

Axiom Enterprises - Route Logistics  
0.2

Generated by Doxygen 1.8.6

Wed Mar 26 2014 22:31:27



# Contents

<b>1</b>	<b>Namespace Index</b>	<b>1</b>
1.1	Namespace List . . . . .	1
<b>2</b>	<b>Hierarchical Index</b>	<b>3</b>
2.1	Class Hierarchy . . . . .	3
<b>3</b>	<b>Class Index</b>	<b>5</b>
3.1	Class List . . . . .	5
<b>4</b>	<b>File Index</b>	<b>7</b>
4.1	File List . . . . .	7
<b>5</b>	<b>Namespace Documentation</b>	<b>9</b>
5.1	basic_window Namespace Reference . . . . .	9
5.1.1	Function Documentation . . . . .	9
5.1.1.1	main . . . . .	9
5.2	hello Namespace Reference . . . . .	9
5.2.1	Function Documentation . . . . .	9
5.2.1.1	hello . . . . .	9
5.2.1.2	multiply . . . . .	9
5.3	python_client_test Namespace Reference . . . . .	9
5.3.1	Variable Documentation . . . . .	9
5.3.1.1	data . . . . .	9
5.3.1.2	HOST . . . . .	10
5.3.1.3	PORT . . . . .	10
5.3.1.4	s . . . . .	10
5.4	python_server_test Namespace Reference . . . . .	10
5.4.1	Variable Documentation . . . . .	10
5.4.1.1	data . . . . .	10
5.4.1.2	HOST . . . . .	10
5.4.1.3	PORT . . . . .	10
5.4.1.4	s . . . . .	10

<b>6</b>	<b>Class Documentation</b>	<b>11</b>
6.1	account Struct Reference	11
6.1.1	Member Data Documentation	11
6.1.1.1	password	11
6.1.1.2	username	11
6.2	Connection< Type > Class Template Reference	11
6.2.1	Constructor & Destructor Documentation	11
6.2.1.1	Connection	11
6.3	LinkedList< Type > Class Template Reference	12
6.3.1	Constructor & Destructor Documentation	12
6.3.1.1	LinkedList	12
6.3.1.2	~LinkedList	12
6.3.2	Member Function Documentation	12
6.3.2.1	appendNode	12
6.3.2.2	appendNode	12
6.3.2.3	displayNodes	12
6.3.2.4	displayNodesR	12
6.3.2.5	emptyList	12
6.3.2.6	fromStart	12
6.3.2.7	getListLength	12
6.3.2.8	getNextNode	12
6.3.2.9	getNodeAt	12
6.3.2.10	loopThroughFrom	12
6.3.3	Member Data Documentation	13
6.3.3.1	back	13
6.3.3.2	currentNode	13
6.3.3.3	front	13
6.3.3.4	list_length	13
6.4	location Struct Reference	13
6.4.1	Member Data Documentation	13
6.4.1.1	id	13
6.4.1.2	latitude	13
6.4.1.3	longitude	13
6.5	Location Class Reference	13
6.5.1	Constructor & Destructor Documentation	14
6.5.1.1	Location	14
6.5.1.2	~Location	14
6.5.2	Member Function Documentation	14
6.5.2.1	getDistanceTo	14
6.5.2.2	getLat	14

6.5.2.3	<a href="#">getLong</a>	14
6.5.2.4	<a href="#">notStart</a>	14
6.5.2.5	<a href="#">printCoords</a>	14
6.5.2.6	<a href="#">setStart</a>	14
6.5.2.7	<a href="#">startLocation</a>	14
6.5.3	<a href="#">Member Data Documentation</a>	14
6.5.3.1	<a href="#">isStart</a>	14
6.5.3.2	<a href="#">locationID</a>	14
6.5.3.3	<a href="#">x</a>	14
6.5.3.4	<a href="#">y</a>	14
6.6	<a href="#">Matrix Class Reference</a>	15
6.6.1	<a href="#">Detailed Description</a>	15
6.6.2	<a href="#">Constructor &amp; Destructor Documentation</a>	15
6.6.2.1	<a href="#">Matrix</a>	15
6.6.2.2	<a href="#">~Matrix</a>	15
6.6.3	<a href="#">Member Function Documentation</a>	15
6.6.3.1	<a href="#">getElement</a>	15
6.6.3.2	<a href="#">numberOfColumns</a>	15
6.6.3.3	<a href="#">setElement</a>	15
6.6.3.4	<a href="#">showMatrix</a>	15
6.6.4	<a href="#">Member Data Documentation</a>	15
6.6.4.1	<a href="#">number_of_columns</a>	15
6.6.4.2	<a href="#">number_of_elements</a>	15
6.6.4.3	<a href="#">values</a>	15
6.7	<a href="#">Node&lt; Type &gt; Class Template Reference</a>	16
6.7.1	<a href="#">Constructor &amp; Destructor Documentation</a>	16
6.7.1.1	<a href="#">Node</a>	16
6.7.2	<a href="#">Member Data Documentation</a>	16
6.7.2.1	<a href="#">next</a>	16
6.7.2.2	<a href="#">previous</a>	16
6.8	<a href="#">PyFunc&lt; Type &gt; Class Template Reference</a>	16
6.8.1	<a href="#">Constructor &amp; Destructor Documentation</a>	17
6.8.1.1	<a href="#">PyFunc</a>	17
6.8.1.2	<a href="#">~PyFunc</a>	17
6.8.2	<a href="#">Member Function Documentation</a>	17
6.8.2.1	<a href="#">validFunc</a>	17
6.8.3	<a href="#">Member Data Documentation</a>	17
6.8.3.1	<a href="#">isValid</a>	17
6.8.3.2	<a href="#">pFunc</a>	17
6.8.3.3	<a href="#">pList</a>	17

