

Graf

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Contents

1	Hierarchical Index	1
1.1	Class Hierarchy	1
2	Class Index	3
2.1	Class List	3
3	File Index	5
3.1	File List	5
4	Class Documentation	7
4.1	graph Class Reference	7
4.1.1	Detailed Description	7
4.1.2	Constructor & Destructor Documentation	7
4.1.2.1	graph	7
4.1.3	Member Function Documentation	8
4.1.3.1	addEdge	8
4.1.3.2	addVertex	8
4.1.3.3	getNeighbors	8
4.1.3.4	getsize	8
4.1.3.5	isConnected	8
4.2	graphSearch Class Reference	8
4.2.1	Detailed Description	9
4.2.2	Member Function Documentation	9
4.2.2.1	addEdge	9
4.2.2.2	addVertex	9
4.2.2.3	BFS	9
4.2.2.4	DFS	9
4.2.2.5	findPathBFS	9
4.2.2.6	findPathDFS	9
4.2.2.7	getNeighbors	9
4.2.2.8	isConnected	10
4.3	igraph Class Reference	10

4.3.1	Detailed Description	10
4.3.2	Member Function Documentation	10
4.3.2.1	addEdge	10
4.3.2.2	addVertex	10
4.3.2.3	getNeighbors	10
4.3.2.4	isConnected	10
4.4	InterfaceList Class Reference	11
4.4.1	Detailed Description	11
4.4.2	Member Function Documentation	11
4.4.2.1	add	11
4.4.2.2	get	11
4.4.2.3	remove	11
4.4.2.4	size	11
4.5	IStoper Class Reference	12
4.5.1	Detailed Description	12
4.5.2	Member Function Documentation	12
4.5.2.1	dumpToFile	12
4.5.2.2	getElapsedTime	12
4.5.2.3	Start	12
4.5.2.4	Stop	12
4.6	List Class Reference	12
4.6.1	Detailed Description	13
4.6.2	Constructor & Destructor Documentation	13
4.6.2.1	List	13
4.6.3	Member Function Documentation	13
4.6.3.1	add	13
4.6.3.2	get	13
4.6.3.3	remove	13
4.6.3.4	size	14
4.6.4	Member Data Documentation	14
4.6.4.1	head	14
4.6.4.2	Size	14
4.6.4.3	temp	14
4.6.4.4	temp2	14
4.7	node Class Reference	14
4.7.1	Detailed Description	14
4.7.2	Friends And Related Function Documentation	14
4.7.2.1	List	14
4.7.3	Member Data Documentation	15
4.7.3.1	element	15

4.7.3.2	nastepny	15
4.8	Stoper Class Reference	15
4.8.1	Detailed Description	15
4.8.2	Member Typedef Documentation	16
4.8.2.1	clock	16
4.8.2.2	time_point	16
4.8.2.3	time_type	16
4.8.3	Member Function Documentation	16
4.8.3.1	dumpToFile	16
4.8.3.2	getElapsedTime	16
4.8.3.3	Start	16
4.8.3.4	Stop	16
5	File Documentation	17
5.1	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graph.hh File Reference	17
5.2	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graphsearch.hh File Reference	17
5.3	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/igraph.hh File Reference	17
5.4	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/IStoper.hh File Reference	18
5.5	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/lista.hh File Reference	18
5.6	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/node.hh File Reference	18
5.7	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/stoper.hh File Reference	18
5.8	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graph.cpp File Reference	18
5.9	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graphsearch.cpp File Reference	19
5.10	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/lista.cpp File Reference	19
5.11	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/main.cpp File Reference	19
5.11.1	Function Documentation	19
5.11.1.1	main	19
5.12	/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/stoper.cpp File Reference	19
Index		20

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

graphSearch	8
igraph	10
graph	7
InterfaceList	11
List	12
IStoper	12
Stoper	15
node	14

