

ADT

0.1

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# Contents



# Chapter 1

## Hierarchical Index

### 1.1 Class Hierarchy

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

IList< Object > . . . . .	??
SLista< Object > . . . . .	??
IList< int > . . . . .	??
SLista< int > . . . . .	??
IRunnable . . . . .	??
MSortTest . . . . .	??
QSortTest . . . . .	??
IStack< Object > . . . . .	??
IStoper . . . . .	??
StoperZZapisem . . . . .	??
MSort . . . . .	??
MSortTest . . . . .	??
QSort . . . . .	??
QSortTest . . . . .	??
SNode< Object > . . . . .	??
SNode< int > . . . . .	??
Tab . . . . .	??



## Chapter 2

# Class Index

### 2.1 Class List

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

<a href="#">IList&lt; Object &gt;</a>	Interfejs listy jednokierunkowej . . . . .	??
<a href="#">IRunnable</a>	. . . . .	??
<a href="#">IStack&lt; Object &gt;</a>	Klasa szablonowa modelująca interfejs stosu . . . . .	??
<a href="#">IStoper</a>	. . . . .	??
<a href="#">MSort</a>	Merge Sort . . . . .	??
<a href="#">MSortTest</a>	. . . . .	??
<a href="#">QSort</a>	QuickSort . . . . .	??
<a href="#">QSortTest</a>	. . . . .	??
<a href="#">SLista&lt; Object &gt;</a>	Szablonowa klasa implementująca listę jednokierunkową . . . . .	??
<a href="#">SNode&lt; Object &gt;</a>	. . . . .	??
<a href="#">StoperZZapisem</a>	Klasa implementująca rozbudowany stoper . . . . .	??
<a href="#">Tab</a>	. . . . .	??





## Chapter 3

# File Index

### 3.1 File List

Here is a list of all files with brief descriptions:

<a href="#">IList.cpp</a>	??
<a href="#">IList.hh</a>	??
<a href="#">IRunnable.cpp</a>	??
<a href="#">IRunnable.hh</a>	
Interface do testowania algorytmow sortowania	??
<a href="#">IStack.hh</a>	??
<a href="#">IStoper.cpp</a>	??
<a href="#">IStoper.hh</a>	??
<a href="#">main.cpp</a>	??
<a href="#">MSort.cpp</a>	??
<a href="#">MSort.hh</a>	??
<a href="#">MSortTest.cpp</a>	??
<a href="#">MSortTest.hh</a>	??
<a href="#">QSort.cpp</a>	??
<a href="#">QSort.hh</a>	??
<a href="#">QSortTest.cpp</a>	??
<a href="#">QSortTest.hh</a>	??
<a href="#">SLista.cpp</a>	??
<a href="#">SLista.hh</a>	??
<a href="#">SNode.hh</a>	??
<a href="#">StoperZZapisem.cpp</a>	??
<a href="#">StoperZZapisem.hh</a>	??
<a href="#">Tab.cpp</a>	??
<a href="#">Tab.hh</a>	??



## Chapter 4

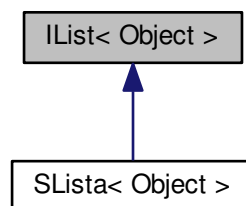
# Class Documentation

### 4.1 IList< Object > Class Template Reference

Interfejs listy jednokierunkowej.

```
#include <IList.hh>
```

Inheritance diagram for IList< Object >:



#### Public Member Functions

- virtual bool `IsEmpty ()`=0  
*Metoda sprawdzająca, czy lista jest pusta.*
- virtual const Object & `Front ()`=0  
*Metoda zwracająca pierwszy element listy.*
- virtual void `AddFront (const Object newItem)`=0  
*Metoda dodająca element na początek listy.*
- virtual void `RemoveFront ()`=0  
*Metoda usuwająca element z początku listy.*

#### 4.1.1 Detailed Description

```
template<typename Object>class IList< Object >
```

Definiuje ADT dla listy jednokierunkowej.

Lista może przechowywać dowolny typ danych dzięki zastosowaniu szablonu.

Definition at line 22 of file IList.hh.

## 4.1.2 Member Function Documentation

**4.1.2.1** `template<typename Object> virtual void IList< Object >::AddFront ( const Object newItem ) [pure virtual]`

Parameters

<code>in</code>	<code><i>newItem</i></code>	- element do dodania
-----------------	-----------------------------	----------------------

Implemented in [SLista< Object >](#), and [SLista< int >](#).

**4.1.2.2** `template<typename Object> virtual const Object& IList< Object >::Front ( ) [pure virtual]`

Returns

pierwszy element listy

Implemented in [SLista< Object >](#), and [SLista< int >](#).

**4.1.2.3** `template<typename Object> virtual bool IList< Object >::IsEmpty ( ) [pure virtual]`

true - jeśli lista jest pusta  
false - jeśli nie jest pusta

Implemented in [SLista< Object >](#), and [SLista< int >](#).

**4.1.2.4** `template<typename Object> virtual void IList< Object >::RemoveFront ( ) [pure virtual]`

Implemented in [SLista< Object >](#), and [SLista< int >](#).

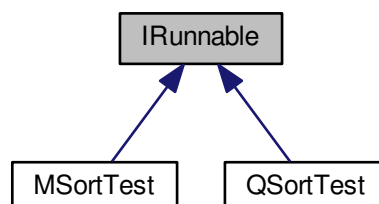
The documentation for this class was generated from the following file:

- [IList.hh](#)

## 4.2 IRunnable Class Reference

```
#include <IRunnable.hh>
```

Inheritance diagram for IRunnable:



## Public Member Functions

- virtual void [Przygotuj](#) ()=0
- virtual void [Testuj](#) ()=0

### 4.2.1 Detailed Description

Definition at line 12 of file IRunnable.hh.

### 4.2.2 Member Function Documentation

#### 4.2.2.1 virtual void IRunnable::Przygotuj ( ) [pure virtual]

Implemented in [MSortTest](#), and [QSortTest](#).

#### 4.2.2.2 virtual void IRunnable::Testuj ( ) [pure virtual]

Implemented in [MSortTest](#), and [QSortTest](#).

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

- [IRunnable.hh](#)

## 4.3 IStack< Object > Class Template Reference

Klasa szablonowa modelująca interfejs stosu.

```
#include <IStack.hh>
```

## Public Member Functions

- virtual bool [IsEmpty](#) ()=0  
*Metoda sprawdzająca, czy stos jest pusty.*
- virtual int [Size](#) ()=0  
*Metoda obliczająca rozmiar stosu.*
- virtual Object & [Top](#) ()=0  
*Metoda zwracająca wierzchołek stosu.*
- virtual void [Push](#) (Object item)=0  
*Metoda dodająca element na stos.*
- virtual Object & [Pop](#) ()=0  
*Metoda zrzucająca element ze stosu.*

### 4.3.1 Detailed Description

```
template<typename Object>class IStack< Object >
```

Definiuje ADT dla stosu.

Stos może przechowywać dowolny typ danych dzięki zastosowaniu szablonu.

Definition at line 22 of file IStack.hh.

### 4.3.2 Member Function Documentation

4.3.2.1 `template<typename Object > virtual bool IStack< Object >::IsEmpty ( ) [pure virtual]`

true - jeśli stos jest pustay false - jeśli stos nie jest pusty

4.3.2.2 `template<typename Object > virtual Object& IStack< Object >::Pop ( ) [pure virtual]`

Usuwa wierzchołek ze stosu i zwraca jego wartość.

#### Returns

element na wierzchu stosu

4.3.2.3 `template<typename Object > virtual void IStack< Object >::Push ( Object item ) [pure virtual]`

Wrzuca element na wierzchołek stosu.

#### Parameters

<i>in</i>	<i>item</i>	- element do dodania
-----------	-------------	----------------------

4.3.2.4 `template<typename Object > virtual int IStack< Object >::Size ( ) [pure virtual]`

#### Returns

liczba elementów na stos

4.3.2.5 `template<typename Object > virtual Object& IStack< Object >::Top ( ) [pure virtual]`

#### Returns

element na wierzchu stosu

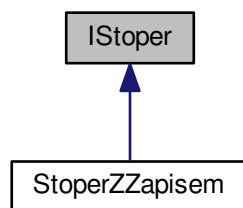
The documentation for this class was generated from the following file:

- [IStack.hh](#)

## 4.4 IStoper Class Reference

```
#include <IStoper.hh>
```

Inheritance diagram for IStoper:



### Public Member Functions

- virtual void [Start](#) ()
- virtual void [Stop](#) ()
- virtual double [GetElapsedTime](#) ()

### Protected Attributes

- timeval [start](#)
- timeval [stop](#)

#### 4.4.1 Detailed Description

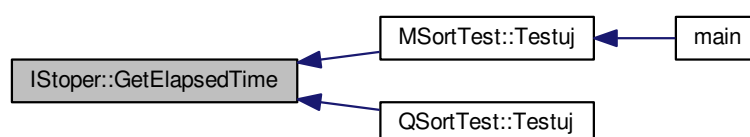
Definition at line 9 of file `IStoper.hh`.