6.8.3.4	pListItem . . . . .	17
6.8.3.5	pListLength . . . . .	17
6.8.3.6	pModule . . . . .	17
6.8.3.7	pName . . . . .	17
6.8.3.8	pValue . . . . .	17
6.9	Pyl Class Reference . . . . .	17
6.9.1	Constructor & Destructor Documentation . . . . .	18
6.9.1.1	Pyl . . . . .	18
6.9.1.2	~Pyl . . . . .	18
6.9.2	Member Function Documentation . . . . .	18
6.9.2.1	addFunction . . . . .	18
6.9.3	Member Data Documentation . . . . .	18
6.9.3.1	funcList . . . . .	18
6.10	ReturnList< Type > Class Template Reference . . . . .	18
6.10.1	Constructor & Destructor Documentation . . . . .	18
6.10.1.1	ReturnList . . . . .	19
6.10.2	Member Function Documentation . . . . .	19
6.10.2.1	callFunction . . . . .	19
6.11	Salesman Class Reference . . . . .	19
6.11.1	Constructor & Destructor Documentation . . . . .	19
6.11.1.1	Salesman . . . . .	19
6.11.1.2	~Salesman . . . . .	19
6.11.2	Member Function Documentation . . . . .	19
6.11.2.1	addLocation . . . . .	19
6.11.2.2	calculateRoute . . . . .	19
6.11.2.3	populateMatrix . . . . .	19
6.11.2.4	showLocations . . . . .	19
6.11.2.5	showRoute . . . . .	19
6.11.3	Member Data Documentation . . . . .	19
6.11.3.1	distanceMatrix . . . . .	20
6.11.3.2	hasMatrix . . . . .	20
6.11.3.3	locations . . . . .	20
6.11.3.4	route . . . . .	20
<b>7</b>	<b>File Documentation</b> . . . . .	<b>21</b>
7.1	Backend/Salesman/Location.cpp File Reference . . . . .	21
7.2	Backend/Salesman/Location.h File Reference . . . . .	21
7.3	Backend/Salesman/Salesman.cpp File Reference . . . . .	21
7.4	Backend/Salesman/Salesman.h File Reference . . . . .	21
7.5	Backend/Salesman/test.cpp File Reference . . . . .	22

7.5.1	Function Documentation	22
7.5.1.1	main	22
7.6	tests/test.cpp File Reference	22
7.6.1	Function Documentation	22
7.6.1.1	main	22
7.7	tools/SocketS/test.cpp File Reference	22
7.7.1	Function Documentation	22
7.7.1.1	main	22
7.8	tools/test.cpp File Reference	22
7.8.1	Function Documentation	23
7.8.1.1	main	23
7.9	Backend/Salesman/test2.cpp File Reference	23
7.9.1	Function Documentation	23
7.9.1.1	main	23
7.10	main.cpp File Reference	23
7.10.1	Function Documentation	23
7.10.1.1	main	23
7.11	tests/basic_window.py File Reference	23
7.12	tests/example.cpp File Reference	23
7.12.1	Function Documentation	24
7.12.1.1	main	24
7.13	tests/hello.py File Reference	24
7.14	tools/Graph.h File Reference	24
7.14.1	Function Documentation	24
7.14.1.1	Connection	24
7.14.1.2	Node	24
7.14.1.3	~Node	24
7.15	tools/LinkedList.h File Reference	24
7.15.1	Variable Documentation	25
7.15.1.1	Node	25
7.16	tools/Matrices.cpp File Reference	25
7.17	tools/Matrices.h File Reference	25
7.18	tools/Python/.Functions.cpp File Reference	25
7.19	tools/Python/.PyFunc.cpp File Reference	25
7.20	tools/Python/.PyI.cpp File Reference	25
7.21	tools/Python/.PyI.h File Reference	26
7.22	tools/Python/Functions.h File Reference	26
7.23	tools/Python/PyFunc.h File Reference	26
7.24	tools/SocketS/client.c File Reference	26
7.24.1	Macro Definition Documentation	27

7.24.1.1	MAXDATASIZE	27
7.24.1.2	PORT	27
7.24.2	Function Documentation	27
7.24.2.1	get_in_addr	27
7.24.2.2	main	27
7.25	tools/Sockets/python_client_test.py File Reference	27
7.26	tools/Sockets/python_server_test.py File Reference	27
7.27	tools/Sockets/python_ui.c File Reference	27
7.27.1	Function Documentation	28
7.27.1.1	getNumLines	28
7.27.1.2	handleUI	28
7.27.1.3	loadAccounts	28
7.27.1.4	loginSuccessful	28
7.28	tools/Sockets/python_ui.h File Reference	28
7.28.1	Function Documentation	28
7.28.1.1	getNumLines	28
7.28.1.2	handleUI	28
7.28.1.3	loadAccounts	28
7.28.1.4	loginSuccessful	28
7.29	tools/Sockets/server.c File Reference	28
7.29.1	Function Documentation	29
7.29.1.1	run_server	29
7.30	tools/Sockets/server.h File Reference	29
7.30.1	Function Documentation	29
7.30.1.1	run_server	29
7.31	tools/Sockets/server_utils.c File Reference	29
7.31.1	Function Documentation	29
7.31.1.1	get_in_addr	29
7.31.1.2	new_socket	29
7.31.1.3	receiveData	29
7.31.1.4	sigchld_handler	29
7.32	tools/Sockets/server_utils.h File Reference	30
7.32.1	Macro Definition Documentation	30
7.32.1.1	APP	30
7.32.1.2	BACKLOG	30
7.32.1.3	PORT	30
7.32.1.4	UI	30
7.32.2	Function Documentation	30
7.32.2.1	get_in_addr	30
7.32.2.2	new_socket	30



---

7.32.2.3	receiveData . . . . .	30
7.32.2.4	sigchld_handler . . . . .	30
<b>Index</b>		<b>31</b>



# Chapter 1

## Namespace Index

### 1.1 Namespace List

Here is a list of all namespaces with brief descriptions:

<a href="#">basic_window</a>	9
<a href="#">hello</a>	9
<a href="#">python_client_test</a>	9
<a href="#">python_server_test</a>	10



## Chapter 2

# Hierarchical Index

### 2.1 Class Hierarchy

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

account	11
Connection< Type >	11
LinkedList< Type >	12
LinkedList< Location >	12
LinkedList< PyFunc >	12
location	13
Location	13
Node< Location >	16
Matrix	15
PyFunc< Type >	16
Node< PyFunc >	16
ReturnList< Type >	18
Pyl	17
Salesman	19
Type	
Node< Type >	16



## Chapter 3

# Class Index

### 3.1 Class List

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

<a href="#">account</a>	11
<a href="#">Connection&lt; Type &gt;</a>	11
<a href="#">LinkedList&lt; Type &gt;</a>	12
<a href="#">location</a>	13
<a href="#">Location</a>	13
<a href="#">Matrix</a>	
A class that defines a matrix	15
<a href="#">Node&lt; Type &gt;</a>	16
<a href="#">PyFunc&lt; Type &gt;</a>	16
<a href="#">Pyl</a>	17
<a href="#">ReturnList&lt; Type &gt;</a>	18
<a href="#">Salesman</a>	19