Chapter 2

Class Index

2.1 Class List

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

graph	Definicja klasy graphSearch Klasa zawiera definicje zmiennych potrzebnych do stworzenia struktury grafu, Podstawowe funkcje tworzenia grafu oraz wyswietlanie sasiadów, rozmiaru grafu . .	7
graphSearch	. . . . .	8
igraph	. . . . .	10
InterfaceList	. . . . .	11
IStoper	. . . . .	12
List	. . . . .	12
node	. . . . .	14
Stoper	Zastępuje kilkukrotne wklejanie pliku naglowkowego	15

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graph.hh	17
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graphsearch.hh	17
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/igraph.hh	17
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/IStoper.hh	18
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/lista.hh	18
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/node.hh	18
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/stoper.hh	18
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graph.cpp	18
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graphsearch.cpp	19
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/lista.cpp	19
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/main.cpp	19
/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/stoper.cpp	19

Chapter 4

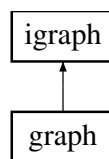
Class Documentation

4.1 graph Class Reference

Definicja klasy [graphSearch](#) Klasa zawiera definicje zmiennych potrzebnych do stworzenia struktury grafu, Podstawowe funkcje tworzenia grafu oraz wyswietlanie sasiadow, rozmiaru grafu.

```
#include <graph.hh>
```

Inheritance diagram for graph:



Public Member Functions

- [graph](#) ()
- void [addVertex](#) (int)
- void [addEdge](#) (int, int)
- [List](#) [getNeighbors](#) (int)
- bool [isConnected](#) (int, int)
- int [getsize](#) ()

4.1.1 Detailed Description

Definicja klasy [graphSearch](#) Klasa zawiera definicje zmiennych potrzebnych do stworzenia struktury grafu, Podstawowe funkcje tworzenia grafu oraz wyswietlanie sasiadow, rozmiaru grafu.

Definition at line 15 of file graph.hh.

4.1.2 Constructor & Destructor Documentation

4.1.2.1 [graph::graph](#) () `[inline]`

Definition at line 20 of file graph.hh.

4.1.3 Member Function Documentation

4.1.3.1 void graph::addEdge (int x, int y) [virtual]

Implements [igraph](#).

Definition at line 30 of file graph.cpp.

4.1.3.2 void graph::addVertex (int x) [virtual]

Implements [igraph](#).

Definition at line 22 of file graph.cpp.

4.1.3.3 List graph::getNeighbors (int x) [virtual]

Wyswietla sąsiada/wiercholek lub informacje o nie istniejącym sąsiedzie/wierzchołku.

Implements [igraph](#).

Definition at line 36 of file graph.cpp.

4.1.3.4 int graph::getsize ()

Zwraca rozmiar naszego grafu.

Definition at line 43 of file graph.cpp.

4.1.3.5 bool graph::isConnected (int x, int y) [virtual]

Opis metody w pliku [graphsearch.hh](#)

Implements [igraph](#).

Definition at line 4 of file graph.cpp.

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

- [/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graph.hh](#)
- [/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graph.cpp](#)

4.2 graphSearch Class Reference

```
#include <graphsearch.hh>
```

Public Member Functions

- void [findPathBFS](#) (int, int)
- void [findPathDFS](#) (int, int)
- bool [DFS](#) (int)
- void [BFS](#) (int)
- void [addVertex](#) (int x)
- void [addEdge](#) (int x, int y)
- [List](#) [getNeighbors](#) (int x)
- bool [isConnected](#) (int x, int y)

4.2.1 Detailed Description

Definicja klasy [graphSearch](#) Klasa ta zawiera w sobie funkcje odpowiedzialne za przeszukiwanie grafu, dodanie krawedzi i wierzchołkow oraz sprawdza czy kolejne wierzchołki są ze sobą połączone.

Definition at line 15 of file graphsearch.hh.