#### 4.4.2 Member Function Documentation

##### 4.4.2.1 double IStoper::GetElapsedTime ( ) [virtual]

Definition at line 12 of file `IStoper.cpp`.

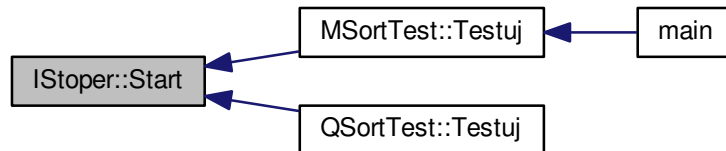
Here is the caller graph for this function:



#### 4.4.2.2 void IStoper::Start ( ) [virtual]

Definition at line 4 of file IStoper.cpp.

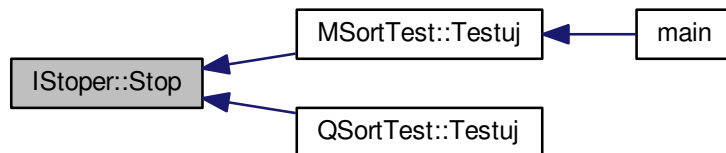
Here is the caller graph for this function:



#### 4.4.2.3 void IStoper::Stop ( ) [virtual]

Definition at line 8 of file IStoper.cpp.

Here is the caller graph for this function:



### 4.4.3 Member Data Documentation

#### 4.4.3.1 timeval IStoper::start [protected]

Definition at line 12 of file IStoper.hh.

#### 4.4.3.2 timeval IStoper::stop [protected]

Definition at line 12 of file IStoper.hh.

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

- [IStoper.hh](#)
- [IStoper.cpp](#)

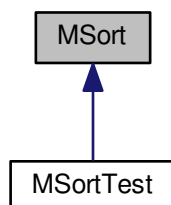


## 4.5 MSort Class Reference

Merge Sort.

```
#include <MSort.hh>
```

Inheritance diagram for MSort:



### Public Member Functions

- void [Scal](#) ([Tab](#) &tablica, int lewy, int srodek, int prawy)  
*Funkcja scalająca dwie "podtablice" w jedną.*
- void [Mergesort](#) ([Tab](#) &tablica, int lewy, int prawy)  
*Mergesort na tablicy.*

#### 4.5.1 Detailed Description

Definition at line 20 of file MSort.hh.

#### 4.5.2 Member Function Documentation

##### 4.5.2.1 void MSort::Mergesort ( [Tab](#) & *tablica*, int *lewy*, int *prawy* )

Parameters

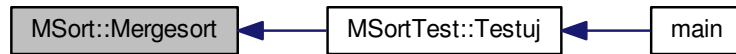
in	<i>tablica-struktura</i>	przechowująca tablice dynamiczna
in	<i>lewy-</i>	lewa granica sortowania (numer indeksu)
in	<i>prawy-</i>	prawa granica sortowania (numer indeksu)

Definition at line 40 of file MSort.cpp.

Here is the call graph for this function:



Here is the caller graph for this function:



#### 4.5.2.2 void MSort::Scal ( Tab & *tablica*, int *lewy*, int *srodek*, int *prawy* )

Funkcja przepisuje dwie "podtablice" do jednej zapewniając przy tym już posortowane ułożenie elementów

##### Parameters

in	<i>tablica-struktura</i>	przechowująca tablice dynamiczna
in	<i>lewy-</i>	lewa granica pierwszej podtablicy
in	<i>srodek-</i>	prawa granica pierwszej podtablicy
in	<i>prawy-</i>	prawa granica drugiej podtablicy

Definition at line 14 of file `MSort.cpp`.

Here is the caller graph for this function:



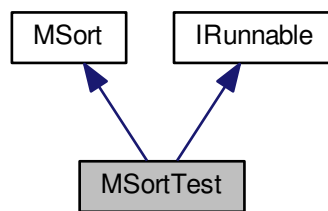
The documentation for this class was generated from the following files:

- [MSort.hh](#)
- [MSort.cpp](#)

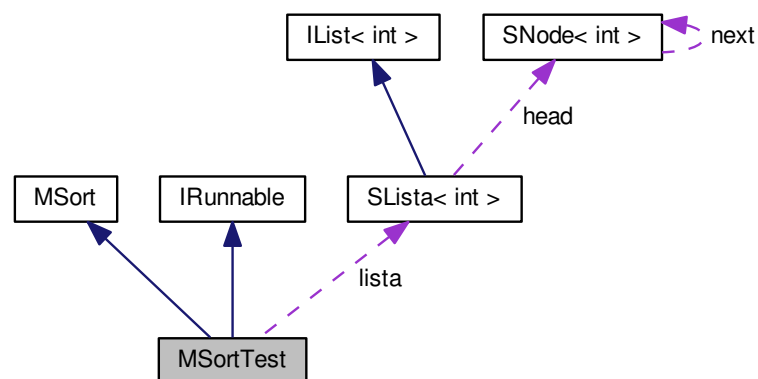
## 4.6 MSortTest Class Reference

```
#include <MSortTest.hh>
```

Inheritance diagram for MSortTest:



Collaboration diagram for MSortTest:



## Public Member Functions

- void [Przygotuj](#) ()
- void [Testuj](#) ()

## Private Attributes

- [SLista< int >](#) [lista](#)

### 4.6.1 Detailed Description

Definition at line 17 of file MSortTest.hh.

### 4.6.2 Member Function Documentation

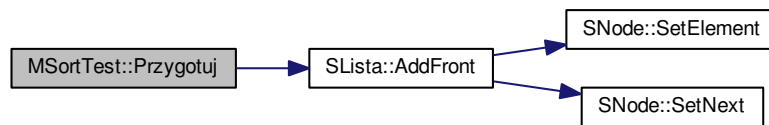
#### 4.6.2.1 void MSortTest::Przygotuj ( ) [virtual]

Uzupełnia listę liczbami oznaczającymi ile elementów ma być zapisane do tablicy w procesie testowania

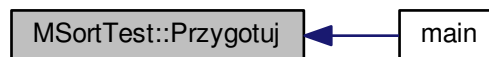
Implements [IRunnable](#).

Definition at line 7 of file MSortTest.cpp.

Here is the call graph for this function:



Here is the caller graph for this function:



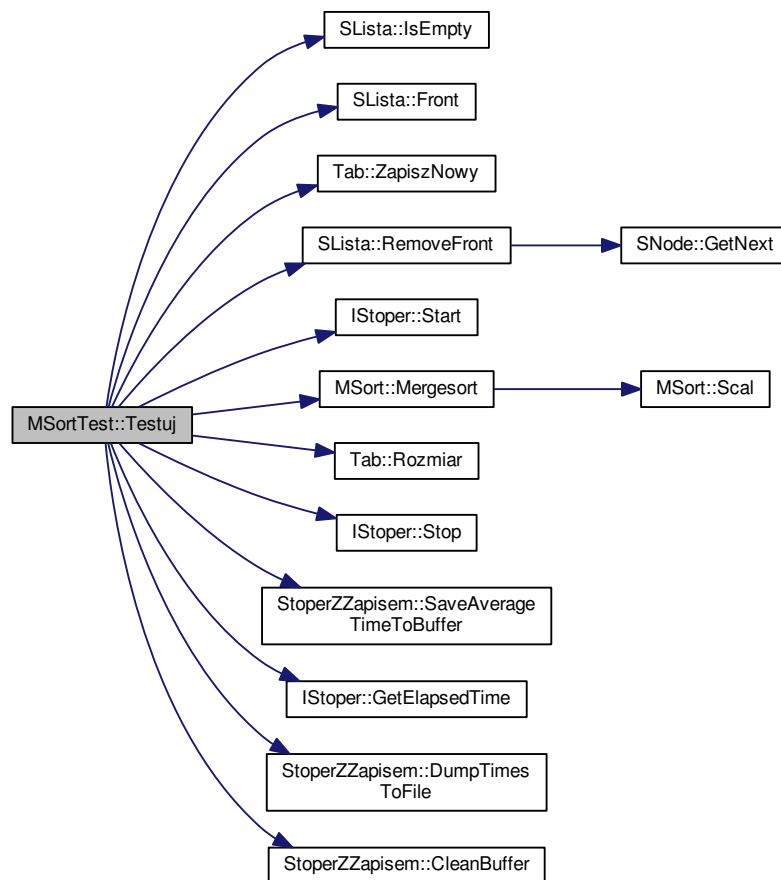
#### 4.6.2.2 void MSortTest::Testuj ( ) [virtual]

Wypełnia tablice i sortuje jej elementy

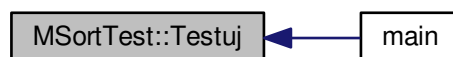
Implements [IRunnable](#).