## Chapter 4

# File Index

### 4.1 File List

Here is a list of all files with brief descriptions:

<a href="#">main.cpp</a>	23
Backend/Salesman/ <a href="#">Location.cpp</a>	21
Backend/Salesman/ <a href="#">Location.h</a>	21
Backend/Salesman/ <a href="#">Salesman.cpp</a>	21
Backend/Salesman/ <a href="#">Salesman.h</a>	21
Backend/Salesman/ <a href="#">test.cpp</a>	22
Backend/Salesman/ <a href="#">test2.cpp</a>	23
tests/ <a href="#">basic_window.py</a>	23
tests/ <a href="#">example.cpp</a>	23
tests/ <a href="#">hello.py</a>	24
tests/ <a href="#">test.cpp</a>	22
tools/ <a href="#">Graph.h</a>	24
tools/ <a href="#">LinkedList.h</a>	24
tools/ <a href="#">Matrices.cpp</a>	25
tools/ <a href="#">Matrices.h</a>	25
tools/ <a href="#">test.cpp</a>	22
tools/Python/ <a href="#">.Functions.cpp</a>	25
tools/Python/ <a href="#">PyFunc.cpp</a>	25
tools/Python/ <a href="#">Pyl.cpp</a>	25
tools/Python/ <a href="#">Pyl.h</a>	26
tools/Python/ <a href="#">Functions.h</a>	26
tools/Python/ <a href="#">PyFunc.h</a>	26
tools/Socketts/ <a href="#">client.c</a>	26
tools/Socketts/ <a href="#">python_client_test.py</a>	27
tools/Socketts/ <a href="#">python_server_test.py</a>	27
tools/Socketts/ <a href="#">python_ui.c</a>	27
tools/Socketts/ <a href="#">python_ui.h</a>	28
tools/Socketts/ <a href="#">server.c</a>	28
tools/Socketts/ <a href="#">server.h</a>	29
tools/Socketts/ <a href="#">server_utils.c</a>	29
tools/Socketts/ <a href="#">server_utils.h</a>	30
tools/Socketts/ <a href="#">test.cpp</a>	22



## Chapter 5

# Namespace Documentation

### 5.1 basic\_window Namespace Reference

#### Functions

- def `main`

#### 5.1.1 Function Documentation

5.1.1.1 `def basic_window.main ( )`

### 5.2 hello Namespace Reference

#### Functions

- def `hello`
- def `multiply`

#### 5.2.1 Function Documentation

5.2.1.1 `def hello.hello ( )`

5.2.1.2 `def hello.multiply ( a, b )`

### 5.3 python\_client\_test Namespace Reference

#### Variables

- string `HOST` = '127.0.0.1'
- int `PORT` = 3490
- tuple `s` = `socket.socket(socket.AF_INET, socket.SOCK_STREAM)`
- tuple `data` = `s.recv(4)`

#### 5.3.1 Variable Documentation

5.3.1.1 `tuple python_client_test.data = s.recv(4)`

5.3.1.2 string `python_client_test.HOST` = '127.0.0.1'

5.3.1.3 int `python_client_test.PORT` = 3490

5.3.1.4 tuple `python_client_test.s` = `socket.socket(socket.AF_INET, socket.SOCK_STREAM)`

## 5.4 `python_server_test` Namespace Reference

### Variables

- string `HOST` = '127.0.0.1'
- int `PORT` = 50007
- tuple `s` = `socket.socket(socket.AF_INET, socket.SOCK_STREAM)`
- tuple `data` = `conn.recv(1024)`

### 5.4.1 Variable Documentation

5.4.1.1 tuple `python_server_test.data` = `conn.recv(1024)`

5.4.1.2 string `python_server_test.HOST` = '127.0.0.1'

5.4.1.3 int `python_server_test.PORT` = 50007

5.4.1.4 tuple `python_server_test.s` = `socket.socket(socket.AF_INET, socket.SOCK_STREAM)`

## Chapter 6

# Class Documentation

### 6.1 account Struct Reference

```
#include "python_ui.h"
```

#### Public Attributes

- char \* [username](#)
- char \* [password](#)

#### 6.1.1 Member Data Documentation

6.1.1.1 char\* account::password

6.1.1.2 char\* account::username

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

- tools/Sockets/[python\\_ui.h](#)

### 6.2 Connection< Type > Class Template Reference

```
#include "Graph.h"
```

#### Public Member Functions

- [Connection](#) ()

#### 6.2.1 Constructor & Destructor Documentation

6.2.1.1 template<class Type > Connection< Type >::Connection ( )

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

- tools/[Graph.h](#)

## 6.3 LinkedList< Type > Class Template Reference

```
#include "LinkedList.h"
```

### Public Member Functions

- [LinkedList](#) ()
- [~LinkedList](#) ()
- void [appendNode](#) (double latitude, double longitude)
- void [appendNode](#) (Node< Type > \*n)
- Type \* [getNextNode](#) ()
- Type \* [getNodeAt](#) (int NodeIndex)
- int [getListLength](#) ()
- void [loopThroughFrom](#) (int NodeIndex)
- void [fromStart](#) ()
- void [displayNodes](#) ()
- void [displayNodesR](#) ()
- void [emptyList](#) ()

### Private Attributes

- Node< Type > \* [front](#)
- Node< Type > \* [back](#)
- Node< Type > \* [currentNode](#)
- int [list\\_length](#)

### 6.3.1 Constructor & Destructor Documentation

6.3.1.1 `template<class Type > LinkedList< Type >::LinkedList ( )`

6.3.1.2 `template<class Type > LinkedList< Type >::~~LinkedList ( )`

### 6.3.2 Member Function Documentation

6.3.2.1 `template<class Type > void LinkedList< Type >::appendNode ( double latitude, double longitude )`

6.3.2.2 `template<class Type> void LinkedList< Type >::appendNode ( Node< Type > * n )`

6.3.2.3 `template<class Type > void LinkedList< Type >::displayNodes ( )`

6.3.2.4 `template<class Type > void LinkedList< Type >::displayNodesR ( )`

6.3.2.5 `template<class Type > void LinkedList< Type >::emptyList ( )`

6.3.2.6 `template<class Type> void LinkedList< Type >::fromStart ( )` `[inline]`

6.3.2.7 `template<class Type> int LinkedList< Type >::getListLength ( )` `[inline]`