4.2.2 Member Function Documentation

4.2.2.1 void graphSearch::addEdge (int x, int y) [inline]

Funkcja jest odpowiedzialna za dodawanie krawędzi do umieszczonych w grafie wierzchołków startowy-końcowy.

Definition at line 71 of file graphsearch.hh.

4.2.2.2 void graphSearch::addVertex (int x) [inline]

Funkcja odpowiedzialna za dodawanie wierzchołków do grafu. Liczba wierzchołków zależna jest od liczby elementów podanych w pliku głównym.

Definition at line 60 of file graphsearch.hh.

4.2.2.3 void graphSearch::BFS (int x)

Zaczynamy odwiedzanie od wierzchołka startowego. Następnie odwiedzamy wszystkich jego sąsiadów. Dalej odwiedzamy wszystkich nieodwiedzonych jeszcze sąsiadów sąsiadów. Itd. Aby uniknąć zapętlenia użyta została zmienna visited[] która określa stan odwiedzin wierzchołka. Parametry te są zebrane w tablicy logicznej która posiada tyle elementów ile wierzchołków w grafie.

Definition at line 20 of file graphsearch.cpp.

4.2.2.4 bool graphSearch::DFS (int x)

Rekurencyjny algorytm przeszukania grafu w głąb. Algorytm rozpoczyna przeszukiwanie grafu od wierzchołka o numerze 0.

Definition at line 5 of file graphsearch.cpp.

4.2.2.5 void graphSearch::findPathBFS (int x, int y)

Sprawdza czy dane wierzchołki na odpowiednim poziomie były odwiedzane, sprawdza czy jest połączenie między kolejnymi wierzchołkami grafu. Szuka ścieżki między wierzchołkami.

Definition at line 56 of file graphsearch.cpp.

4.2.2.6 void graphSearch::findPathDFS (int x, int y)

Algorytm sprawdza w odpowiedniej kolejności czy dany wierzchołek był odwiedzony oraz szuka ścieżki między wierzchołkami.

Definition at line 40 of file graphsearch.cpp.

4.2.2.7 List graphSearch::getNeighbors (int x) [inline]

Definition at line 75 of file graphsearch.hh.

4.2.2.8 bool graphSearch::isConnected (int x, int y) [inline]

Funkcja sprawdza połączenie między kolejnymi wierzchołkami Sprawdza relacje pomiędzy wierzchołkami.

Definition at line 86 of file graphsearch.hh.

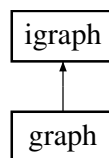
The documentation for this class was generated from the following files:

- </home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graphsearch.hh>
- </home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graphsearch.cpp>

4.3 igraph Class Reference

```
#include <igraph.hh>
```

Inheritance diagram for igraph:



Public Member Functions

- virtual void [addVertex](#) (int v)=0
- virtual void [addEdge](#) (int x, int y)=0
- virtual [List](#) [getNeighbors](#) (int x)=0
- virtual bool [isConnected](#) (int x, int y)=0

4.3.1 Detailed Description

Definition at line 4 of file igraph.hh.

4.3.2 Member Function Documentation

4.3.2.1 virtual void igraph::addEdge (int x, int y) [pure virtual]

Implemented in [graph](#).

4.3.2.2 virtual void igraph::addVertex (int v) [pure virtual]

Implemented in [graph](#).

4.3.2.3 virtual List igraph::getNeighbors (int x) [pure virtual]

Implemented in [graph](#).

4.3.2.4 virtual bool igraph::isConnected (int x, int y) [pure virtual]

Implemented in [graph](#).

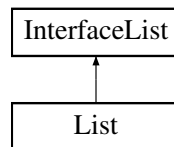
The documentation for this class was generated from the following file:

- </home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/igraph.hh>

4.4 InterfaceList Class Reference

```
#include <lista.hh>
```

Inheritance diagram for InterfaceList:



Public Member Functions

- virtual int [add](#) (int element, int position)=0
- virtual void [remove](#) (int position)=0
- virtual int [get](#) (int position)=0
- virtual int [size](#) ()=0

4.4.1 Detailed Description

Definition at line 5 of file lista.hh.