Definition at line 22 of file MSortTest.cpp.

Here is the call graph for this function:



Here is the caller graph for this function:



### 4.6.3 Member Data Documentation

#### 4.6.3.1 `SLista<int> MSortTest::lista` [private]

Definition at line 18 of file `MSortTest.hh`.

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

- [MSortTest.hh](#)

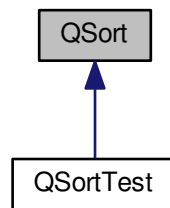
- [MSortTest.cpp](#)

## 4.7 QSort Class Reference

QuickSort.

```
#include <QSort.hh>
```

Inheritance diagram for QSort:



### Public Member Functions

- void [Quicksort](#) ([Tab](#) &tablica, int lewy, int prawy)  
*QuickSort na tablicy (pivot srodkowym elementem tablicy)*
- void [QuicksortLewy](#) ([Tab](#) &tablica, int lewy, int prawy)  
*QuickSort na tablicy (pivot pierwszym elementem tablicy)*
- int [Maksimum](#) ([Tab](#) &tablica, int lewy, int prawy)  
*pomocnicza funkcja dla nieuzywanej przy testowaniu funkcji "QuicksortPesym"*
- void [QuicksortPesym](#) ([Tab](#) &tablica, int lewy, int prawy)  
*QuickSort na tablicy (nieuzywane przy testowaniu)*

#### 4.7.1 Detailed Description

Definition at line 19 of file QSort.hh.

#### 4.7.2 Member Function Documentation

##### 4.7.2.1 int QSort::Maksimum ( [Tab](#) & *tablica*, int *lewy*, int *prawy* )

Znajduje maksymalna wartosc w tablicy i zwraca indeks

Definition at line 65 of file QSort.cpp.

Here is the caller graph for this function:



#### 4.7.2.2 void QSort::Quicksort ( Tab & *tablica*, int *lewy*, int *prawy* )

##### Parameters

in	<i>tablica-struktura</i>	przechowujaca tablice dynamiczna
in	<i>lewy-</i>	lewa granica sortowania (numer indeksu)
in	<i>prawy-</i>	prawa granica sortowania (numer indeksu)

Definition at line 10 of file QSort.cpp.

Here is the caller graph for this function:



#### 4.7.2.3 void QSort::QuicksortLewy ( Tab & *tablica*, int *lewy*, int *prawy* )

##### Parameters

in	<i>tablica-struktura</i>	przechowujaca tablice dynamiczna
in	<i>lewy-</i>	lewa granica sortowania (numer indeksu)
in	<i>prawy-</i>	prawa granica sortowania (numer indeksu)

Definition at line 38 of file QSort.cpp.

#### 4.7.2.4 void QSort::QuicksortPesym ( Tab & *tablica*, int *lewy*, int *prawy* )

Sztucznie wytworzony przypadek pesymistyczny dla dowolnego zestawu danych elementem rozdzielającym za każdym razem okazuje się element podtablicy T o skrajnej wartości (maksymalnej lub minimalnej) UWAGA: pomiar czasu dodatkowo obciążony jest funkcją "Maksimum"

##### Parameters

in	<i>tablica-struktura</i>	przechowujaca tablice dynamiczna
in	<i>lewy-</i>	lewa granica sortowania (numer indeksu)
in	<i>prawy-</i>	prawa granica sortowania (numer indeksu)

Definition at line 86 of file QSort.cpp.

Here is the call graph for this function:



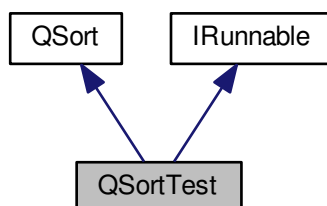
The documentation for this class was generated from the following files:

- [QSort.hh](#)
- [QSort.cpp](#)

## 4.8 QSortTest Class Reference

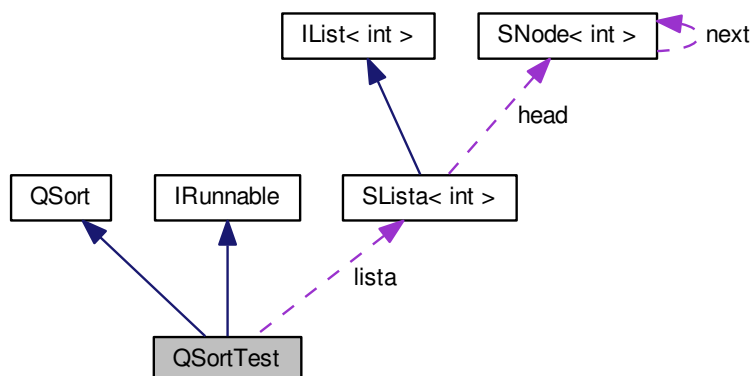
```
#include <QSortTest.hh>
```

Inheritance diagram for QSortTest:





Collaboration diagram for QSortTest:



## Public Member Functions

- void [Przygotuj](#) ()
- void [Testuj](#) ()

## Private Attributes

- [SLista< int >](#) [lista](#)

### 4.8.1 Detailed Description

Definition at line 17 of file QSortTest.hh.

### 4.8.2 Member Function Documentation

#### 4.8.2.1 void QSortTest::Przygotuj ( ) [virtual]

Uzupełnia listę liczbami oznaczającymi ile elementów ma być zapisane do tablicy w procesie testowania

Implements [IRunnable](#).

Definition at line 7 of file QSortTest.cpp.

Here is the call graph for this function:



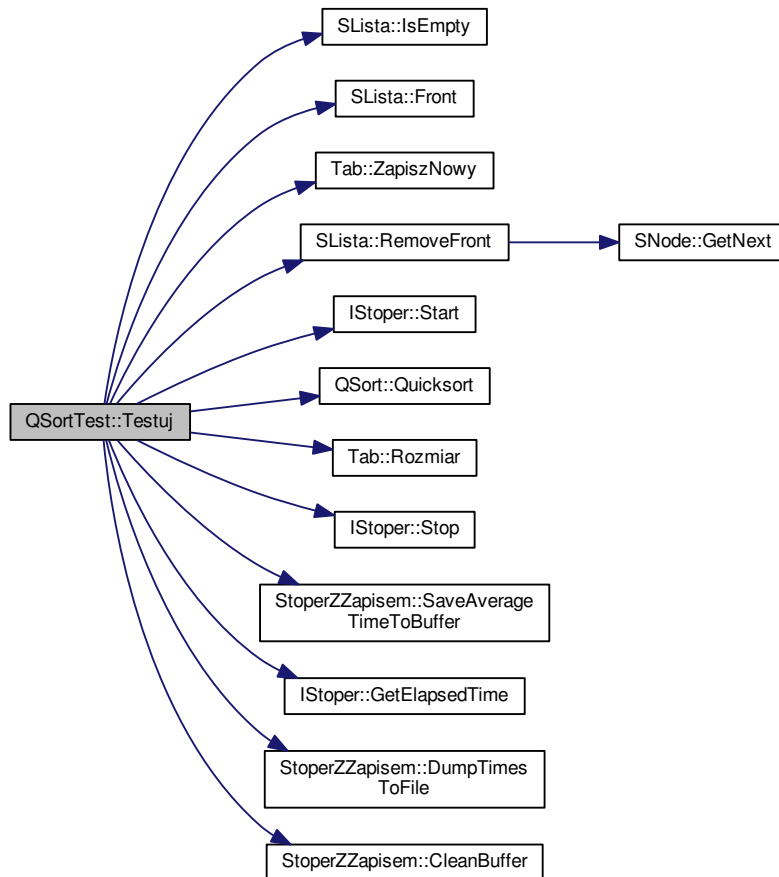
#### 4.8.2.2 void QSortTest::Testuj( ) [virtual]

Wypełnia tablice i sortuje jej elementy

Implements [IRunnable](#).

Definition at line 22 of file QSortTest.cpp.

Here is the call graph for this function:



### 4.8.3 Member Data Documentation

#### 4.8.3.1 SLista<int> QSortTest::lista [private]

Definition at line 18 of file QSortTest.hh.