6.3.2.8 `template<class Type > Type * LinkedList< Type >::getNextNode ( )`

6.3.2.9 `template<class Type > Type * LinkedList< Type >::getNodeAt ( int NodeIndex )`

6.3.2.10 `template<class Type > void LinkedList< Type >::loopThroughFrom ( int NodeIndex )`

### 6.3.3 Member Data Documentation

6.3.3.1 `template<class Type> Node<Type>* LinkedList< Type >::back` [private]

6.3.3.2 `template<class Type> Node<Type>* LinkedList< Type >::currentNode` [private]

6.3.3.3 `template<class Type> Node<Type>* LinkedList< Type >::front` [private]

6.3.3.4 `template<class Type> int LinkedList< Type >::list_length` [private]

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

- [tools/LinkedList.h](#)

## 6.4 location Struct Reference

```
#include "server_utils.h"
```

### Public Attributes

- double [id](#)
- double [latitude](#)
- double [longitude](#)

### 6.4.1 Member Data Documentation

6.4.1.1 `double location::id`

6.4.1.2 `double location::latitude`

6.4.1.3 `double location::longitude`

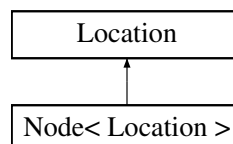
The documentation for this struct was generated from the following file:

- [tools/Sockets/server\\_utils.h](#)

## 6.5 Location Class Reference

```
#include "Location.h"
```

Inheritance diagram for Location:



### Public Member Functions

- [Location](#) (double latitude=0, double longitude=0)

- [~Location](#) ( )
- void [setStart](#) ( )
- bool [startLocation](#) ( )
- void [notStart](#) ( )
- double [getLong](#) ( )
- double [getLat](#) ( )
- void [printCoords](#) ( )
- double [getDistanceTo](#) ([Location](#) &loc)

## Public Attributes

- bool [isStart](#)
- int [locationID](#)
- double [y](#)
- double [x](#)

## 6.5.1 Constructor & Destructor Documentation

6.5.1.1 [Location::Location](#) ( double *latitude* = 0, double *longitude* = 0 )

6.5.1.2 [Location::~~Location](#) ( )

## 6.5.2 Member Function Documentation

6.5.2.1 double [Location::getDistanceTo](#) ( [Location](#) & *loc* )

6.5.2.2 double [Location::getLat](#) ( ) [inline]

6.5.2.3 double [Location::getLong](#) ( ) [inline]

6.5.2.4 void [Location::notStart](#) ( ) [inline]

6.5.2.5 void [Location::printCoords](#) ( ) [inline]

6.5.2.6 void [Location::setStart](#) ( ) [inline]

6.5.2.7 bool [Location::startLocation](#) ( ) [inline]

## 6.5.3 Member Data Documentation

6.5.3.1 bool [Location::isStart](#)

6.5.3.2 int [Location::locationID](#)

6.5.3.3 double [Location::x](#)

6.5.3.4 double [Location::y](#)

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

- Backend/Salesman/[Location.h](#)
- Backend/Salesman/[Location.cpp](#)



## 6.6 Matrix Class Reference

A class that defines a matrix.

```
#include "Matrices.h"
```

### Public Member Functions

- [Matrix](#) (int elements)
- [~Matrix](#) ()
- bool [setElement](#) (int row, int column, double value)
- double [getElement](#) (int row, int column)
- void [showMatrix](#) ()
- int [numberOfColumns](#) ()

### Private Attributes

- double \* [values](#)
- int [number\\_of\\_columns](#)
- int [number\\_of\\_elements](#)

#### 6.6.1 Detailed Description

A class that defines a matrix.

This class defines a matrix of arbitrary dimensions, I think the current implementation restricts this to a square matrix (nxn) where n is the square root of the value given to the constructor.

#### 6.6.2 Constructor & Destructor Documentation

6.6.2.1 `Matrix::Matrix ( int elements )`

6.6.2.2 `Matrix::~~Matrix ( )`

#### 6.6.3 Member Function Documentation

6.6.3.1 `double Matrix::getElement ( int row, int column )`

6.6.3.2 `int Matrix::numberOfColumns ( )` `[inline]`

6.6.3.3 `bool Matrix::setElement ( int row, int column, double value )`

6.6.3.4 `void Matrix::showMatrix ( )`

#### 6.6.4 Member Data Documentation

6.6.4.1 `int Matrix::number_of_columns` `[private]`

6.6.4.2 `int Matrix::number_of_elements` `[private]`

6.6.4.3 `double* Matrix::values` `[private]`

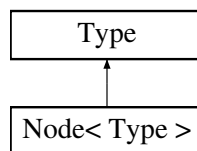
The documentation for this class was generated from the following files:

- [tools/Matrices.h](#)
- [tools/Matrices.cpp](#)

## 6.7 Node< Type > Class Template Reference

```
#include "LinkedList.h"
```

Inheritance diagram for Node< Type >:



### Public Member Functions

- [Node](#) (double latitude, double longitude)

### Public Attributes

- [Node< Type > \\* next](#)
- [Node< Type > \\* previous](#)

### 6.7.1 Constructor & Destructor Documentation

6.7.1.1 `template<class Type> Node< Type >::Node ( double latitude, double longitude )` `[inline]`

### 6.7.2 Member Data Documentation

6.7.2.1 `template<class Type> Node<Type>* Node< Type >::next`

6.7.2.2 `template<class Type> Node<Type>* Node< Type >::previous`

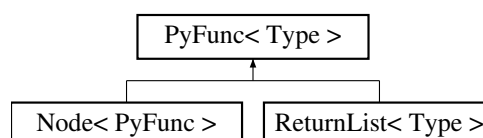
The documentation for this class was generated from the following file:

- [tools/LinkedList.h](#)

## 6.8 PyFunc< Type > Class Template Reference

```
#include "PyFunc.h"
```

Inheritance diagram for PyFunc< Type >:



## Public Member Functions

- [PyFunc](#) (const char \*Module, const char \*FuncName, char \*FileName)
- [~PyFunc](#) ()
- bool [validFunc](#) ()

## Protected Attributes

- PyObject \* [pModule](#)
- PyObject \* [pName](#)
- PyObject \* [pFunc](#)
- PyObject \* [pList](#)
- PyObject \* [pValue](#)
- PyObject \* [pListLength](#)
- PyObject [pListItem](#)
- bool [isValid](#)

### 6.8.1 Constructor & Destructor Documentation

6.8.1.1 `template<class Type > PyFunc< Type >::PyFunc ( const char * Module, const char * FuncName, char * FileName )`

6.8.1.2 `template<class Type > PyFunc< Type >::~~PyFunc ( )`

### 6.8.2 Member Function Documentation

6.8.2.1 `template<class Type > bool PyFunc< Type >::validFunc ( ) [inline]`

### 6.8.3 Member Data Documentation

6.8.3.1 `template<class Type > bool PyFunc< Type >::isValid [protected]`

6.8.3.2 `template<class Type > PyObject * PyFunc< Type >::pFunc [protected]`

6.8.3.3 `template<class Type > PyObject * PyFunc< Type >::pList [protected]`

6.8.3.4 `template<class Type > PyObject PyFunc< Type >::pListItem [protected]`

6.8.3.5 `template<class Type > PyObject* PyFunc< Type >::pListLength [protected]`

6.8.3.6 `template<class Type > PyObject* PyFunc< Type >::pModule [protected]`

6.8.3.7 `template<class Type > PyObject * PyFunc< Type >::pName [protected]`

6.8.3.8 `template<class Type > PyObject * PyFunc< Type >::pValue [protected]`

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

- tools/Python/[PyFunc.h](#)
- tools/Python/[PyFunc.cpp](#)

## 6.9 Pyl Class Reference

```
#include "PyI.h"
```

## Public Member Functions

- [Pyl](#) ()
- [~Pyl](#) ()
- void [addFunction](#) ([PyFunc](#) \*pFunc)

## Private Attributes

- [LinkedList](#)< [PyFunc](#) > \* [funcList](#)

### 6.9.1 Constructor & Destructor Documentation

6.9.1.1 [Pyl::Pyl](#) ( )

6.9.1.2 [Pyl::~~Pyl](#) ( )

### 6.9.2 Member Function Documentation

6.9.2.1 void [Pyl::addFunction](#) ( [PyFunc](#) \* *pFunc* )

### 6.9.3 Member Data Documentation

6.9.3.1 [LinkedList](#)<[PyFunc](#)>\* [Pyl::funcList](#) [private]

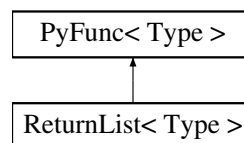
The documentation for this class was generated from the following files:

- tools/Python/.[Pyl.h](#)
- tools/Python/.[Pyl.cpp](#)

## 6.10 [ReturnList](#)< [Type](#) > Class Template Reference

```
#include "Functions.h"
```

Inheritance diagram for [ReturnList](#)< [Type](#) >:



## Public Member Functions

- [ReturnList](#) (const char \*ModuleName, const char \*FuncName, char \*FileName)
- [Type](#) \* [callFunction](#) ()

## Additional Inherited Members

### 6.10.1 Constructor & Destructor Documentation

6.10.1.1 `template<class Type > ReturnList< Type >::ReturnList ( const char * ModuleName, const char * FuncName, char * FileName ) [inline]`

## 6.10.2 Member Function Documentation

6.10.2.1 `template<class Type > Type * ReturnList< Type >::callFunction ( )`

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

- [tools/Python/Functions.h](#)
- [tools/Python/.Functions.cpp](#)

## 6.11 Salesman Class Reference

```
#include "Salesman.h"
```

### Public Member Functions

- [Salesman \(\)](#)
- [~Salesman \(\)](#)
- void [addLocation](#) (double longitude, double latitude)
- void [showLocations](#) ()
- void [showRoute](#) ()
- bool [populateMatrix](#) ()
- void [calculateRoute](#) ()

### Private Attributes

- [LinkedList< Location > \\* locations](#)
- [LinkedList< Location > \\* route](#)
- [Matrix \\* distanceMatrix](#)
- bool [hasMatrix](#)

## 6.11.1 Constructor & Destructor Documentation

6.11.1.1 `Salesman::Salesman ( )`

6.11.1.2 `Salesman::~~Salesman ( )`

## 6.11.2 Member Function Documentation

6.11.2.1 `void Salesman::addLocation ( double longitude, double latitude )`

6.11.2.2 `void Salesman::calculateRoute ( )`

6.11.2.3 `bool Salesman::populateMatrix ( )`

6.11.2.4 `void Salesman::showLocations ( )`

6.11.2.5 `void Salesman::showRoute ( )`

## 6.11.3 Member Data Documentation

6.11.3.1 **Matrix\*** Salesman::distanceMatrix [private]

6.11.3.2 **bool** Salesman::hasMatrix [private]

6.11.3.3 **LinkedList<Location>\*** Salesman::locations [private]

6.11.3.4 **LinkedList<Location>\*** Salesman::route [private]

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

- Backend/Salesman/[Salesman.h](#)
- Backend/Salesman/[Salesman.cpp](#)

## Chapter 7

# File Documentation

### 7.1 Backend/Salesman/Location.cpp File Reference

```
#include "Location.h"
```

### 7.2 Backend/Salesman/Location.h File Reference

```
#include <iostream>
#include <cmath>
#include "../tools/LinkedList.h"
```

#### Classes

- class [Location](#)

### 7.3 Backend/Salesman/Salesman.cpp File Reference

```
#include "Salesman.h"
```

### 7.4 Backend/Salesman/Salesman.h File Reference

```
#include "Location.h"
#include "../tools/LinkedList.h"
#include "../tools/Matrices.h"
```

#### Classes

- class [Salesman](#)

## 7.5 Backend/Salesman/test.cpp File Reference

```
#include "Location.h"  
#include "Salesman.h"
```

### Functions

- int [main](#) ()

#### 7.5.1 Function Documentation

##### 7.5.1.1 int main ( )

## 7.6 tests/test.cpp File Reference

```
#include <python2.7/Python.h>  
#include <iostream>
```

### Functions

- int [main](#) ()

#### 7.6.1 Function Documentation

##### 7.6.1.1 int main ( )

## 7.7 tools/Sockets/test.cpp File Reference

```
#include "server_utils.h"
```

### Functions

- int [main](#) ()

#### 7.7.1 Function Documentation

##### 7.7.1.1 int main ( )

## 7.8 tools/test.cpp File Reference

```
#include "LinkedList.h"
```

### Functions

- int [main](#) ()



### 7.8.1 Function Documentation

7.8.1.1 `int main ( )`

## 7.9 Backend/Salesman/test2.cpp File Reference

```
#include "Location.h"
```

### Functions

- `int main ()`

### 7.9.1 Function Documentation

7.9.1.1 `int main ( )`

## 7.10 main.cpp File Reference

```
#include <iostream>
#include <thread>
#include "tools/Sockets/server.h"
```

### Functions

- `int main ()`

### 7.10.1 Function Documentation

7.10.1.1 `int main ( )`

## 7.11 tests/basic\_window.py File Reference

### Namespaces

- `basic\_window`

### Functions

- `def basic\_window.main`

## 7.12 tests/example.cpp File Reference

```
#include <python2.7/Python.h>
#include <iostream>
```

## Functions

- int [main](#) (int argc, char \*argv[])

### 7.12.1 Function Documentation

7.12.1.1 int main ( int *argc*, char \* *argv*[] )

## 7.13 tests/hello.py File Reference

### Namespaces

- [hello](#)

### Functions

- def [hello.hello](#)
- def [hello.multiply](#)

## 7.14 tools/Graph.h File Reference

```
#include <iostream>
```

### Classes

- class [Connection](#)< [Type](#) >

### Functions

- template<class [Type](#) >  
class [Connection](#)< [Type](#) > [Node](#) ()
- [Connection](#) ()
- [~Node](#) ()

### 7.14.1 Function Documentation

7.14.1.1 [Node::Connection](#) ( )

7.14.1.2 template<class [Type](#) > class [Connection](#)< [Type](#) > [Node](#) ( )

7.14.1.3 [~Node](#) ( )

## 7.15 tools/LinkedList.h File Reference

```
#include <iostream>
#include <stdexcept>
```

## Classes

- class [Node< Type >](#)
- class [LinkedList< Type >](#)

## Variables

- [Node Node](#)

### 7.15.1 Variable Documentation

#### 7.15.1.1 Node Node

## 7.16 tools/Matrices.cpp File Reference

```
#include "Matrices.h"
```

## 7.17 tools/Matrices.h File Reference

```
#include <iostream>
#include <cmath>
```

## Classes

- class [Matrix](#)  
*A class that defines a matrix.*

## 7.18 tools/Python/.Functions.cpp File Reference

```
#include "Functions.h"
```

## 7.19 tools/Python/.PyFunc.cpp File Reference

```
#include "PyFunc.h"
```

## 7.20 tools/Python/.Pyl.cpp File Reference

```
#include "PyI.h"
#include "PyFunc.h"
```

## 7.21 tools/Python/.Pyl.h File Reference

```
#include <python2.7/Python.h>
#include "PyFunc.h"
#include "../tools/LinkedList.h"
```

### Classes

- class [Pyl](#)

## 7.22 tools/Python/Functions.h File Reference

```
#include "PyFunc.h"
```

### Classes

- class [ReturnList< Type >](#)

## 7.23 tools/Python/PyFunc.h File Reference

```
#include <python2.7/Python.h>
#include <iostream>
```

### Classes

- class [PyFunc< Type >](#)

## 7.24 tools/Socket/client.c File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <errno.h>
#include <string.h>
#include <netdb.h>
#include <sys/types.h>
#include <netinet/in.h>
#include <sys/socket.h>
#include <arpa/inet.h>
```

### Macros

- [#define PORT](#) "3490"
- [#define MAXDATASIZE](#) 100

## Functions

- void \* [get\\_in\\_addr](#) (struct sockaddr \*sa)
- int [main](#) (int argc, char \*argv[])

## 7.24.1 Macro Definition Documentation

7.24.1.1 `#define MAXDATASIZE 100`

7.24.1.2 `#define PORT "3490"`

## 7.24.2 Function Documentation

7.24.2.1 void\* [get\\_in\\_addr](#) ( struct sockaddr \* sa )

7.24.2.2 int [main](#) ( int *argc*, char \* *argv*[] )

## 7.25 tools/SocketS/python\_client\_test.py File Reference

### Namespaces

- [python\\_client\\_test](#)

### Variables

- string [python\\_client\\_test.HOST](#) = '127.0.0.1'
- int [python\\_client\\_test.PORT](#) = 3490
- tuple [python\\_client\\_test.s](#) = socket.socket(socket.AF\_INET, socket.SOCK\_STREAM)
- tuple [python\\_client\\_test.data](#) = s.recv(4)

## 7.26 tools/SocketS/python\_server\_test.py File Reference

### Namespaces

- [python\\_server\\_test](#)

### Variables

- string [python\\_server\\_test.HOST](#) = '127.0.0.1'
- int [python\\_server\\_test.PORT](#) = 50007
- tuple [python\\_server\\_test.s](#) = socket.socket(socket.AF\_INET, socket.SOCK\_STREAM)
- tuple [python\\_server\\_test.data](#) = conn.recv(1024)

## 7.27 tools/SocketS/python\_ui.c File Reference

```
#include "python_ui.h"
```

## Functions

- int [handleUI](#) (int their\_socket)
- int [getNumLines](#) (FILE \*file)
- int [loadAccounts](#) (FILE \*file, struct [account](#) \*accounts, int num)
- int [loginSuccessful](#) ()

### 7.27.1 Function Documentation

7.27.1.1 int [getNumLines](#) ( FILE \* *file* )

7.27.1.2 int [handleUI](#) ( int *their\_socket* )

7.27.1.3 int [loadAccounts](#) ( FILE \* *file*, struct [account](#) \* *accounts*, int *num* )

7.27.1.4 int [loginSuccessful](#) ( )

## 7.28 tools/Socket/python\_ui.h File Reference

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

## Classes

- struct [account](#)

## Functions

- int [handleUI](#) (int their\_socket)
- int [loginSuccessful](#) ()
- int [getNumLines](#) (FILE \*file)
- int [loadAccounts](#) (FILE \*file, struct [account](#) \*accounts, int num)

### 7.28.1 Function Documentation

7.28.1.1 int [getNumLines](#) ( FILE \* *file* )

7.28.1.2 int [handleUI](#) ( int *their\_socket* )

7.28.1.3 int [loadAccounts](#) ( FILE \* *file*, struct [account](#) \* *accounts*, int *num* )

7.28.1.4 int [loginSuccessful](#) ( )

## 7.29 tools/Socket/server.c File Reference

```
#include "server_utils.h"
```

## Functions

- int [run\\_server](#) (int sock)

### 7.29.1 Function Documentation

7.29.1.1 `int run_server ( int sock )`

## 7.30 tools/Sockets/server.h File Reference

```
#include "server_utils.h"
#include "python_ui.h"
```

### Functions

- `int run_server` (int sock)

### 7.30.1 Function Documentation

7.30.1.1 `int run_server ( int sock )`

## 7.31 tools/Sockets/server\_utils.c File Reference

```
#include "server_utils.h"
```

### Functions

- `void sigchld_handler` (int s)
- `void * get_in_addr` (struct sockaddr \*sa)
- `int new_socket` (int portNum)
- `int receiveData` (int their\_socket, char \*data, int data\_size)

### 7.31.1 Function Documentation

7.31.1.1 `void* get_in_addr ( struct sockaddr * sa )`

7.31.1.2 `int new_socket ( int portNum )`

7.31.1.3 `int receiveData ( int their_socket, char * data, int data_size )`

7.31.1.4 `void sigchld_handler ( int s )`

## 7.32 tools/Sockets/server\_utils.h File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <errno.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <netdb.h>
#include <arpa/inet.h>
#include <sys/wait.h>
#include <signal.h>
```

### Classes

- struct [location](#)

### Macros

- #define [PORT](#) "3490"
- #define [BACKLOG](#) 10
- #define [UI](#) 1
- #define [APP](#) 2

### Functions

- int [receiveData](#) (int *their\_socket*, char \**data*, int *data\_size*)
- void [sigchld\\_handler](#) (int *s*)
- int [new\\_socket](#) (int *portNum*)
- void \* [get\\_in\\_addr](#) (struct sockaddr \**sa*)

#### 7.32.1 Macro Definition Documentation

7.32.1.1 #define [APP](#) 2

7.32.1.2 #define [BACKLOG](#) 10

7.32.1.3 #define [PORT](#) "3490"

7.32.1.4 #define [UI](#) 1

#### 7.32.2 Function Documentation

7.32.2.1 void\* [get\\_in\\_addr](#) ( struct sockaddr \* *sa* )

7.32.2.2 int [new\\_socket](#) ( int *portNum* )

7.32.2.3 int [receiveData](#) ( int *their\_socket*, char \* *data*, int *data\_size* )

7.32.2.4 void [sigchld\\_handler](#) ( int *s* )



# Index

- ~LinkedList
  - LinkedList, [12](#)
- ~Location
  - Location, [14](#)
- ~Matrix
  - Matrix, [15](#)
- ~Node
  - Graph.h, [24](#)
- ~PyFunc
  - PyFunc, [17](#)
- ~Pyl
  - Pyl, [18](#)
- ~Salesman
  - Salesman, [19](#)
- APP
  - server\_utils.h, [30](#)
- account, [11](#)
  - password, [11](#)
  - username, [11](#)
- addFunction
  - Pyl, [18](#)
- addLocation
  - Salesman, [19](#)
- appendNode
  - LinkedList, [12](#)
- BACKLOG
  - server\_utils.h, [30](#)
- back
  - LinkedList, [13](#)
- Backend/Salesman/Location.cpp, [21](#)
- Backend/Salesman/Location.h, [21](#)
- Backend/Salesman/Salesman.cpp, [21](#)
- Backend/Salesman/Salesman.h, [21](#)
- Backend/Salesman/test.cpp, [22](#)
  - main, [22](#)
- Backend/Salesman/test2.cpp, [23](#)
- basic\_window, [9](#)
  - main, [9](#)
- calculateRoute
  - Salesman, [19](#)
- callFunction
  - ReturnList, [19](#)
- client.c
  - get\_in\_addr, [27](#)
  - MAXDATASIZE, [27](#)
  - main, [27](#)
  - PORT, [27](#)
- Connection
  - Connection< Type >, [11](#)
  - Graph.h, [24](#)
- Connection< Type >, [11](#)
  - Connection, [11](#)
- currentNode
  - LinkedList, [13](#)
- data
  - python\_client\_test, [9](#)
  - python\_server\_test, [10](#)
- displayNodes
  - LinkedList, [12](#)
- displayNodesR
  - LinkedList, [12](#)
- distanceMatrix
  - Salesman, [19](#)
- emptyList
  - LinkedList, [12](#)
- example.cpp
  - main, [24](#)
- fromStart
  - LinkedList, [12](#)
- front
  - LinkedList, [13](#)
- funcList
  - Pyl, [18](#)
- get\_in\_addr
  - client.c, [27](#)
  - server\_utils.c, [29](#)
  - server\_utils.h, [30](#)
- getDistanceTo
  - Location, [14](#)
- getElement
  - Matrix, [15](#)
- getLat
  - Location, [14](#)
- getListLength
  - LinkedList, [12](#)
- getLong
  - Location, [14](#)
- getNextNode
  - LinkedList, [12](#)
- getNodeAt
  - LinkedList, [12](#)
- getNumLines
  - python\_ui.c, [28](#)

- python\_ui.h, 28
- Graph.h
  - ~Node, 24
  - Connection, 24
  - Node, 24
- HOST
  - python\_client\_test, 9
  - python\_server\_test, 10
- handleUI
  - python\_ui.c, 28
  - python\_ui.h, 28
- hasMatrix
  - Salesman, 20
- hello, 9
  - hello, 9
  - multiply, 9
- id
  - location, 13
- isStart
  - Location, 14
- isValid
  - PyFunc, 17
- latitude
  - location, 13
- LinkedList
  - ~LinkedList, 12
  - appendNode, 12
  - back, 13
  - currentNode, 13
  - displayNodes, 12
  - displayNodesR, 12
  - emptyList, 12
  - fromStart, 12
  - front, 13
  - getListLength, 12
  - getNextNode, 12
  - getNodeAt, 12
  - LinkedList, 12
  - LinkedList, 12
  - list\_length, 13
  - loopThroughFrom, 12
- LinkedList< Type >, 12
- LinkedList.h
  - Node, 25
- list\_length
  - LinkedList, 13
- loadAccounts
  - python\_ui.c, 28
  - python\_ui.h, 28
- Location, 13
  - ~Location, 14
  - getDistanceTo, 14
  - getLat, 14
  - getLong, 14
  - isStart, 14
  - Location, 14
  - locationID, 14
  - notStart, 14
  - printCoords, 14
  - setStart, 14
  - startLocation, 14
  - x, 14
  - y, 14
- location, 13
  - id, 13
  - latitude, 13
  - longitude, 13
- locationID
  - Location, 14
- locations
  - Salesman, 20
- loginSuccessful
  - python\_ui.h, 28
- loginSuccessful
  - python\_ui.c, 28
- longitude
  - location, 13
- loopThroughFrom
  - LinkedList, 12
- MAXDATASIZE
  - client.c, 27
- main
  - Backend/Salesman/test.cpp, 22
  - basic\_window, 9
  - client.c, 27
  - example.cpp, 24
  - main.cpp, 23
  - test2.cpp, 23
  - tests/test.cpp, 22
  - tools/SocketS/test.cpp, 22
  - tools/test.cpp, 23
- main.cpp, 23
  - main, 23
- Matrix, 15
  - ~Matrix, 15
  - getElement, 15
  - Matrix, 15
  - number\_of\_columns, 15
  - number\_of\_elements, 15
  - numberOfColumns, 15
  - setElement, 15
  - showMatrix, 15
  - values, 15
- multiply
  - hello, 9
- new\_socket
  - server\_utils.c, 29
  - server\_utils.h, 30
- next
  - Node, 16
- Node
  - Graph.h, 24
  - LinkedList.h, 25

- next, [16](#)
  - Node, [16](#)
  - previous, [16](#)
- Node< Type >, [16](#)
- notStart
  - Location, [14](#)
- number\_of\_columns
  - Matrix, [15](#)
- number\_of\_elements
  - Matrix, [15](#)
- numberOfColumns
  - Matrix, [15](#)
- pFunc
  - PyFunc, [17](#)
- pList
  - PyFunc, [17](#)
- pListItem
  - PyFunc, [17](#)
- pListLength
  - PyFunc, [17](#)
- pModule
  - PyFunc, [17](#)
- pName
  - PyFunc, [17](#)
- PORT
  - client.c, [27](#)
  - python\_client\_test, [10](#)
  - python\_server\_test, [10](#)
  - server\_utils.h, [30](#)
- pValue
  - PyFunc, [17](#)
- password
  - account, [11](#)
- populateMatrix
  - Salesman, [19](#)
- previous
  - Node, [16](#)
- printCoords
  - Location, [14](#)
- PyFunc
  - ~PyFunc, [17](#)
  - isValid, [17](#)
  - pFunc, [17](#)
  - pList, [17](#)
  - pListItem, [17](#)
  - pListLength, [17](#)
  - pModule, [17](#)
  - pName, [17](#)
  - pValue, [17](#)
  - PyFunc, [17](#)
  - PyFunc, [17](#)
  - validFunc, [17](#)
- PyFunc< Type >, [16](#)
- Pyl, [17](#)
  - ~Pyl, [18](#)
  - addFunction, [18](#)
  - funcList, [18](#)
  - Pyl, [18](#)
  - Pyl, [18](#)
- python\_client\_test, [9](#)
  - data, [9](#)
  - HOST, [9](#)
  - PORT, [10](#)
  - s, [10](#)
- python\_server\_test, [10](#)
  - data, [10](#)
  - HOST, [10](#)
  - PORT, [10](#)
  - s, [10](#)
- python\_ui.c
  - getNumLines, [28](#)
  - handleUI, [28](#)
  - loadAccounts, [28](#)
  - loginSuccessful, [28](#)
- python\_ui.h
  - getNumLines, [28](#)
  - handleUI, [28](#)
  - loadAccounts, [28](#)
  - loginSuccessful, [28](#)
- receiveData
  - server\_utils.c, [29](#)
  - server\_utils.h, [30](#)
- ReturnList
  - callFunction, [19](#)
  - ReturnList, [18](#)
  - ReturnList, [18](#)
- ReturnList< Type >, [18](#)
- route
  - Salesman, [20](#)
- run\_server
  - server.c, [29](#)
  - server.h, [29](#)
- s
  - python\_client\_test, [10](#)
  - python\_server\_test, [10](#)
- Salesman, [19](#)
  - ~Salesman, [19](#)
  - addLocation, [19](#)
  - calculateRoute, [19](#)
  - distanceMatrix, [19](#)
  - hasMatrix, [20](#)
  - locations, [20](#)
  - populateMatrix, [19](#)
  - route, [20](#)
  - Salesman, [19](#)
  - showLocations, [19](#)
  - showRoute, [19](#)
- server.c
  - run\_server, [29](#)
- server.h
  - run\_server, [29](#)
- server\_utils.c
  - get\_in\_addr, [29](#)
  - new\_socket, [29](#)
  - receiveData, [29](#)

- sigchld\_handler, [29](#)
- server\_utils.h
  - APP, [30](#)
  - BACKLOG, [30](#)
  - get\_in\_addr, [30](#)
  - new\_socket, [30](#)
  - PORT, [30](#)
  - receiveData, [30](#)
  - sigchld\_handler, [30](#)
  - UI, [30](#)
- setElement
  - Matrix, [15](#)
- setStart
  - Location, [14](#)
- showLocations
  - Salesman, [19](#)
- showMatrix
  - Matrix, [15](#)
- showRoute
  - Salesman, [19](#)
- sigchld\_handler
  - server\_utils.c, [29](#)
  - server\_utils.h, [30](#)
- startLocation
  - Location, [14](#)
- test2.cpp
  - main, [23](#)
- tests/basic\_window.py, [23](#)
- tests/example.cpp, [23](#)
- tests/hello.py, [24](#)
- tests/test.cpp, [22](#)
  - main, [22](#)
- tools/Graph.h, [24](#)
- tools/LinkedList.h, [24](#)
- tools/Matrices.cpp, [25](#)
- tools/Matrices.h, [25](#)
- tools/Python/.Functions.cpp, [25](#)
- tools/Python/.PyFunc.cpp, [25](#)
- tools/Python/.Pyl.cpp, [25](#)
- tools/Python/.Pyl.h, [26](#)
- tools/Python/Functions.h, [26](#)
- tools/Python/PyFunc.h, [26](#)
- tools/SocketS/client.c, [26](#)
- tools/SocketS/python\_client\_test.py, [27](#)
- tools/SocketS/python\_server\_test.py, [27](#)
- tools/SocketS/python\_ui.c, [27](#)
- tools/SocketS/python\_ui.h, [28](#)
- tools/SocketS/server.c, [28](#)
- tools/SocketS/server.h, [29](#)
- tools/SocketS/server\_utils.c, [29](#)
- tools/SocketS/server\_utils.h, [30](#)
- tools/SocketS/test.cpp, [22](#)
  - main, [22](#)
- tools/test.cpp, [22](#)
  - main, [23](#)
- UI
  - server\_utils.h, [30](#)
- username
  - account, [11](#)
- validFunc
  - PyFunc, [17](#)
- values
  - Matrix, [15](#)
- x
  - Location, [14](#)
- y
  - Location, [14](#)