4.4.2 Member Function Documentation

4.4.2.1 virtual int InterfaceList::add (int *element*, int *position*) [pure virtual]

Implemented in [List](#).

4.4.2.2 virtual int InterfaceList::get (int *position*) [pure virtual]

Implemented in [List](#).

4.4.2.3 virtual void InterfaceList::remove (int *position*) [pure virtual]

Implemented in [List](#).

4.4.2.4 virtual int InterfaceList::size () [pure virtual]

Implemented in [List](#).

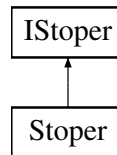
The documentation for this class was generated from the following file:

- </home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/lista.hh>

4.5 IStoper Class Reference

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

Inheritance diagram for IStoper:



Public Member Functions

- virtual void [Start](#) ()=0
- virtual void [Stop](#) ()=0
- virtual double [getElapsedTime](#) ()=0
- virtual void [dumpToFile](#) (std::string const &)=0

4.5.1 Detailed Description

Definition at line 5 of file IStoper.hh.

4.5.2 Member Function Documentation

4.5.2.1 virtual void IStoper::dumpToFile (std::string const &) [pure virtual]

Implemented in [Stoper](#).

4.5.2.2 virtual double IStoper::getElapsedTime () [pure virtual]

Implemented in [Stoper](#).

4.5.2.3 virtual void IStoper::Start () [pure virtual]

Implemented in [Stoper](#).

4.5.2.4 virtual void IStoper::Stop () [pure virtual]

Implemented in [Stoper](#).

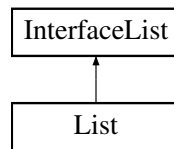
The documentation for this class was generated from the following file:

- /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/[IStoper.hh](#)

4.6 List Class Reference

```
#include <lista.hh>
```

Inheritance diagram for List:



Public Member Functions

- [List](#) ()
- `int` [add](#) (`int` element, `int` position)
- `void` [remove](#) (`int` position)
- `int` [get](#) (`int` position)
- `int` [size](#) ()

Public Attributes

- `int` [Size](#)
- `node *` [head](#)
- `node *` [temp](#)
- `node *` [temp2](#)

4.6.1 Detailed Description

Definicja klasy [List](#) Lista jest to lista sąsiedztwa. Przechowuje informacje czy dany element był już odwiedzony oraz jego pozycję. Klasa tworzy strukturę listy, zawiera w sobie funkcje dodawania elementów do listy, sprawdzania czy lista jest pusta, usuwania elementów oraz zwracania rozmiaru naszej listy.

Definition at line 22 of file lista.hh.

4.6.2 Constructor & Destructor Documentation

4.6.2.1 `List::List ()`

Definition at line 5 of file lista.cpp.

4.6.3 Member Function Documentation

4.6.3.1 `int List::add (int element, int position)` [virtual]

Implements [InterfaceList](#).

Definition at line 11 of file lista.cpp.

4.6.3.2 `int List::get (int position)` [virtual]

Implements [InterfaceList](#).

Definition at line 68 of file lista.cpp.

4.6.3.3 `void List::remove (int position)` [virtual]

Implements [InterfaceList](#).

Definition at line 46 of file lista.cpp.

4.6.3.4 `int List::size () [virtual]`

Implements [InterfaceList](#).

Definition at line 83 of file `lista.cpp`.

4.6.4 Member Data Documentation

4.6.4.1 `node* List::head`

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

4.6.4.2 `int List::Size`

Definition at line 25 of file `lista.hh`.

4.6.4.3 `node* List::temp`

Definition at line 27 of file `lista.hh`.