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

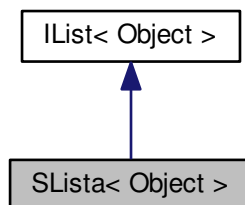
- [QSortTest.hh](#)
- [QSortTest.cpp](#)

## 4.9 SLista< Object > Class Template Reference

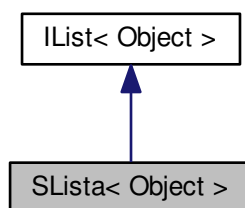
Szablonowa klasa implementująca listę jednokierunkową

```
#include <SLista.hh>
```

Inheritance diagram for SLista< Object >:



Collaboration diagram for SLista< Object >:



## Public Member Functions

- [SLista](#) ()  
*Konstruktor listy jednokierunkowaj.*
- [~SLista](#) ()  
*Destruktor listy jednokierunkowaj.*
- [SNode](#)< Object > \* [Head](#) ()  
*Metoda zwracająca głowę listy.*
- [SNode](#)< Object > \* [Find](#) (Object k)  
*Metoda wyszukująca element na liście.*
- virtual bool [IsEmpty](#) ()  
*Metoda sprawdzająca, czy lista jest pusta.*
- virtual const Object & [Front](#) ()  
*Metoda zwracająca pierwszy element listy.*
- virtual void [AddFront](#) (const Object newItem)  
*Metoda dodająca element na początek listy.*
- virtual void [RemoveFront](#) ()  
*Metoda usuwająca element z początku listy.*
- void [printl](#) ()

## Private Attributes

- [SNode](#)< [Object](#) > \* [head](#)

### 4.9.1 Detailed Description

`template<typename Object>class SLista< Object >`

[SLista](#) jest zbudowana w oparciu o węzły [SNode](#) oraz operacje na wskaźnikach.

[SLista](#) może przechowywać dowolny typ danych dzięki zastosowaniu szablonu.

Definition at line 25 of file [SLista.hh](#).

### 4.9.2 Constructor & Destructor Documentation

4.9.2.1 `template<typename Object > SLista< Object >::SLista ( )`

Inicjuje SListę poprzez ustawienie wskaźnika NULL jako początek (head) tej listy.

Definition at line 127 of file [SLista.hh](#).

4.9.2.2 `template<typename Object > SLista< Object >::~~SLista ( )`

Usuwa SListę poprzez ustawienie wskaźnika NULL jako początek (head) tej listy.

Definition at line 131 of file [SLista.hh](#).

### 4.9.3 Member Function Documentation

4.9.3.1 `template<typename Object> void SLista< Object >::AddFront ( const Object newItem )` `[virtual]`

Alokuje nowy węzeł, dodaje nowy element, dodaje powiązanie tak, aby węzeł wskazywał na stary head, uaktualnia head.

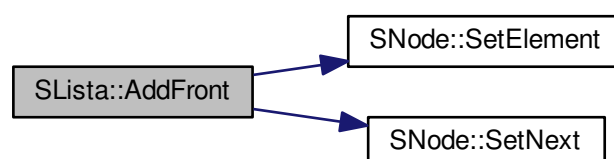
Parameters

<code>in</code>	<code><i>newItem</i></code>	- element do dodania
-----------------	-----------------------------	----------------------

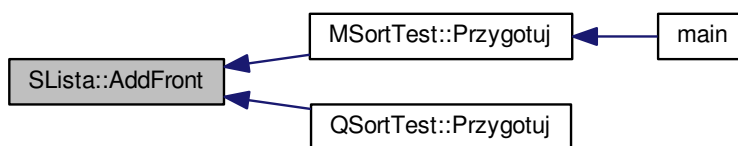
Implements [IList](#)< [Object](#) >.

Definition at line 165 of file [SLista.hh](#).

Here is the call graph for this function:



Here is the caller graph for this function:



#### 4.9.3.2 `template<typename Object> SNode< Object > * SList< Object >::Find ( Object k )`

Implementuje algorytm liniowego przeszukiwania listy.

##### Parameters

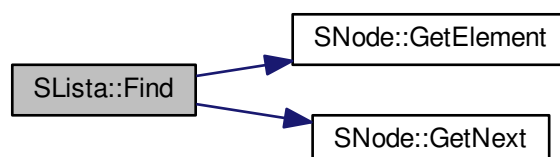
<code>in</code>	<code>k</code>	- element do wyszukania
-----------------	----------------	-------------------------

##### Returns

Wskaźnik do znalezionej elementu lub NULL, gdy nie znaleziono.

Definition at line 117 of file `SList.hh`.

Here is the call graph for this function:



#### 4.9.3.3 `template<typename Object> const Object & SList< Object >::Front ( ) [virtual]`

Sprawdza, czy lista jest pusta i zwraca dane pierwszego węzła listy. Jeśli lista jest pusta, wyrzuca wyjątek.

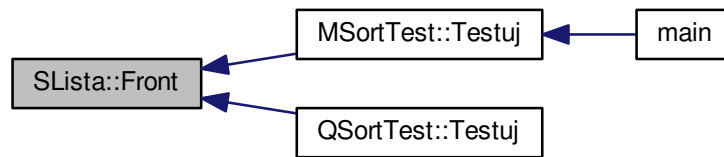
##### Returns

dane pierwszego węzła listy

Implements [IList< Object >](#).

Definition at line 156 of file `SList.hh`.

Here is the caller graph for this function:



#### 4.9.3.4 `template<typename Object > SNode< Object > * SLista< Object >::Head ( )`

Zwraca wskaźnik do początku listy lub NULL, jeśli lista jest pusta.

##### Returns

Wskaźnik do głowy listy.

Definition at line 147 of file `SLista.hh`.

#### 4.9.3.5 `template<typename Object > bool SLista< Object >::IsEmpty ( )` `[virtual]`

Sprawdza, czy head wskazuje na coś innego niż NULL. Implementacja metody wirtualnej z interfejsu [IList](#).

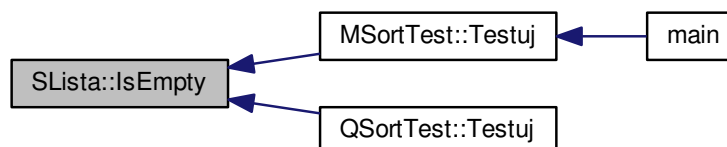
##### Returns

true - jeśli lista jest pusta, false - jeśli nie

Implements [IList< Object >](#).

Definition at line 138 of file `SLista.hh`.

Here is the caller graph for this function:



#### 4.9.3.6 `template<typename Object > void SLista< Object >::printl ( )`

Definition at line 109 of file `SLista.hh`.

Here is the call graph for this function:



4.9.3.7 `template<typename Object > void SLista< Object >::RemoveFront ( ) [virtual]`

Uaktualnia head, aby wskazywał na kolejny element na liście, po czym usuwa stary węzeł.

Parameters

<code>in</code>	<code>newItem</code>	- element do dodania
-----------------	----------------------	----------------------

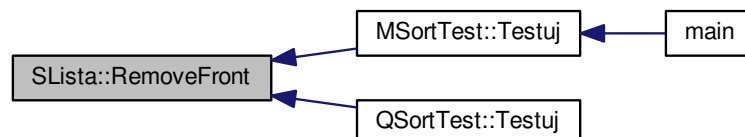
Implements [IList< Object >](#).

Definition at line 174 of file `SLista.hh`.

Here is the call graph for this function:



Here is the caller graph for this function:



## 4.9.4 Member Data Documentation

4.9.4.1 `template<typename Object> SNode<Object>* SLista< Object >::head [private]`

Definition at line 28 of file `SLista.hh`.

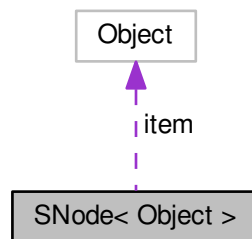
The documentation for this class was generated from the following file:

- [SLista.hh](#)

## 4.10 SNode< Object > Class Template Reference

```
#include <SNode.hh>
```

Collaboration diagram for SNode< Object >:



### Public Member Functions

- Object [GetElement](#) ()
- SNode< Object > \* [GetNext](#) ()
- void [SetElement](#) (Object newItem)
- void [SetNext](#) (SNode< Object > \*newItem)

### Private Attributes

- Object [item](#)
- SNode< Object > \* [next](#)

#### 4.10.1 Detailed Description

```
template<typename Object>class SNode< Object >
```

Definition at line 8 of file SNode.hh.

#### 4.10.2 Member Function Documentation

4.10.2.1 `template<typename Object> Object SNode< Object >::GetElement ( )` `[inline]`

Definition at line 14 of file SNode.hh.



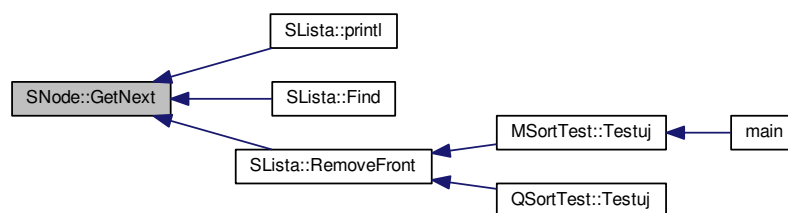
Here is the caller graph for this function:



4.10.2.2 `template<typename Object> SNode<Object>* SNode< Object >::GetNext ( ) [inline]`

Definition at line 15 of file SNode.hh.

