2 = new SystemIMP("s2", 0.0);
00228         Flow* f1 = new Flow_unit_test("f1", s1, s2);
00229         Model* m1 = new ModelIMP("m1", 0, 1);
00230
00231         m1->add(s1);
00232         m1->add(s2);
00233         m1->add(f1);
00234
00235         m1->run();
00236
00237         assert(s1->getValue() == 0);
00238         assert(s2->getValue() == 100);
00239
00240         delete s1;
00241         delete s2;
00242         delete f1;
00243     }
```

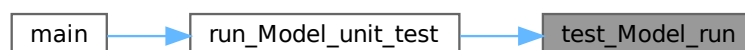
References [Model::add\(\)](#), [System::getValue\(\)](#), and [Model::run\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.13 test_Model_setEndTime()

```
void test_Model_setEndTime ( )
```

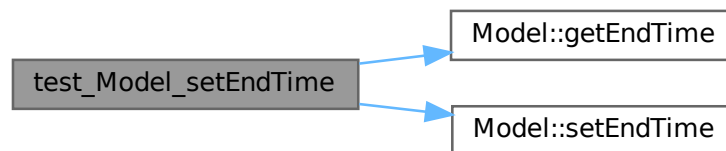
This function run the unit test of the model setEndTime.

```
00153      {
00154      std::cout << "          * setEndTime tests\n";
00155      Model* m1 = new ModelIMP();
00156      m1->setEndTime(3);
00157      assert(m1->getEndTime() != 1);
00158
00159      Model* m2 = new ModelIMP("m2", 0, 1);
00160      m2->setEndTime(2);
00161      assert(m2->getEndTime() == 2);
00162
00163      delete m1;
00164      delete m2;
00165  }
```

References [Model::getEndTime\(\)](#), and [Model::setEndTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.14 test_Model_setFlows()

```
void test_Model_setFlows ( )
```

This function run the unit test of the model setFlows.

```
00126      {
00127      std::cout << "          * setFlows tests\n";
00128      Flow* f1 = new Flow_unit_test("f1");
00129      Model* m1 = new ModelIMP("m1");
00130      std::vector<Flow*> flows;
00131      flows.push_back(f1);
00132      m1->setFlows(flows);
00133      assert(m1->getFlows() == flows);
  }
```

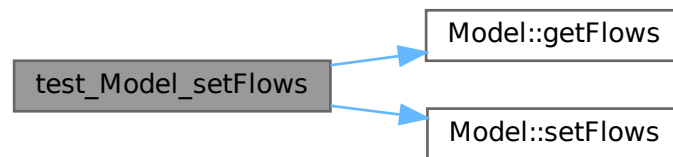


```
00134
00135     delete f1;
00136     delete m1;
00137 }
```

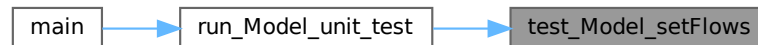
References [Model::getFlows\(\)](#), and [Model::setFlows\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.15 test_Model_setName()

```
void test_Model_setName ( )
```

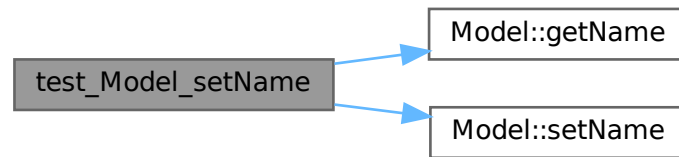
This function run the unit test of the model setName.

```
00099     {
00100         std::cout << "          * setName tests\n";
00101         Model* m1 = new ModelIMP();
00102         m1->setName("m1");
00103         assert(m1->getName() != "NO_NAME");
00104
00105         Model* m2 = new ModelIMP("m");
00106         m2->setName("m2");
00107         assert(m2->getName() == "m2");
00108
00109         delete m1;
00110         delete m2;
00111     }
```

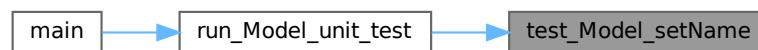
References [Model::getName\(\)](#), and [Model::setName\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.16 test_Model_setStartTime()

```
void test_Model_setStartTime ( )
```

This function run the unit test of the model `setStartTime`.

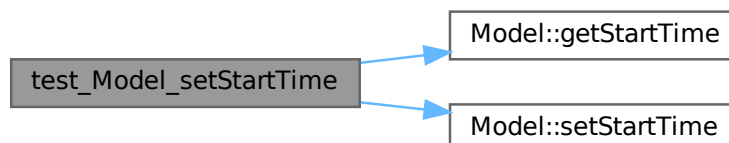
```

00139         {
00140     std::cout << "          * setStartTime tests\n";
00141     Model* m1 = new ModelIMP();
00142     m1->setStartTime(3);
00143     assert(m1->getStartTime() != 0);
00144
00145     Model* m2 = new ModelIMP("m2", 3);
00146     m2->setStartTime(1);
00147     assert(m2->getStartTime() == 1);
00148
00149     delete m1;
00150     delete m2;
00151 }
```

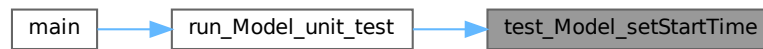
References [Model::getStartTime\(\)](#), and [Model::setStartTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.17 test_Model_setSystems()

```
void test_Model_setSystems ( )
```

This function run the unit test of the model setSystems.

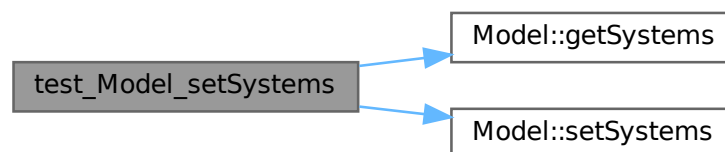
```

00113         {
00114         std::cout << "          * setSystems tests\n";
00115         System* s1 = new SystemIMP("s1");
00116         Model* m1 = new ModelIMP("m1");
00117         std::vector<System*> systems;
00118         systems.push_back(s1);
00119         m1->setSystems(systems);
00120         assert(m1->getSystems() == systems);
00121
00122         delete s1;
00123         delete m1;
00124     }
  
```

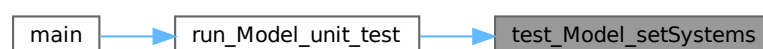
References [Model::getSystems\(\)](#), and [Model::setSystems\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.30.1.18 test_Model_setTime()

```
void test_Model_setTime ( )
```

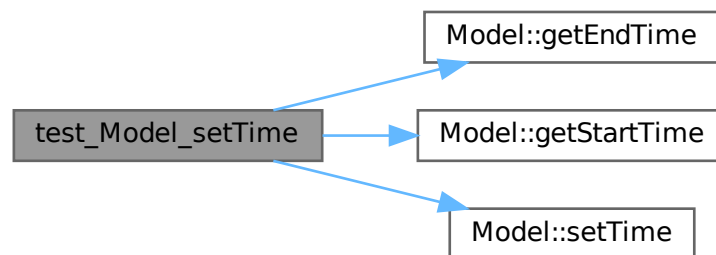
This function run the unit test of the model setTime.