4.6.4.4 `node* List::temp2`

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

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

- `/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/lista.hh`
- `/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/lista.cpp`

4.7 node Class Reference

```
#include <node.hh>
```

Public Attributes

- `int` [element](#)
- `node *` [nastepny](#)

Friends

- class [List](#)

4.7.1 Detailed Description

Definition at line 5 of file `node.hh`.

4.7.2 Friends And Related Function Documentation

4.7.2.1 `friend class List [friend]`

Definition at line 10 of file `node.hh`.

4.7.3 Member Data Documentation

4.7.3.1 int node::element

Definition at line 8 of file node.hh.

4.7.3.2 node* node::nastepny

Definition at line 9 of file node.hh.

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

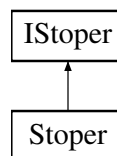
- /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/[node.hh](#)

4.8 Stoper Class Reference

zastępuje kilkakrotne wklejanie pliku naglowkowego

```
#include <stoper.hh>
```

Inheritance diagram for Stoper:



Public Types

- using [clock](#) = std::chrono::high_resolution_clock
const& =unikamy kopi
- using [time_point](#) = clock::time_point
czas systemowy
- using [time_type](#) = std::chrono::milliseconds

Public Member Functions

- void [Start](#) ()
- void [Stop](#) ()
- double [getElapsedTime](#) ()
duration cast=operator porownujacy, pozwala odjac 2 punkty w czasie
- void [dumpToFile](#) (std::string const &)

4.8.1 Detailed Description

zastępuje kilkakrotne wklejanie pliku naglowkowego

Definition at line 10 of file stoper.hh.

4.8.2 Member Typedef Documentation

4.8.2.1 using Stoper::clock = std::chrono::high_resolution_clock

const& =unikamy kopi

Definition at line 18 of file stoper.hh.

4.8.2.2 using Stoper::time_point = clock::time_point

czas systemowy

Definition at line 19 of file stoper.hh.

4.8.2.3 using Stoper::time_type = std::chrono::milliseconds

Definition at line 20 of file stoper.hh.

4.8.3 Member Function Documentation

4.8.3.1 void Stoper::dumpToFile (std::string const & *nazwaPliku*) [virtual]

Implements [IStoper](#).

Definition at line 19 of file stoper.cpp.

4.8.3.2 double Stoper::getElapsedTime () [virtual]

duration cast=operator porownujacy, pozwala odjac 2 punkty w czasie

Implements [IStoper](#).

Definition at line 13 of file stoper.cpp.

4.8.3.3 void Stoper::Start () [virtual]

Implements [IStoper](#).

Definition at line 3 of file stoper.cpp.

4.8.3.4 void Stoper::Stop () [virtual]

Implements [IStoper](#).

Definition at line 8 of file stoper.cpp.

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

- /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/[stoper.hh](#)
- /home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/[stoper.cpp](#)

Chapter 5

File Documentation

5.1 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graph.hh File Reference

```
#include "igraph.hh"
#include "lista.hh"
```

Classes

- class [graph](#)

Definicja klasy [graphSearch](#) Klasa zawiera definicje zmiennych potrzebnych do stworzenia struktury grafu, Podstawowe funkcje tworzenia grafu oraz wyswietlanie sasiadow, rozmiaru grafu.

5.2 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graphsearch.hh File Reference

```
#include "graph.hh"
#include "lista.hh"
```

Classes

- class [graphSearch](#)

5.3 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/igraph.hh File Reference

```
#include "lista.hh"
```

Classes

- class [igraph](#)

5.4 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/IStoper.hh File Reference

```
#include <string>
```

Classes

- class [IStoper](#)

5.5 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/lista.hh File Reference

```
#include "node.hh"
```

Classes

- class [InterfaceList](#)
- class [List](#)

5.6 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/node.hh File Reference

Classes

- class [node](#)

5.7 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/stoper.hh File Reference

```
#include <iostream>
#include <chrono>
#include <string>
#include <fstream>
#include "IStoper.hh"
```