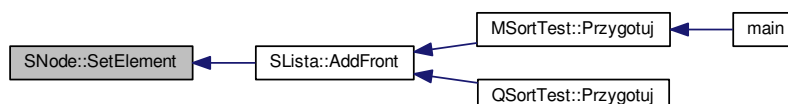
Here is the caller graph for this function:



4.10.2.3 `template<typename Object> void SNode< Object >::SetElement ( Object newItem ) [inline]`

Definition at line 16 of file SNode.hh.

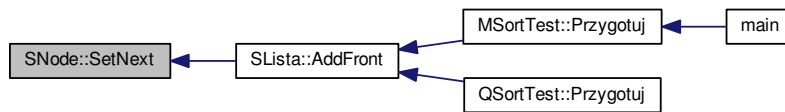
Here is the caller graph for this function:



4.10.2.4 `template<typename Object> void SNode< Object >::SetNext ( SNode< Object > * newItem ) [inline]`

Definition at line 17 of file SNode.hh.

Here is the caller graph for this function:



### 4.10.3 Member Data Documentation

4.10.3.1 `template<typename Object> Object SNode< Object >::item` [private]

Definition at line 11 of file `SNode.hh`.

4.10.3.2 `template<typename Object> SNode<Object>* SNode< Object >::next` [private]

Definition at line 12 of file `SNode.hh`.

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

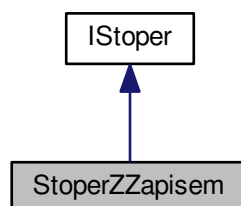
- [SNode.hh](#)

## 4.11 StoperZZapisem Class Reference

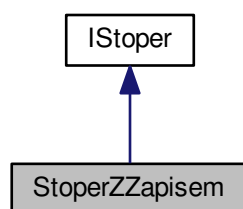
Klasa implementująca rozbudowany stoper.

```
#include <StoperZZapisem.hh>
```

Inheritance diagram for `StoperZZapisem`:



Collaboration diagram for StoperZZapisem:



## Public Member Functions

- `StoperZZapisem ()`
- `~StoperZZapisem ()`
- `int & Rozmiar ()`
- `double *& Poczatek ()`
- `double *& PoczatekBufora ()`
- `bool SaveElapsedTime (double rekord)`  
*Metoda zapisująca wartość pomiaru czasu okrążenia.*
- `bool SaveAverageTimeToBuffer (double rekord)`  
*Metoda zapisująca średni czas okrążenia do bufora plikowego.*
- `void ShowMemory ()`  
*Metoda wypisująca zawartość pamięci stopera.*
- `void CleanMemory ()`  
*Metoda usuwająca zawartość pamięci stopera.*
- `void CleanBuffer ()`  
*Metoda usuwająca zawartość bufora plikowego stopera.*
- `double SeriesAverage ()`  
*Metoda wyliczająca średni czas okrążenia.*
- `bool DumpTimesToFile (ofstream &plik)`  
*Metoda zapisująca zawartość bufora plikowego do pliku.*
- `bool DumpOneTimeToFile (ofstream &plik, double rekord)`  
*Metoda zapisująca pojedynczy rekord bufora plikowego do pliku.*

## Private Attributes

- `int rozmn = 0`
- `double * Notatnik`
- `double * DoPliku`

## Additional Inherited Members

### 4.11.1 Detailed Description

Klasa jest modelem stopera z funkcją zapisu czasu okrążeń, liczeniem średniego czasu kilku okrążeń, zapisu zmierzonych czasów do pliku.

Definition at line 26 of file `StoperZZapisem.hh`.

## 4.11.2 Constructor & Destructor Documentation

### 4.11.2.1 StoperZZapisem::StoperZZapisem ( )

Definition at line 4 of file StoperZZapisem.cpp.

### 4.11.2.2 StoperZZapisem::~~StoperZZapisem ( ) [inline]

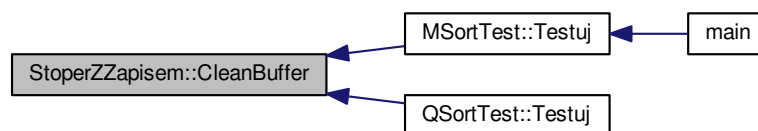
Definition at line 33 of file StoperZZapisem.hh.

## 4.11.3 Member Function Documentation

### 4.11.3.1 void StoperZZapisem::CleanBuffer ( )

Definition at line 49 of file StoperZZapisem.cpp.

Here is the caller graph for this function:



### 4.11.3.2 void StoperZZapisem::CleanMemory ( )

Definition at line 42 of file StoperZZapisem.cpp.

### 4.11.3.3 bool StoperZZapisem::DumpOneTimeToFile ( ofstream & *plik*, double *rekord* )

Dokonuje zapisu wybranego rekordu w buforze do pliku.

#### Parameters

in	<i>plik</i>	- dowiązanie do pliku, do którego wykona zapis
in	<i>rekord</i>	- wartość pomiaru czasu, która ma być zapisana

#### Return values

<i>true</i>	- jeśli udało się zapisać
<i>false</i>	- jeśli udało się zapisać

Definition at line 83 of file StoperZZapisem.cpp.

### 4.11.3.4 bool StoperZZapisem::DumpTimesToFile ( ofstream & *plik* )

Dokonuje zapisu rekordów w buforze do pliku.

## Parameters

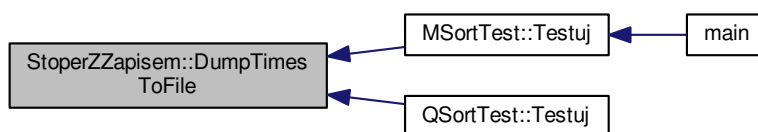
<i>in</i>	<i>plik</i>	- dowiązanie do pliku, do którego wykona zapis
-----------	-------------	--

## Return values

<i>true</i>	- jeśli udało się zapisać
<i>false</i>	- jeśli udało się zapisać

Definition at line 68 of file StoperZZapisem.cpp.

Here is the caller graph for this function:



#### 4.11.3.5 double\* & StoperZZapisem::Poczatek ( ) [inline]

Definition at line 35 of file StoperZZapisem.hh.

#### 4.11.3.6 double\* & StoperZZapisem::PoczatekBufora ( ) [inline]

Definition at line 36 of file StoperZZapisem.hh.

#### 4.11.3.7 int& StoperZZapisem::Rozmiar ( ) [inline]

Definition at line 34 of file StoperZZapisem.hh.

#### 4.11.3.8 bool StoperZZapisem::SaveAverageTimeToBuffer ( double rekord )

Dodaje podany czas do pamięci stopera, z której można dokonać zapisu do pliku.

## Parameters

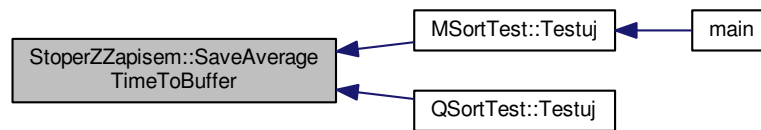
<i>in</i>	<i>rekord</i>	- wartość pomiaru czasu
-----------	---------------	-------------------------

## Return values

<i>true</i>	- jeśli udało się zapisać
<i>false</i>	- jeśli udało się zapisać

Definition at line 26 of file StoperZZapisem.cpp.

Here is the caller graph for this function:



#### 4.11.3.9 bool StoperZZapisem::SaveElapsedTime ( double rekord )

Dodaje podany czas do tablicy czasów okrążeń.

##### Parameters

in	rekord	- wartość pomiaru czasu
----	--------	-------------------------

##### Return values

true	- jeśli udało się zapisać
false	- jeśli udało się zapisać

Definition at line 15 of file StoperZZapisem.cpp.

#### 4.11.3.10 double StoperZZapisem::SeriesAverage ( )

Definition at line 55 of file StoperZZapisem.cpp.

#### 4.11.3.11 void StoperZZapisem::ShowMemory ( )

Definition at line 35 of file StoperZZapisem.cpp.

### 4.11.4 Member Data Documentation

#### 4.11.4.1 double\* StoperZZapisem::DoPliku [private]

Definition at line 30 of file StoperZZapisem.hh.

#### 4.11.4.2 double\* StoperZZapisem::Notatnik [private]

Definition at line 29 of file StoperZZapisem.hh.

#### 4.11.4.3 int StoperZZapisem::rozmiar = 0 [private]

Definition at line 28 of file StoperZZapisem.hh.