```
00167         {
00168             std::cout << "          * setTime tests\n";
00169             Model* m1 = new ModelIMP();
00170             m1->setTime(1, 3);
00171             assert(m1->getStartTime() != 0);
00172             assert(m1->getEndTime() != 1);
00173
00174             Model* m2 = new ModelIMP("m2", 0, 1);
00175             m2->setTime(3, 4);
00176             assert(m2->getStartTime() == 3);
00177             assert(m2->getEndTime() == 4);
00178
00179             delete m1;
00180             delete m2;
00181 }
```

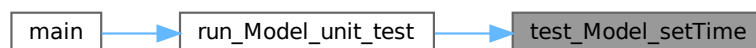
References [Model::getEndTime\(\)](#), [Model::getStartTime\(\)](#), and [Model::setTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:

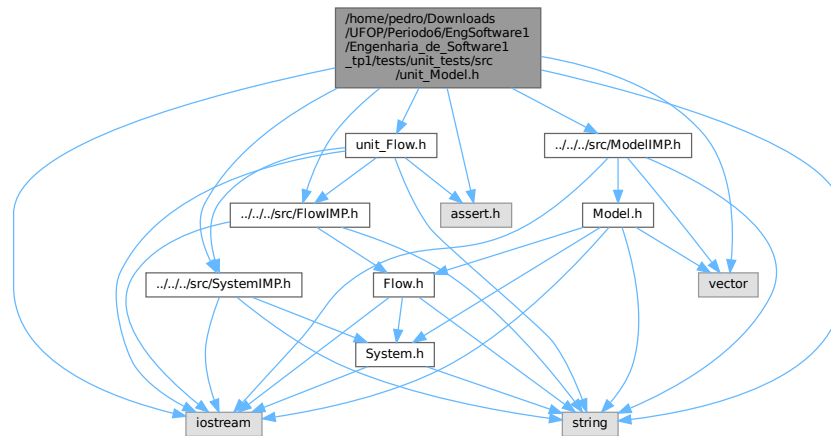


5.31 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_tests/src/unit_Model.h File Reference

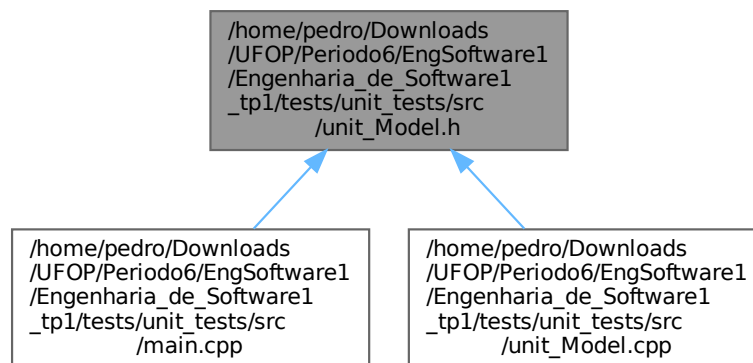
```
#include "../src/FlowIMP.h"
#include "../src/SystemIMP.h"
```

```
#include "../.../src/ModelIMP.h"
#include "unit_Flow.h"
#include <iostream>
#include <string>
#include <assert.h>
#include <vector>
```

Include dependency graph for unit_Model.h:



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



Functions

- void `test_Model_constructor` ()
This function run the unit test of the model constructor.
- void `test_Model_destructor` ()
This function run the unit test of the model destructor.
- void `test_Model_getName` ()
This function run the unit test of the model getName.

- void [test_Model_getSystems_and_add](#) ()
This function run the unit test of the model getSystems and add [System](#).
- void [test_Model_getFlows_and_add](#) ()
This function run the unit test of the model getFlows and add [Flow](#).
- void [test_Model_getStartTime](#) ()
This function run the unit test of the model getStartTime.
- void [test_Model_getEndTime](#) ()
This function run the unit test of the model getEndTime.
- void [test_Model_setName](#) ()
This function run the unit test of the model setName.
- void [test_Model_setSystems](#) ()
This function run the unit test of the model setSystems.
- void [test_Model_setFlows](#) ()
This function run the unit test of the model setFlows.
- void [test_Model_setStartTime](#) ()
This function run the unit test of the model setStartTime.
- void [test_Model_setEndTime](#) ()
This function run the unit test of the model setEndTime.
- void [test_Model_setTime](#) ()
This function run the unit test of the model setTime.
- void [test_Model_rmv_Sytem](#) ()
This function run the unit test of the model rmv [System](#).
- void [test_Model_rmv_Flow](#) ()
This function run the unit test of the model rmv [Flow](#).
- void [test_Model_equal](#) ()
This function run the unit test of the model equal.
- void [test_Model_run](#) ()
This function run the unit test of the model run.
- void [run_Model_unit_test](#) ()
This function run the unit tests of the model.

5.31.1 Function Documentation

5.31.1.1 run_Model_unit_test()

```
void run_Model_unit_test ( )
```

This function run the unit tests of the model.

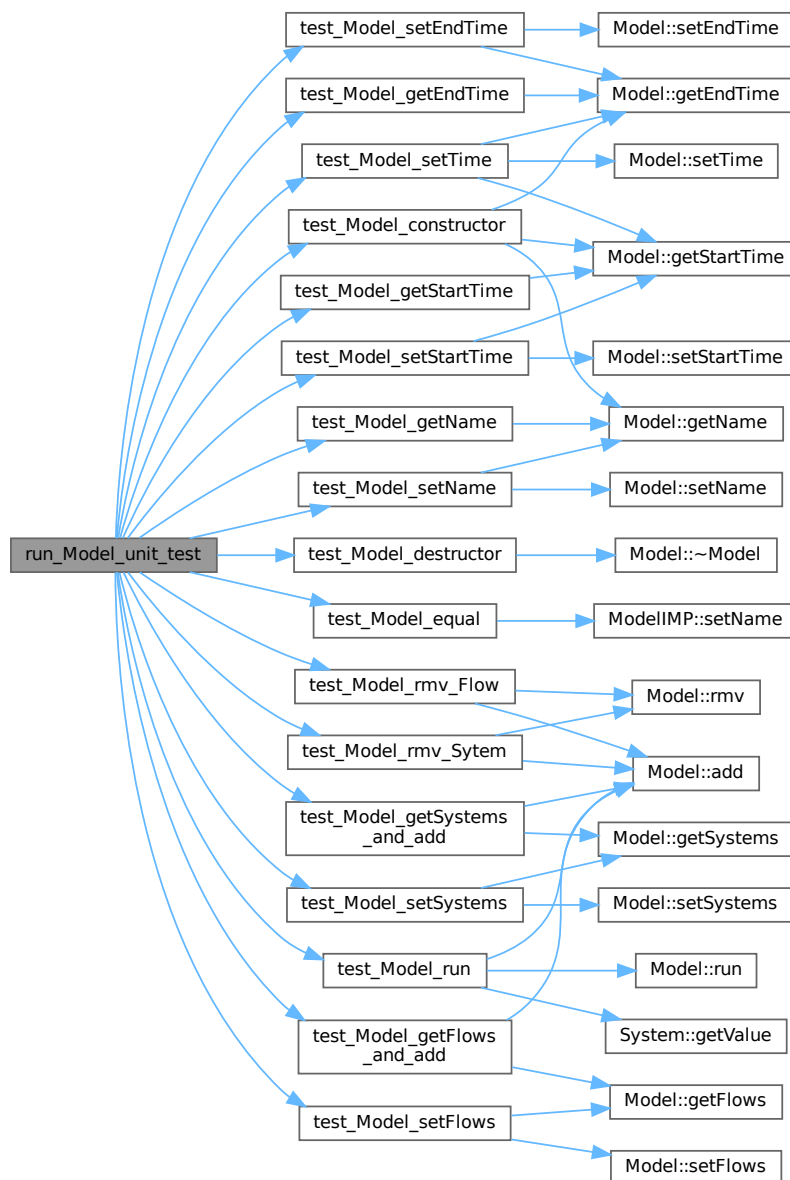
```
00245         {
00246             std::cout << "      Start Model unit tests\n";
00247             test_Model_constructor();
00248             test_Model_destructor();
00249             test_Model_getName();
00250             test_Model_getSystems_and_add();
00251             test_Model_getFlows_and_add();
00252             test_Model_getStartTime();
00253             test_Model_getEndTime();
00254             test_Model_setName();
00255             test_Model_setSystems();
00256             test_Model_setFlows();
00257             test_Model_setStartTime();
00258             test_Model_setEndTime();
00259             test_Model_setTime();
00260             test_Model_rmv_Sytem();
00261             test_Model_rmv_Flow();
00262             test_Model_run();
00263             test_Model_equal();
00264             std::cout << "      End Model unit tests\n";
```

00265 }

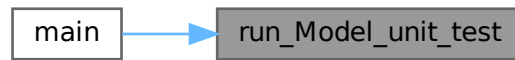
References [test_Model_constructor\(\)](#), [test_Model_destructor\(\)](#), [test_Model_equal\(\)](#), [test_Model_getEndTime\(\)](#), [test_Model_getFlows_and_add\(\)](#), [test_Model_getName\(\)](#), [test_Model_getStartTime\(\)](#), [test_Model_getSystems_and_add\(\)](#), [test_Model_rmv_Flow\(\)](#), [test_Model_rmv_Sytem\(\)](#), [test_Model_run\(\)](#), [test_Model_setEndTime\(\)](#), [test_Model_setFlows\(\)](#), [test_Model_setName\(\)](#), [test_Model_setStartTime\(\)](#), [test_Model_setSystems\(\)](#), and [test_Model_setTime\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.2 test_Model_constructor()

```
void test_Model_constructor ( )
```

This function run the unit test of the model constructor.

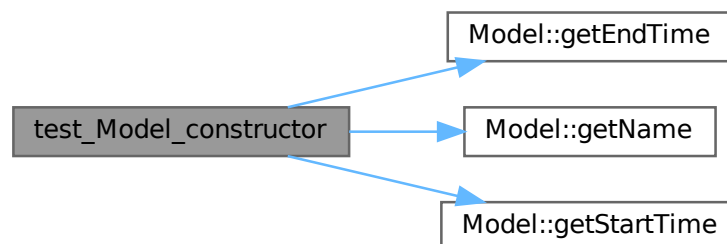
```

00003      {
00004      std::cout << "          * Constructor tests\n";
00005      Model* m1 = new ModelIMP();
00006      assert(m1->getName() == "NO_NAME");
00007      assert(m1->getStartTime() == 0);
00008      assert(m1->getEndTime() == 1);
00009
00010      Model* m2 = new ModelIMP("m2");
00011      assert(m2->getName() == "m2");
00012      assert(m2->getStartTime() == 0);
00013      assert(m2->getEndTime() == 1);
00014
00015      Model* m3 = new ModelIMP("m3", 2);
00016      assert(m3->getName() == "m3");
00017      assert(m3->getStartTime() == 2);
00018      assert(m3->getEndTime() == 1);
00019
00020      Model* m4 = new ModelIMP("m4", 2, 5);
00021      assert(m4->getName() == "m4");
00022      assert(m4->getStartTime() == 2);
00023      assert(m4->getEndTime() == 5);
00024
00025      delete m1;
00026      delete m2;
00027      delete m3;
00028      delete m4;
00029  }
```

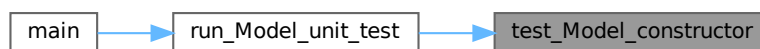
References [Model::getEndTime\(\)](#), [Model::getName\(\)](#), and [Model::getStartTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.3 test_Model_destructor()

```
void test_Model_destructor ( )
```

This function run the unit test of the model destructor.

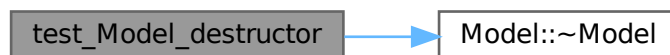
```

00031         {
00032     std::cout << "          * Destructor tests\n";
00033     Model* m1 = new ModelIMP();
00034     m1->~Model();
00035 }
```

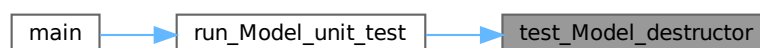
References [Model::~~Model\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.4 test_Model_equal()

```
void test_Model_equal ( )
```

This function run the unit test of the model equal.

```
00183         {
00184             std::cout << "          * Equal tests\n";
00185
00186             ModelIMP* m1 = new ModelIMP();
00187             ModelIMP* m2 = new ModelIMP();
00188             assert(*m1 == *m2);
00189
00190             m1->setName("m1");
00191             assert(m1 != m2);
00192
00193             delete m1;
00194             delete m2;
00195 }
```

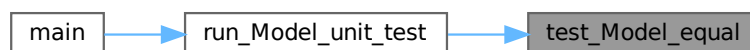
References [ModelIMP::setName\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.5 test_Model_getEndTime()

```
void test_Model_getEndTime ( )
```

This function run the unit test of the model getEndTime.

```
00087         {
00088             std::cout << "          * getEndTime tests\n";
00089             Model* m1 = new ModelIMP();
00090             assert(m1->getEndTime() == 1);
00091
00092             Model* m2 = new ModelIMP("m2", 0, 2);
00093             assert(m2->getEndTime() == 2);
00094
00095             delete m1;
00096             delete m2;
00097 }
```

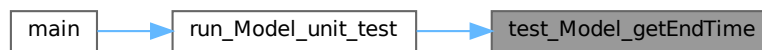
References [Model::getEndTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.6 test_Model_getFlows_and_add()

```
void test_Model_getFlows_and_add ( )
```

This function run the unit test of the model `getFlows` and add [Flow](#).

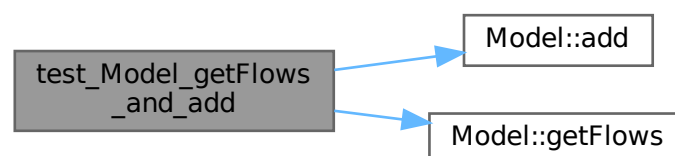
```

00062         {
00063     std::cout << "          * getFlows and add Flows tests\n";
00064     Flow* f1 = new Flow_unit_test("f1");
00065     Model* m1 = new ModelIMP("m1");
00066     std::vector<Flow*> flows;
00067     flows.push_back(f1);
00068     m1->add(f1);
00069     assert(m1->getFlows() == flows);
00070
00071     delete f1;
00072     delete m1;
00073 }
```

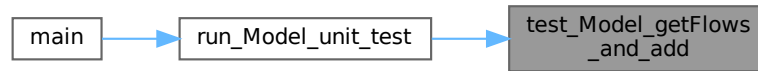
References [Model::add\(\)](#), and [Model::getFlows\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.7 test_Model_getName()

```
void test_Model_getName ( )
```

This function run the unit test of the model getName.

```

00037         {
00038     std::cout << "      * getName tests\n";
00039     Model* m1 = new ModelIMP ();
00040     assert (m1->getName () == "NO_NAME");
00041
00042     Model* m2 = new ModelIMP ("m2");
00043     assert (m2->getName () == "m2");
00044
00045     delete m1;
00046     delete m2;
00047 }
```

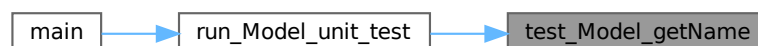
References [Model::getName\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.8 test_Model_getStartTime()

```
void test_Model_getStartTime ( )
```

This function run the unit test of the model getStartTime.

```
00075     {
00076     std::cout << "          * getStartTime tests\n";
00077     Model* m1 = new ModelIMP();
00078     assert(m1->getStartTime() == 0);
00079
00080     Model* m2 = new ModelIMP("m2", 1);
00081     assert(m2->getStartTime() == 1);
00082
00083     delete m1;
00084     delete m2;
00085 }
```

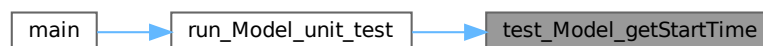
References [Model::getStartTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.9 test_Model_getSystems_and_add()

```
void test_Model_getSystems_and_add ( )
```

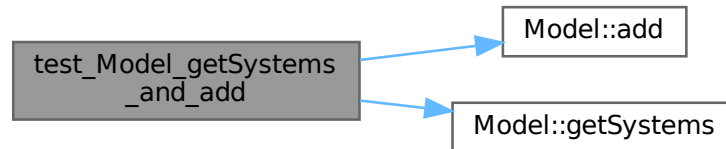
This function run the unit test of the model getSystems and add [System](#).

```
00049     {
00050     std::cout << "          * getSystems and add Systems tests\n";
00051     System* s1 = new SystemIMP("s1");
00052     Model* m1 = new ModelIMP("m1");
00053     std::vector<System*> systems;
00054     systems.push_back(s1);
00055     m1->add(s1);
00056     assert(m1->getSystems() == systems);
00057
00058     delete s1;
00059     delete m1;
00060 }
```

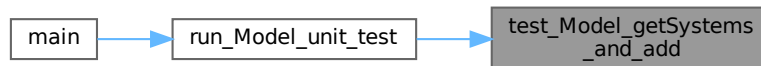
References [Model::add\(\)](#), and [Model::getSystems\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.10 test_Model_rmv_Flow()

```
void test_Model_rmv_Flow ( )
```

This function run the unit test of the model rmv [Flow](#).

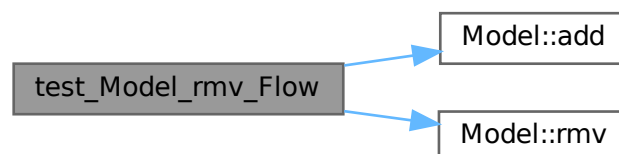
```

00210     {
00211         std::cout << "          * Remove Flow tests\n";
00212
00213         Model* model1 = new ModelIMP();
00214         FlowIMP* flow1 = new Flow_unit_test("flow1");
00215
00216         model1->add(flow1);
00217         assert(model1->rmv(flow1));
00218
00219         delete model1;
00220         delete flow1;
00221     }
  
```

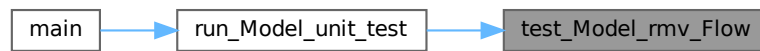
References [Model::add\(\)](#), and [Model::rmv\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.11 test_Model_rmv_Sytem()

```
void test_Model_rmv_Sytem ( )
```

This function run the unit test of the model rmv [System](#).

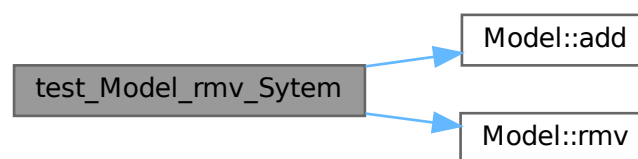
```

00197         {
00198     std::cout << "          * Remove System tests\n";
00199
00200     Model* model1 = new ModelIMP();
00201     System* system1 = new SystemIMP("system1");
00202
00203     model1->add(system1);
00204     assert(model1->rmv(system1));
00205
00206     delete model1;
00207     delete system1;
00208 }
    
```

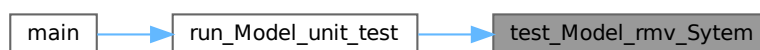
References [Model::add\(\)](#), and [Model::rmv\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.12 test_Model_run()

```
void test_Model_run ( )
```

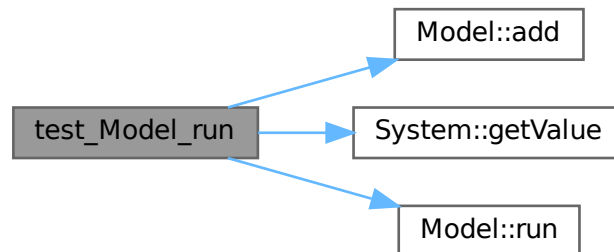
This function run the unit test of the model run.

```
00223 {
00224     std::cout << "          * Run tests\n";
00225
00226     System* s1 = new SystemIMP("s1", 100);
00227     System* s2 = new SystemIMP("s2", 0.0);
00228     Flow* f1 = new Flow_unit_test("f1", s1, s2);
00229     Model* m1 = new ModelIMP("m1", 0, 1);
00230
00231     m1->add(s1);
00232     m1->add(s2);
00233     m1->add(f1);
00234
00235     m1->run();
00236
00237     assert(s1->getValue() == 0);
00238     assert(s2->getValue() == 100);
00239
00240     delete s1;
00241     delete s2;
00242     delete f1;
00243 }
```

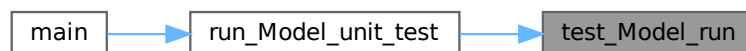
References [Model::add\(\)](#), [System::getValue\(\)](#), and [Model::run\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.13 test_Model_setEndTime()

```
void test_Model_setEndTime ( )
```

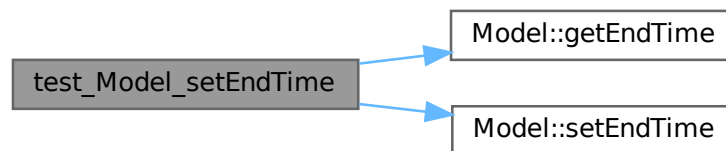
This function run the unit test of the model setEndTime.

```
00153     {
00154         std::cout << "          * setEndTime tests\n";
00155         Model* m1 = new ModelIMP();
00156         m1->setEndTime(3);
00157         assert(m1->getEndTime() != 1);
00158
00159         Model* m2 = new ModelIMP("m2", 0, 1);
00160         m2->setEndTime(2);
00161         assert(m2->getEndTime() == 2);
00162
00163         delete m1;
00164         delete m2;
00165     }
```

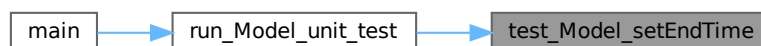
References [Model::getEndTime\(\)](#), and [Model::setEndTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.14 test_Model_setFlows()

```
void test_Model_setFlows ( )
```

This function run the unit test of the model setFlows.

```
00126     {
00127         std::cout << "          * setFlows tests\n";
00128         Flow* f1 = new Flow_unit_test("f1");
00129         Model* m1 = new ModelIMP("m1");
00130         std::vector<Flow*> flows;
00131         flows.push_back(f1);
00132         m1->setFlows(flows);
00133         assert(m1->getFlows() == flows);

```

```

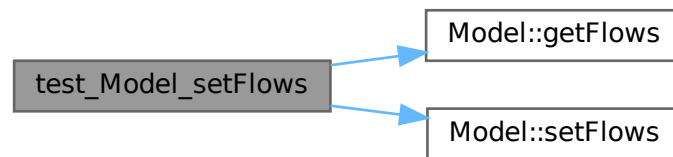
00134
00135     delete f1;
00136     delete m1;
00137 }

```

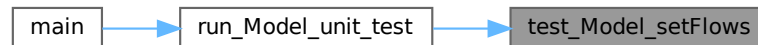
References [Model::getFlows\(\)](#), and [Model::setFlows\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.15 test_Model_setName()

```
void test_Model_setName ( )
```

This function run the unit test of the model setName.

```

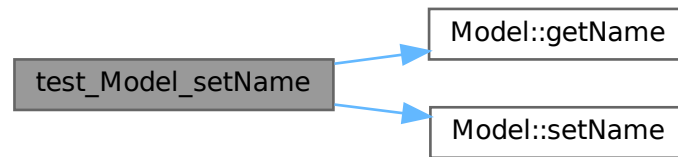
00099     {
00100         std::cout << "          * setName tests\n";
00101         Model* m1 = new ModelIMP();
00102         m1->setName("m1");
00103         assert(m1->getName() != "NO_NAME");
00104
00105         Model* m2 = new ModelIMP("m");
00106         m2->setName("m2");
00107         assert(m2->getName() == "m2");
00108
00109         delete m1;
00110         delete m2;
00111     }

```

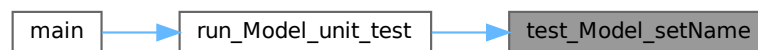
References [Model::getName\(\)](#), and [Model::setName\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.16 test_Model_setStartTime()

```
void test_Model_setStartTime ( )
```

This function run the unit test of the model `setStartTime`.

```

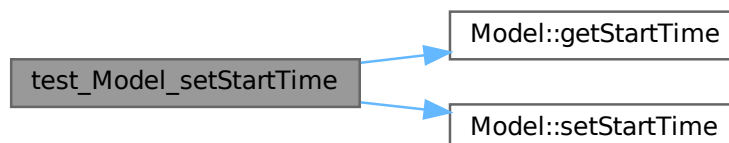
00139         {
00140         std::cout << "          * setStartTime tests\n";
00141         Model* m1 = new ModelIMP();
00142         m1->setStartTime(3);
00143         assert(m1->getStartTime() != 0);
00144
00145         Model* m2 = new ModelIMP("m2", 3);
00146         m2->setStartTime(1);
00147         assert(m2->getStartTime() == 1);
00148
00149         delete m1;
00150         delete m2;
00151     }

```

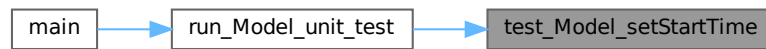
References [Model::getStartTime\(\)](#), and [Model::setStartTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.17 test_Model_setSystems()

```
void test_Model_setSystems ( )
```

This function run the unit test of the model setSystems.

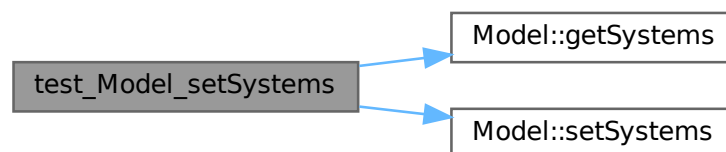
```

00113     {
00114     std::cout << "          * setSystems tests\n";
00115     System* s1 = new SystemIMP("s1");
00116     Model* m1 = new ModelIMP("m1");
00117     std::vector<System*> systems;
00118     systems.push_back(s1);
00119     m1->setSystems(systems);
00120     assert(m1->getSystems() == systems);
00121
00122     delete s1;
00123     delete m1;
00124 }
  
```

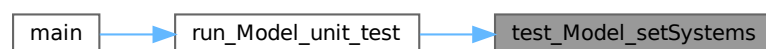
References [Model::getSystems\(\)](#), and [Model::setSystems\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.31.1.18 test_Model_setTime()

```
void test_Model_setTime ( )
```

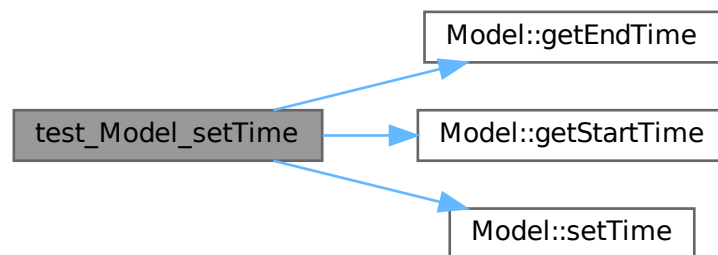
This function run the unit test of the model setTime.

```
00167     {
00168         std::cout << " * setTime tests\n";
00169         Model* m1 = new ModelIMP();
00170         m1->setTime(1, 3);
00171         assert(m1->getStartTime() != 0);
00172         assert(m1->getEndTime() != 1);
00173
00174         Model* m2 = new ModelIMP("m2", 0, 1);
00175         m2->setTime(3, 4);
00176         assert(m2->getStartTime() == 3);
00177         assert(m2->getEndTime() == 4);
00178
00179         delete m1;
00180         delete m2;
00181     }
```

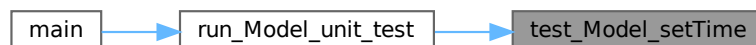
References [Model::getEndTime\(\)](#), [Model::getStartTime\(\)](#), and [Model::setTime\(\)](#).

Referenced by [run_Model_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.32 unit_Model.h

[Go to the documentation of this file.](#)

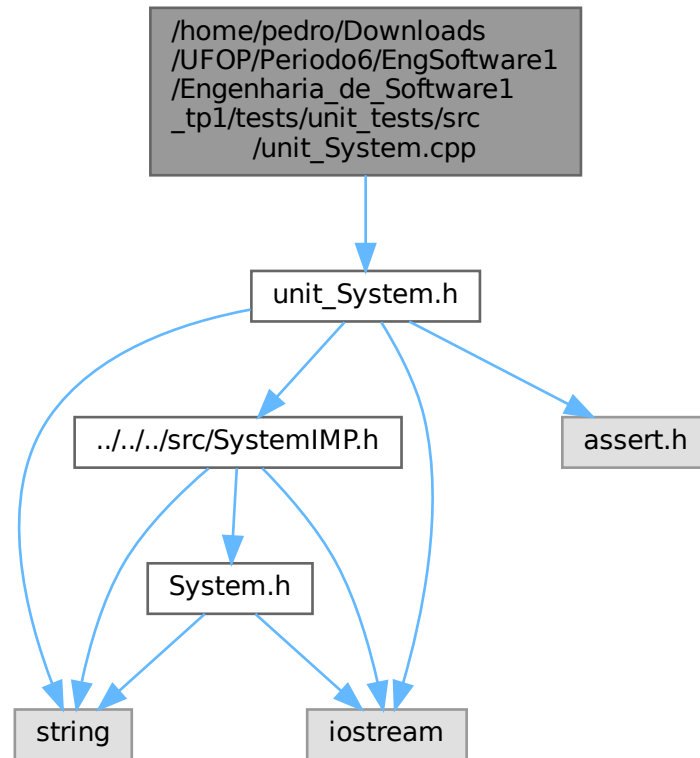
```
00001 /*****
00002  * @file unit_Flow.h
00003  * @author Pedro Augusto Sousa Gonçalves
```

```
00004  * @brief This file represents the model units tests
00005  *****/
00006
00007 #ifndef UNIT_MODEL_H
00008 #define UNIT_MODEL_H
00009
00010 #include "../src/FlowIMP.h"
00011 #include "../src/SystemIMP.h"
00012 #include "../src/ModelIMP.h"
00013 #include "unit_Flow.h"
00014
00015 #include <iostream>
00016 #include <string>
00017 #include <assert.h>
00018 #include <vector>
00019
00023 void test_Model_constructor();
00027 void test_Model_destructor();
00031 void test_Model_getName();
00035 void test_Model_getSystems_and_add();
00039 void test_Model_getFlows_and_add();
00043 void test_Model_getStartTime();
00047 void test_Model_getEndTime();
00051 void test_Model_setName();
00055 void test_Model_setSystems();
00059 void test_Model_setFlows();
00063 void test_Model_setStartTime();
00067 void test_Model_setEndTime();
00071 void test_Model_setTime();
00075 void test_Model_rmv_Sytem();
00079 void test_Model_rmv_Flow();
00083 void test_Model_equal();
00087 void test_Model_run();
00091 void run_Model_unit_test();
00092
00093
00094 #endif
```

5.33 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/↵ Engenharia_de_Software1_tp1/tests/unit_tests/src/unit_↵ System.cpp File Reference

```
#include "unit_System.h"
```

Include dependency graph for unit_System.cpp:



Functions

- void `test_System_constructor` ()
This function run the unit test of the system constructor.
- void `test_System_destructor` ()
This function run the unit test of the system destructor.
- void `test_System_getName` ()
This function run the unit test of the system getName.
- void `test_System_getValue` ()
This function run the unit test of the system getValue.
- void `test_System_setName` ()
This function run the unit test of the system setName.
- void `test_System_setValue` ()
This function run the unit test of the system setValeu.

- void [test_System_equal\(\)](#)
This function run the unit test of the system equal comparison.
- void [run_System_unit_test\(\)](#)
This function run the unit tests of the system.

5.33.1 Function Documentation

5.33.1.1 run_System_unit_test()

```
void run_System_unit_test ( )
```

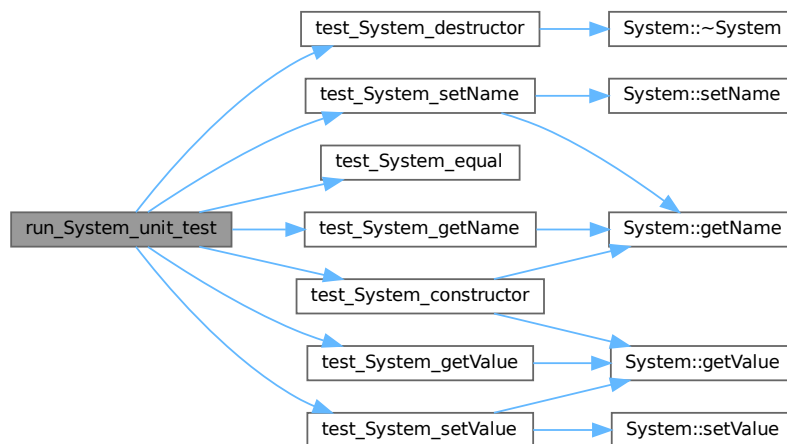
This function run the unit tests of the system.

```
00095     {
00096     std::cout << "    Start System unit tests\n";
00097     test_System_constructor();
00098     test_System_destructor();
00099     test_System_getName();
00100     test_System_getValue();
00101     test_System_setName();
00102     test_System_setValue();
00103     test_System_equal();
00104     std::cout << "    End System unit tests\n\n";
00105 }
```

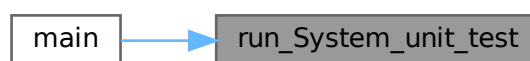
References [test_System_constructor\(\)](#), [test_System_destructor\(\)](#), [test_System_equal\(\)](#), [test_System_getName\(\)](#), [test_System_getValue\(\)](#), [test_System_setName\(\)](#), and [test_System_setValue\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.33.1.2 test_System_constructor()

```
void test_System_constructor ( )
```

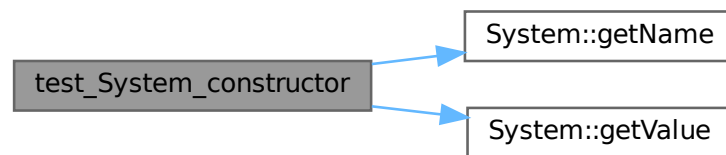
This function run the unit test of the system constructor.

```
00003      {
00004      std::cout << "          * Constructor tests\n";
00005      System* s1 = new SystemIMP();
00006      assert(s1->getName() == "NO_NAME");
00007      assert(s1->getValue() == 0.0);
00008
00009      System* s2 = new SystemIMP("s2");
00010      assert(s2->getName() == "s2");
00011      assert(s2->getValue() == 0.0);
00012
00013      System* s3 = new SystemIMP("s3", 2.0);
00014      assert(s3->getName() == "s3");
00015      assert(s3->getValue() == 2.0);
00016
00017      delete s1;
00018      delete s2;
00019      delete s3;
00020 }
```

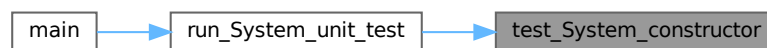
References [System::getName\(\)](#), and [System::getValue\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.33.1.3 test_System_destructor()

```
void test_System_destructor ( )
```

This function run the unit test of the system destructor.

```
00022      {
00023      std::cout << "          * Destructor tests\n";
00024      System* s1 = new SystemIMP();
```

```
00025     s1->~System();
00026 }
```

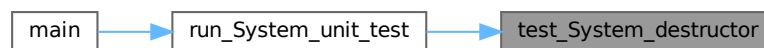
References [System::~~System\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.33.1.4 test_System_equal()

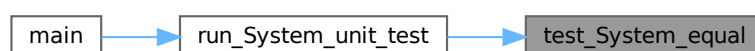
```
void test_System_equal ( )
```

This function run the unit test of the system equal comparison.

```
00079     {
00080         std::cout << "          * Equal tests\n";
00081         SystemIMP* s1 = new SystemIMP("s1");
00082         SystemIMP* s2 = new SystemIMP("s2");
00083         assert(*s1 != *s2);
00084
00085         SystemIMP* s3 = new SystemIMP();
00086         SystemIMP* s4 = new SystemIMP();
00087         assert(*s3 == *s4);
00088
00089         delete s1;
00090         delete s2;
00091         delete s3;
00092         delete s4;
00093     }
```

Referenced by [run_System_unit_test\(\)](#).

Here is the caller graph for this function:



5.33.1.5 test_System_getName()

```
void test_System_getName ( )
```

This function run the unit test of the system getName.

```
00028      {
00029      std::cout << "      * getName tests\n";
00030      System* s1 = new SystemIMP();
00031      assert(s1->getName() == "NO_NAME");
00032
00033      System* s2 = new SystemIMP("s2");
00034      assert(s2->getName() == "s2");
00035
00036      delete s1;
00037      delete s2;
00038  }
```

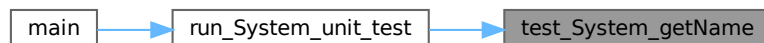
References [System::getName\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.33.1.6 test_System_getValue()

```
void test_System_getValue ( )
```

This function run the unit test of the system getValue.

```
00040      {
00041      std::cout << "      * getValue tests\n";
00042      System* s1 = new SystemIMP();
00043      assert(s1->getValue() == 0);
00044
00045      System* s2 = new SystemIMP("s2", 22);
00046      assert(s2->getValue() == 22);
00047
00048      delete s1;
00049      delete s2;
00050  }
```

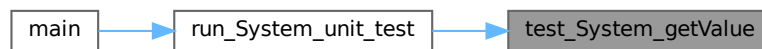
References [System::getValue\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.33.1.7 test_System_setName()

```
void test_System_setName ( )
```

This function run the unit test of the system setName.

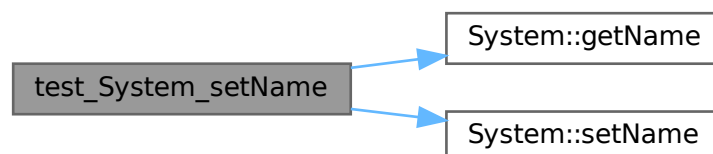
```

00052     {
00053         std::cout << "          * setName tests\n";
00054         System* s1 = new SystemIMP();
00055         s1->setName("s1");
00056         assert(s1->getName() != "NO_NAME");
00057
00058         System* s2 = new SystemIMP();
00059         s2->setName("s2");
00060         assert(s2->getName() == "s2");
00061         delete s1;
00062         delete s2;
00063     }
```

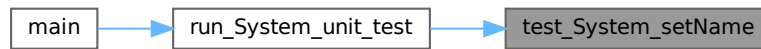
References [System::getName\(\)](#), and [System::setName\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.33.1.8 test_System_setValue()

```
void test_System_setValue ( )
```

This function run the unit test of the system setValeu.

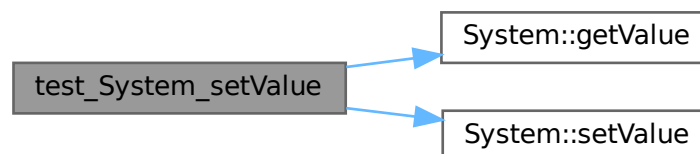
```

00065         {
00066         std::cout << "          * setValue tests\n";
00067         System* s1 = new SystemIMP();
00068         s1->setValue(21);
00069         assert(s1->getValue() != 0);
00070
00071         System* s2 = new SystemIMP("s2", 22);
00072         s2->setValue(45);
00073         assert(s2->getValue() == 45);
00074
00075         delete s1;
00076         delete s2;
00077     }
  
```

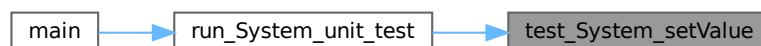
References [System::getValue\(\)](#), and [System::setValue\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



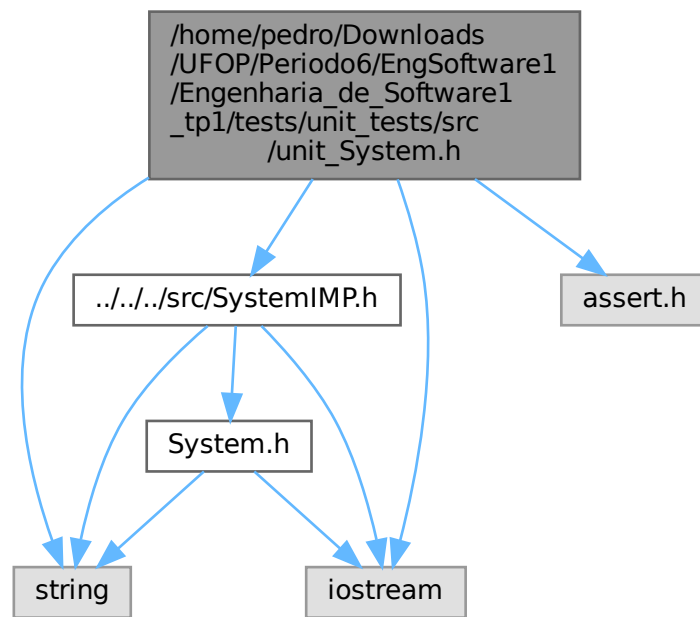
Here is the caller graph for this function:



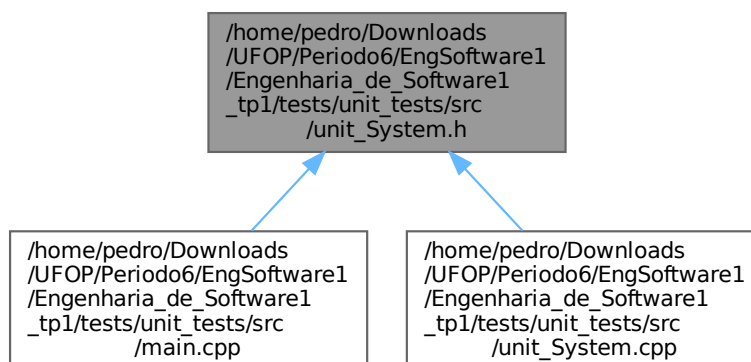
5.34 /home/pedro/Downloads/UFOP/Periodo6/EngSoftware1/Engenharia_de_Software1_tp1/tests/unit_tests/src/unit_System.h File Reference

```
#include "../../../src/SystemIMP.h"
#include <iostream>
#include <assert.h>
#include <string>
```

Include dependency graph for unit_System.h:



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



Functions

- void [test_System_constructor](#) ()
This function run the unit test of the system constructor.
- void [test_System_destructor](#) ()
This function run the unit test of the system destructor.
- void [test_System_getName](#) ()
This function run the unit test of the system getName.
- void [test_System_getValue](#) ()
This function run the unit test of the system getValue.
- void [test_System_setName](#) ()
This function run the unit test of the system setName.
- void [test_System_setValue](#) ()
This function run the unit test of the system setValeu.
- void [test_System_equal](#) ()
This function run the unit test of the system equal comparison.
- void [run_System_unit_test](#) ()
This function run the unit tests of the system.

5.34.1 Function Documentation

5.34.1.1 run_System_unit_test()

```
void run_System_unit_test ( )
```

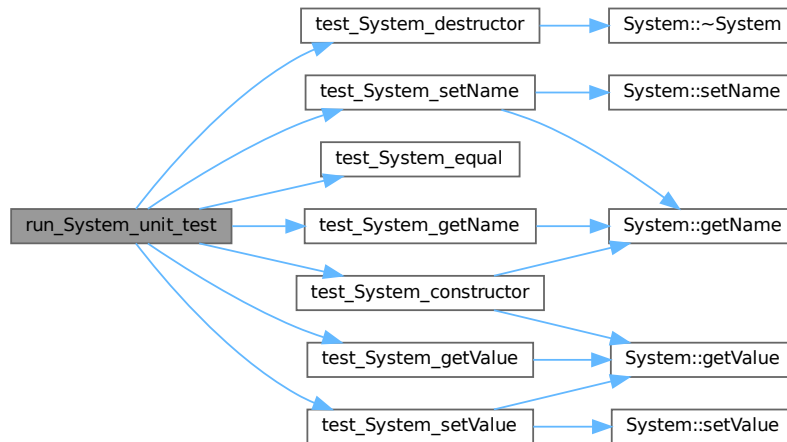
This function run the unit tests of the system.

```
00095      {  
00096          std::cout << "      Start System unit tests\n";  
00097          test\_System\_constructor();  
00098          test\_System\_destructor();  
00099          test\_System\_getName();  
00100          test\_System\_getValue();  
00101          test\_System\_setName();  
00102          test\_System\_setValue();  
00103          test\_System\_equal();  
00104          std::cout << "      End System unit tests\n\n";  
00105      }
```

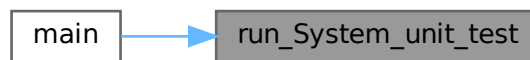
References [test_System_constructor\(\)](#), [test_System_destructor\(\)](#), [test_System_equal\(\)](#), [test_System_getName\(\)](#), [test_System_getValue\(\)](#), [test_System_setName\(\)](#), and [test_System_setValue\(\)](#).

Referenced by [main\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.34.1.2 test_System_constructor()

```
void test_System_constructor ( )
```

This function run the unit test of the system constructor.

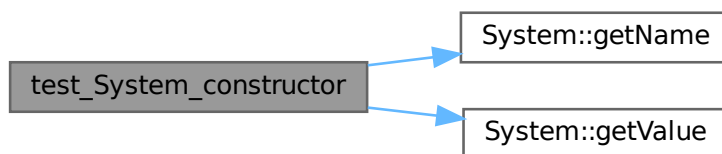
```

00003      {
00004      std::cout << "          * Constructor tests\n";
00005      System* s1 = new SystemIMP();
00006      assert(s1->getName() == "NO_NAME");
00007      assert(s1->getValue() == 0.0);
00008
00009      System* s2 = new SystemIMP("s2");
00010      assert(s2->getName() == "s2");
00011      assert(s2->getValue() == 0.0);
00012
00013      System* s3 = new SystemIMP("s3", 2.0);
00014      assert(s3->getName() == "s3");
00015      assert(s3->getValue() == 2.0);
00016
00017      delete s1;
00018      delete s2;
00019      delete s3;
00020  }
```

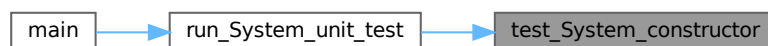
References [System::getName\(\)](#), and [System::getValue\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.34.1.3 test_System_destructor()

```
void test_System_destructor ( )
```

This function run the unit test of the system destructor.

```

00022     {
00023     std::cout << "          * Destructor tests\n";
00024     System* s1 = new SystemIMP();
00025     s1->~System();
00026 }

```

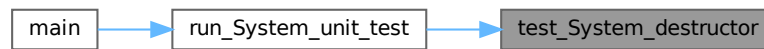
References [System::~~System\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.34.1.4 test_System_equal()

```
void test_System_equal ( )
```

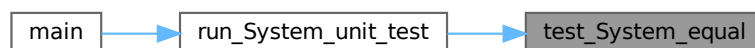
This function run the unit test of the system equal comparison.

```

00079         {
00080         std::cout << "          * Equal tests\n";
00081         SystemIMP* s1 = new SystemIMP("s1");
00082         SystemIMP* s2 = new SystemIMP("s2");
00083         assert(*s1 != *s2);
00084
00085         SystemIMP* s3 = new SystemIMP();
00086         SystemIMP* s4 = new SystemIMP();
00087         assert(*s3 == *s4);
00088
00089         delete s1;
00090         delete s2;
00091         delete s3;
00092         delete s4;
00093     }
  
```

Referenced by [run_System_unit_test\(\)](#).

Here is the caller graph for this function:



5.34.1.5 test_System_getName()

```
void test_System_getName ( )
```

This function run the unit test of the system getName.

```

00028         {
00029         std::cout << "          * getName tests\n";
00030         System* s1 = new SystemIMP();
00031         assert(s1->getName() == "NO_NAME");
00032
00033         System* s2 = new SystemIMP("s2");
00034         assert(s2->getName() == "s2");
00035
00036         delete s1;
00037         delete s2;
00038     }
  
```

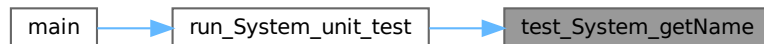
References [System::getName\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.34.1.6 test_System_getValue()

```
void test_System_getValue ( )
```

This function run the unit test of the system `getValue`.

```

00040      {
00041          std::cout << "          * getValue tests\n";
00042          System* s1 = new SystemIMP();
00043          assert(s1->getValue() == 0);
00044
00045          System* s2 = new SystemIMP("s2", 22);
00046          assert(s2->getValue() == 22);
00047
00048          delete s1;
00049          delete s2;
00050      }
    
```

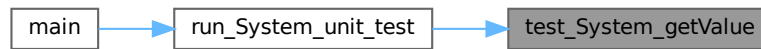
References [System::getValue\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.34.1.7 test_System_setName()

```
void test_System_setName ( )
```

This function run the unit test of the system setName.

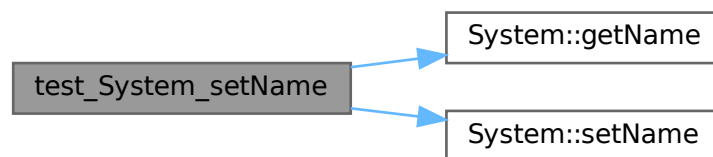
```

00052         {
00053     std::cout << "          * setName tests\n";
00054     System* s1 = new SystemIMP();
00055     s1->setName("s1");
00056     assert(s1->getName() != "NO_NAME");
00057
00058     System* s2 = new SystemIMP();
00059     s2->setName("s2");
00060     assert(s2->getName() == "s2");
00061     delete s1;
00062     delete s2;
00063 }
```

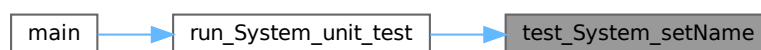
References [System::getName\(\)](#), and [System::setName\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.34.1.8 test_System_setValue()

```
void test_System_setValue ( )
```

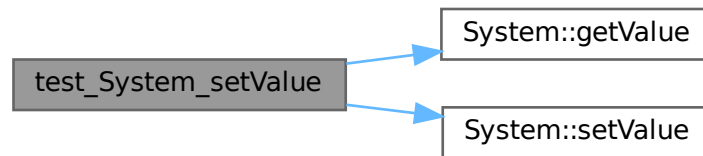
This function run the unit test of the system setValeu.

```
00065      {
00066      std::cout << "          * setValue tests\n";
00067      System* s1 = new SystemIMP();
00068      s1->setValue(21);
00069      assert(s1->getValue() != 0);
00070
00071      System* s2 = new SystemIMP("s2", 22);
00072      s2->setValue(45);
00073      assert(s2->getValue() == 45);
00074
00075      delete s1;
00076      delete s2;
00077  }
```

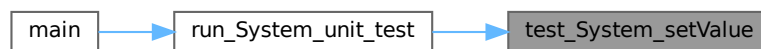
References [System::getValue\(\)](#), and [System::setValue\(\)](#).

Referenced by [run_System_unit_test\(\)](#).

Here is the call graph for this function:



Here is the caller graph for this function:



5.35 unit_System.h

[Go to the documentation of this file.](#)

```
00001  /*****
00002  * @file unit_Syste,.h
00003  * @author Pedro Augusto Sousa Gonçalves
00004  * @brief This file represents the system units tests
00005  *****/
00006
00007 #ifndef UNIT_SYSTEM_H
00008 #define UNIT_SYSTEM_H
00009
00010 #include "../src/SystemIMP.h"
```

```
00011
00012 #include <iostream>
00013 #include <assert.h>
00014 #include <string>
00015
00019 void test_System_constructor();
00023 void test_System_destructor();
00027 void test_System_getName();
00031 void test_System_getValue();
00035 void test_System_setName();
00039 void test_System_setValue();
00043 void test_System_equal();
00047 void run_System_unit_test();
00048
00049 #endif
```