Classes

- class [Stoper](#)
zastępuje kilkakrotne wklejanie pliku naglowkowego

5.8 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graph.cpp File Reference

```
#include "graph.hh"
#include <iostream>
```


5.9 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graphsearch.cpp File Reference

```
#include "graphsearch.hh"  
#include <iostream>
```

5.10 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/lista.cpp File Reference

```
#include "lista.hh"  
#include "node.hh"  
#include <iostream>
```

5.11 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/main.cpp File Reference

```
#include <iostream>  
#include "graphsearch.hh"  
#include "stoper.hh"  
#include <cstdlib>
```

Functions

- int [main](#) ()

5.11.1 Function Documentation

5.11.1.1 int main ()

Definition at line 8 of file main.cpp.

5.12 /home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/stoper.cpp File Reference

```
#include "stoper.hh"
```

Index

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/IStoper.-
hh, 18

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graph.-
hh, 17

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/graphsearch.-
hh, 17

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/igraph.-
hh, 17

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/lista.hh,
18

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/node.hh,
18

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/inc/stoper.-
hh, 18

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graph.-
cpp, 18

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/graphsearch.-
cpp, 19

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/lista.cpp,
19

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/main.-
cpp, 19

/home/patr95/Pulpit/PAMSI1/2504/prog/prj/src/stoper.-
cpp, 19

add
InterfaceList, 11
List, 13

addEdge
graph, 8
graphSearch, 9
igraph, 10

addVertex
graph, 8
graphSearch, 9
igraph, 10

BFS
graphSearch, 9

clock
Stoper, 16

DFS
graphSearch, 9

dumpToFile
IStoper, 12
Stoper, 16

element
node, 15

findPathBFS
graphSearch, 9

findPathDFS
graphSearch, 9

get
InterfaceList, 11
List, 13

getElapsedTime
IStoper, 12
Stoper, 16

getNeighbors
graph, 8
graphSearch, 9
igraph, 10

getsize
graph, 8
graph, 7

addEdge, 8
addVertex, 8
getNeighbors, 8
getsize, 8
graph, 7
isConnected, 8

graphSearch, 8
addEdge, 9
addVertex, 9
BFS, 9
DFS, 9
findPathBFS, 9
findPathDFS, 9
getNeighbors, 9
isConnected, 9

head
List, 14

IStoper, 12
dumpToFile, 12
getElapsedTime, 12
Start, 12
Stop, 12

igraph, 10
addEdge, 10
addVertex, 10
getNeighbors, 10
isConnected, 10

InterfaceList, 11
add, 11
get, 11

- remove, [11](#)
 - size, [11](#)
- isConnected
 - graph, [8](#)
 - graphSearch, [9](#)
 - igraph, [10](#)
- List, [12](#)
 - add, [13](#)
 - get, [13](#)
 - head, [14](#)
 - List, [13](#)
 - node, [14](#)
 - remove, [13](#)
 - Size, [14](#)
 - size, [13](#)
 - temp, [14](#)
 - temp2, [14](#)
- main
 - main.cpp, [19](#)
- main.cpp
 - main, [19](#)
- nastepny
 - node, [15](#)
- node, [14](#)
 - element, [15](#)
 - List, [14](#)
 - nastepny, [15](#)
- remove
 - InterfaceList, [11](#)
 - List, [13](#)
- Size
 - List, [14](#)
- size
 - InterfaceList, [11](#)
 - List, [13](#)
- Start
 - IStoper, [12](#)
 - Stoper, [16](#)
- Stop
 - IStoper, [12](#)
 - Stoper, [16](#)
- Stoper, [15](#)
 - clock, [16](#)
 - dumpToFile, [16](#)
 - getElapsedTime, [16](#)
 - Start, [16](#)
 - Stop, [16](#)
 - time_point, [16](#)
 - time_type, [16](#)
- temp
 - List, [14](#)
- temp2
 - List, [14](#)
- time_point
 - Stoper, [16](#)
 - time_type, [16](#)