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

- [StoperZZapisem.hh](#)
- [StoperZZapisem.cpp](#)

## 4.12 Tab Class Reference

```
#include <Tab.hh>
```

### Public Member Functions

- [Tab](#) ()
- [~Tab](#) ()
- int & [Pojemnosc](#) ()
- int & [Rozmiar](#) ()
- int \*& [Poczatek](#) ()
- void [WypelnijTab](#) ()
- void [WypiszTab](#) ()
- int \* [WypelnijOdNowa](#) ()
- void [ZapiszNowy](#) (int elem)
- void [ZapiszNowyPoJednym](#) (int elem)
- int \* [ZwiekszoJeden](#) ()
- int \* [Zwiekszo2Razy](#) ()

### Public Attributes

- int \* [tab](#)

### Protected Attributes

- int [n](#) = 10
- int [rozmi](#) = 0

#### 4.12.1 Detailed Description

Definition at line 7 of file Tab.hh.

#### 4.12.2 Constructor & Destructor Documentation

4.12.2.1 [Tab::Tab](#) ( ) `[inline]`

Definition at line 15 of file Tab.hh.

4.12.2.2 [Tab::~Tab](#) ( ) `[inline]`

Definition at line 16 of file Tab.hh.

#### 4.12.3 Member Function Documentation

4.12.3.1 [int\\* & Tab::Poczatek](#) ( ) `[inline]`

Definition at line 19 of file Tab.hh.

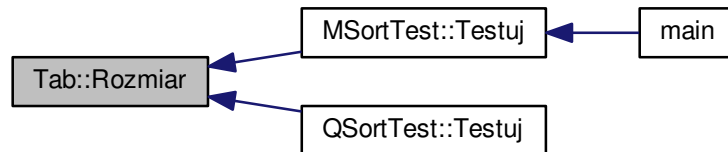
4.12.3.2 [int& Tab::Pojemnosc](#) ( ) `[inline]`

Definition at line 17 of file Tab.hh.

#### 4.12.3.3 `int& Tab::Rozmiar ( ) [inline]`

Definition at line 18 of file Tab.hh.

Here is the caller graph for this function:



#### 4.12.3.4 `int * Tab::WypelnijOdNowa ( )`

Definition at line 14 of file Tab.cpp.

#### 4.12.3.5 `void Tab::WypelnijTab ( ) [inline]`

Definition at line 20 of file Tab.hh.

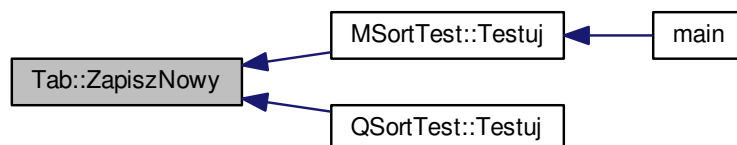
#### 4.12.3.6 `void Tab::WypiszTab ( ) [inline]`

Definition at line 21 of file Tab.hh.

#### 4.12.3.7 `void Tab::ZapiszNowy ( int elem )`

Definition at line 39 of file Tab.cpp.

Here is the caller graph for this function:



#### 4.12.3.8 `void Tab::ZapiszNowyPoJednym ( int elem )`

Definition at line 47 of file Tab.cpp.



#### 4.12.3.9 `int * Tab::Zwieks2Razy ( )`

Definition at line 30 of file Tab.cpp.

#### 4.12.3.10 `int * Tab::ZwiekszOJeden ( )`

Definition at line 4 of file Tab.cpp.

### 4.12.4 Member Data Documentation

#### 4.12.4.1 `int Tab::n = 10` `[protected]`

Definition at line 10 of file Tab.hh.

#### 4.12.4.2 `int Tab::rozm = 0` `[protected]`

Definition at line 11 of file Tab.hh.

#### 4.12.4.3 `int* Tab::tab`

Definition at line 13 of file Tab.hh.

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

- [Tab.hh](#)
- [Tab.cpp](#)



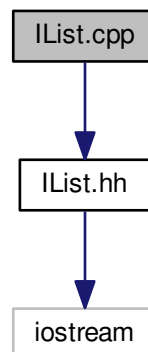
## Chapter 5

# File Documentation

### 5.1 IList.cpp File Reference

```
#include "IList.hh"
```

Include dependency graph for IList.cpp:

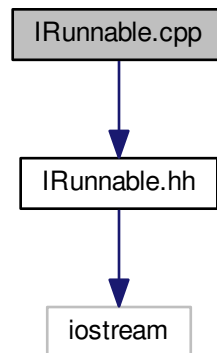


### 5.2 IList.hh File Reference

```
#include <iostream>
```



Include dependency graph for IRunnable.cpp:

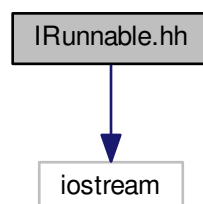


## 5.4 IRunnable.hh File Reference

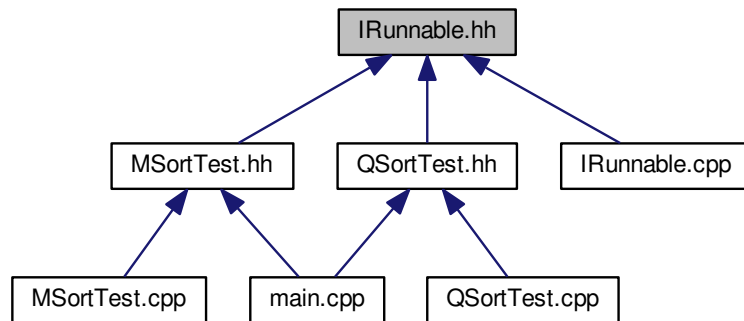
Interface do testowania algorytmow sortowania.

```
#include <iostream>
```

Include dependency graph for IRunnable.hh:



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



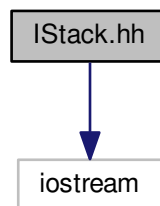
## Classes

- class [IRunnable](#)

## 5.5 IStack.hh File Reference

```
#include <iostream>
```

Include dependency graph for `IStack.hh`:



## Classes

- class [IStack< Object >](#)  
*Klasa szablonowa modelująca interfejs stosu.*

### 5.5.1 Detailed Description

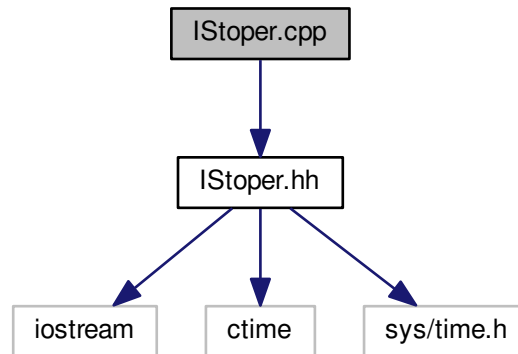
Plik zawiera interfejs stosu

Definition in file [IStack.hh](#).

## 5.6 IStoper.cpp File Reference

```
#include "IStoper.hh"
```

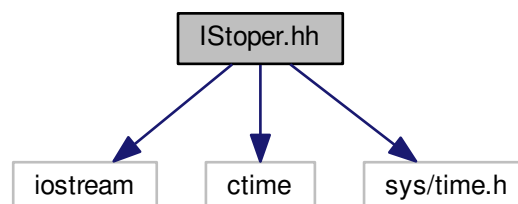
Include dependency graph for IStoper.cpp:



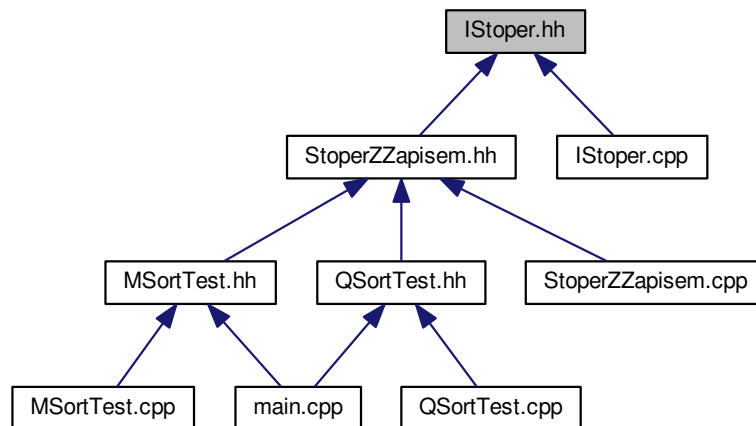
## 5.7 IStoper.hh File Reference

```
#include <iostream>
#include <ctime>
#include <sys/time.h>
```

Include dependency graph for IStoper.hh:



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



## Classes

- class `IStoper`

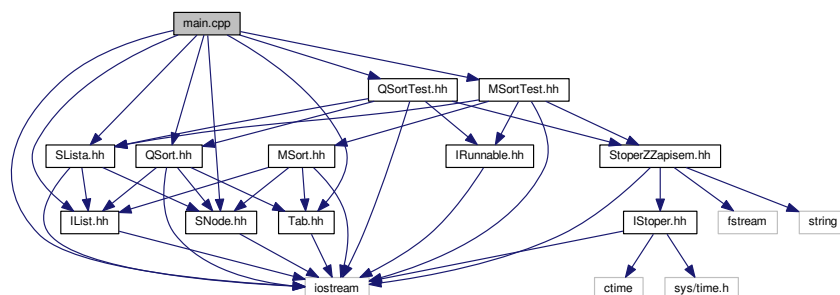
## 5.8 main.cpp File Reference

```

#include <iostream>
#include "IList.hh"
#include "SLista.hh"
#include "SNode.hh"
#include "QSort.hh"
#include "Tab.hh"
#include "QSortTest.hh"
#include "MSortTest.hh"

```

Include dependency graph for `main.cpp`:



## Functions

- int `main` ()

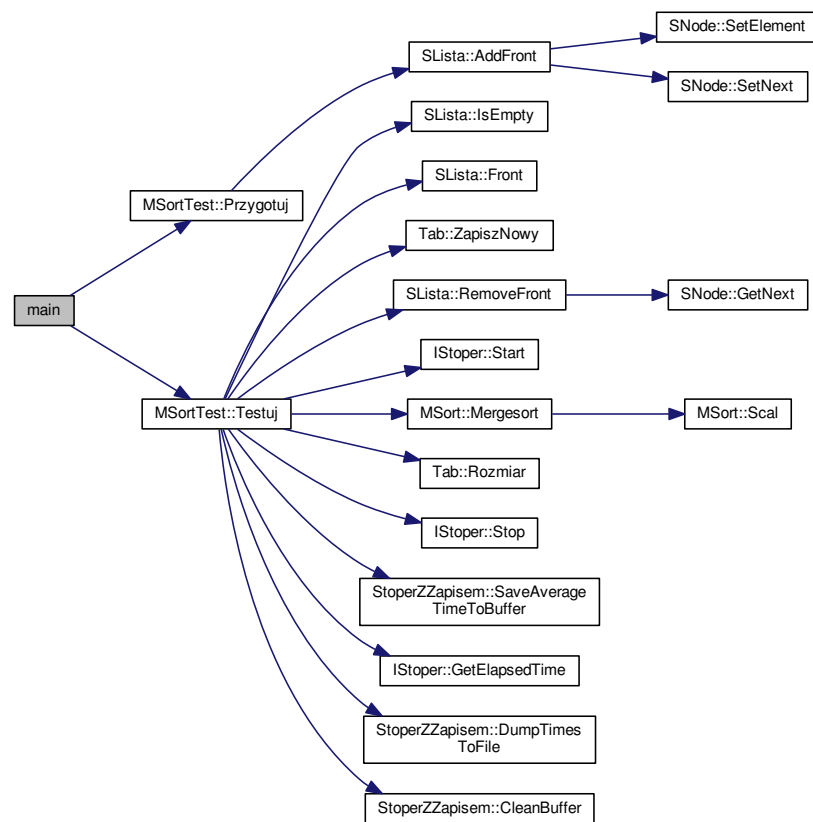


### 5.8.1 Function Documentation

#### 5.8.1.1 int main ( )

Definition at line 17 of file main.cpp.

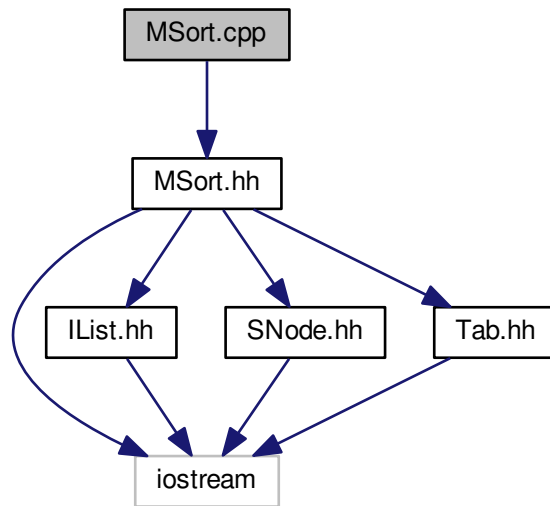
Here is the call graph for this function:



## 5.9 MSort.cpp File Reference

```
#include "MSort.hh"
```

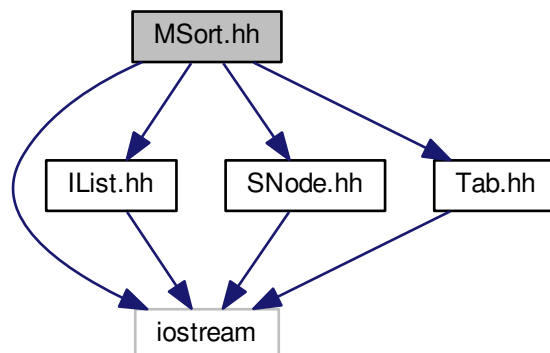
Include dependency graph for MSort.cpp:



## 5.10 MSort.hh File Reference

```
#include <iostream>
#include "IList.hh"
#include "SNode.hh"
#include "Tab.hh"
```

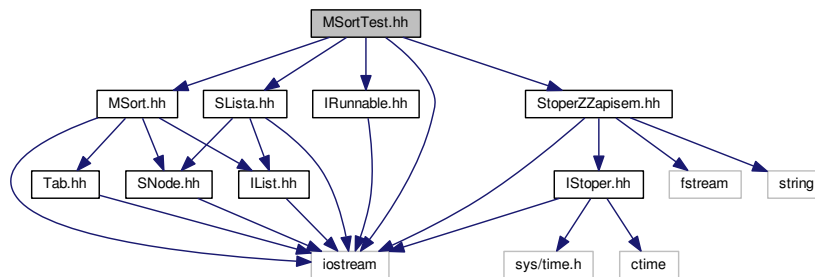
Include dependency graph for MSort.hh:



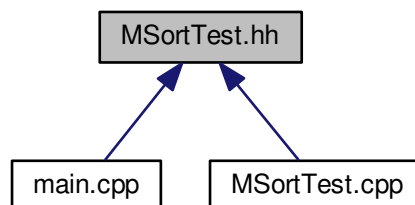


## 5.12 MSortTest.hh File Reference

```
#include <iostream>
#include "MSort.hh"
#include "SLista.hh"
#include "StoperZZapisem.hh"
#include "IRunnable.hh"
Include dependency graph for MSortTest.hh:
```



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



### Classes

- class [MSortTest](#)

### 5.12.1 Detailed Description

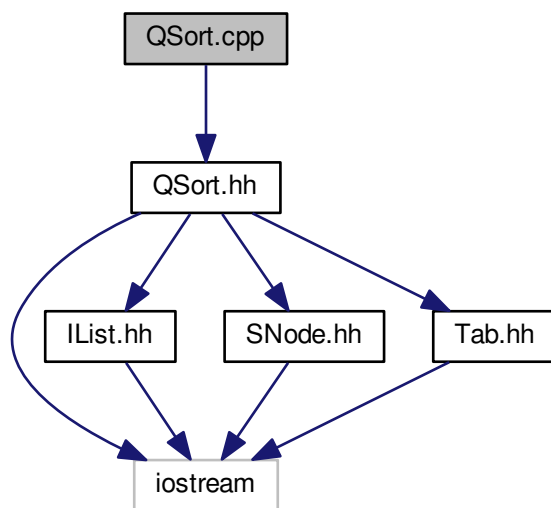
Klasa implementująca testowanie algorytmu szybkiego sortowania

Definition in file [MSortTest.hh](#).

## 5.13 QSort.cpp File Reference

```
#include "QSort.hh"
```

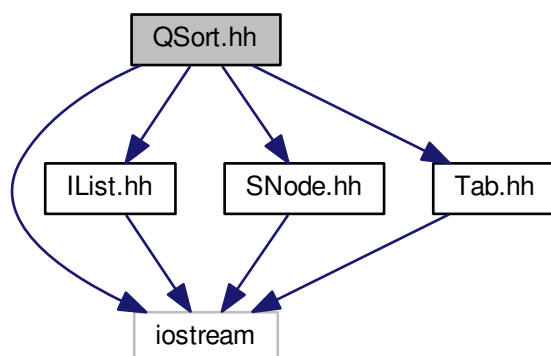
Include dependency graph for QSort.cpp:



## 5.14 QSort.hh File Reference

```
#include <iostream>
#include "IList.hh"
#include "SNode.hh"
#include "Tab.hh"
```

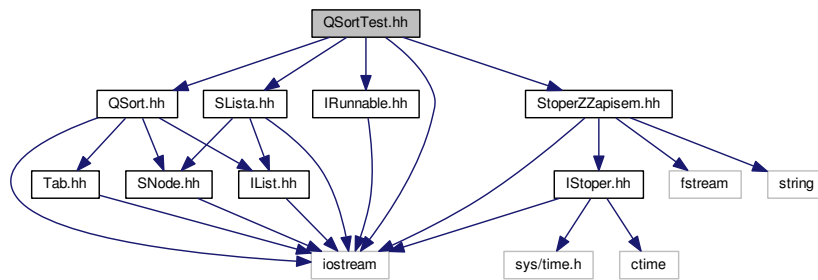
Include dependency graph for QSort.hh:



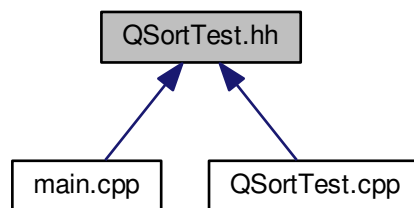


## 5.16 QSortTest.hh File Reference

```
#include <iostream>
#include "QSort.hh"
#include "SLista.hh"
#include "StoperZZapisem.hh"
#include "IRunnable.hh"
Include dependency graph for QSortTest.hh:
```



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



### Classes

- class [QSortTest](#)

### 5.16.1 Detailed Description

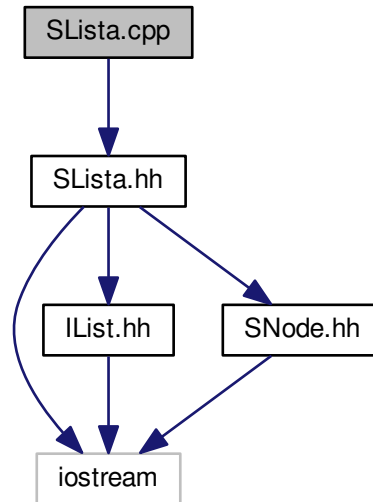
Klasa implementująca testowanie algorytmu szybkiego sortowania

Definition in file [QSortTest.hh](#).

## 5.17 SLista.cpp File Reference

```
#include "SLista.hh"
```

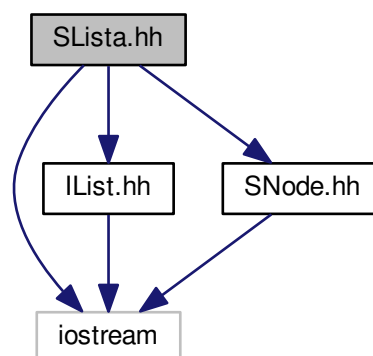
Include dependency graph for SLista.cpp:



## 5.18 SLista.hh File Reference

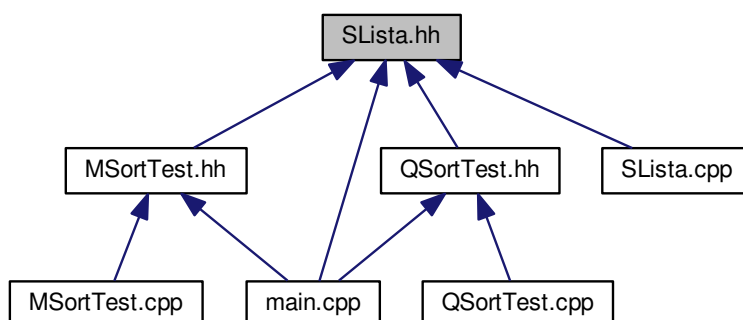
```
#include <iostream>
#include "IList.hh"
#include "SNode.hh"
```

Include dependency graph for SLista.hh:





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



## Classes

- class `SLista< Object >`

*Szablonowa klasa implementująca listę jednokierunkową*

### 5.18.1 Detailed Description

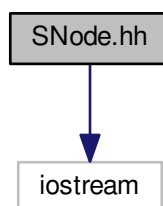
Plik zawiera definicję klasy implementującej listę jednokierunkową.

Definition in file `SLista.hh`.

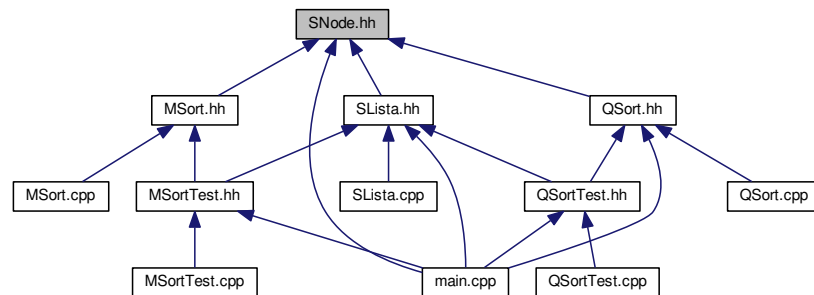
## 5.19 SNode.hh File Reference

```
#include <iostream>
```

Include dependency graph for `SNode.hh`:



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



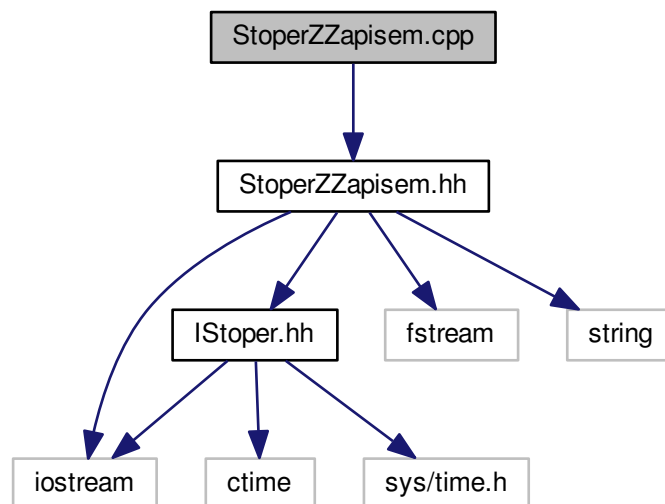
## Classes

- class [SNode< Object >](#)

## 5.20 StoperZZapisem.cpp File Reference

```
#include "StoperZZapisem.hh"
```

Include dependency graph for StoperZZapisem.cpp:

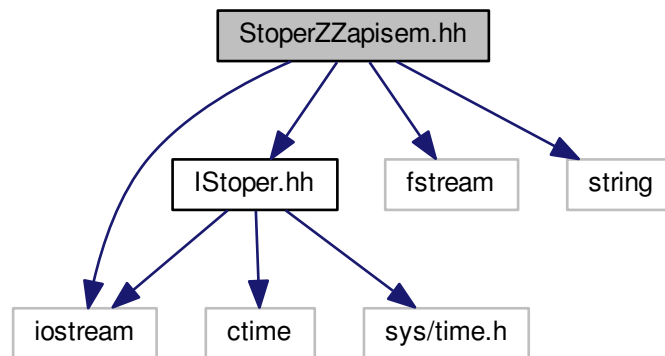


## 5.21 StoperZZapisem.hh File Reference

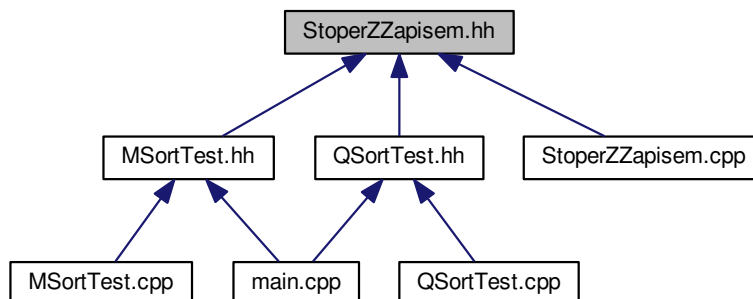
```
#include "IStoper.hh"
```

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

Include dependency graph for StoperZZapisem.hh:



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



## Classes

- class [StoperZZapisem](#)

*Klasa implementująca rozbudowany stoper.*

## Macros

- `#define` [POJEMNOSC](#) 35
- `#define` [BUFOR](#) 6

### 5.21.1 Detailed Description

Plik zawiera implementację rozbudowanego stopera.

Definition in file [StoperZZapisem.hh](#).

### 5.21.2 Macro Definition Documentation

#### 5.21.2.1 `#define BUFOR 6`

Definition at line 11 of file StoperZZapisem.hh.

#### 5.21.2.2 `#define POJEMNOSC 35`

Definition at line 10 of file StoperZZapisem.hh.

## 5.22 Tab.cpp File Reference

```
#include "Tab.hh"
```

Include dependency graph for Tab.cpp:

