bpistats

Generated by Doxygen 1.8.14

Contents

Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

Chapter 2

Class Index

2.1 Class List

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

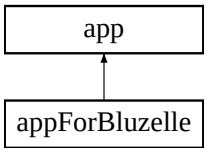
Chapter 3

Class Documentation

3.1 app Class Reference

`#include <app.h>`

Inheritance diagram for app:



Public Member Functions

- void run (int argc, const char **argv)
- virtual std::string helpInfo ()

Protected Attributes

- std::shared_ptr< dataRetriever > m_dataRetriever

  pointers to major components of the application
- std::shared_ptr< priceDatabase > **m_priceDatabase**
- std::shared_ptr< statisticsManager > **m_statisticsManager**
- std::shared_ptr< printer > **m_printer**
- std::shared_ptr< std::ostream > **m_out**

3.1.1 Detailed Description

An abstract class as a framework for a command line application, which can process and display price statistics. Derived classes would have details of the application, such as different statistics, data source, output format, etc.

3.1.2 Member Function Documentation

3.1.2.1 helpInfo()

```
std::string app::helpInfo ( )  [virtual]
```

Help information for user

Returns

: help information as a string

3.1.2.2 run()

```
void app::run (
            int argc,
            const char ** argv )
```

Main execution routine

Parameters

argc	number of arguments for program execution
argv	pointers to arguments for program execution

Returns

: none

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

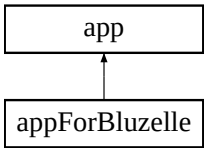
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/app.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/app.cpp

3.2 appForBluzelle Class Reference

An instance of the application set up according to requirements by Bluzelle.

`#include <app.h>`

Inheritance diagram for appForBluzelle:



Additional Inherited Members

3.2.1 Detailed Description

An instance of the application set up according to requirements by Bluzelle.

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

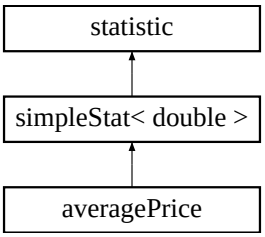
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/app.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/app.cpp

3.3 averagePrice Class Reference

The average price for the time span.

`#include <statistic.h>`

Inheritance diagram for averagePrice:



Public Member Functions

- virtual void accumulateDetail (const pricePoint _data) override
- virtual void calculate () override

Additional Inherited Members

3.3.1 Detailed Description

The average price for the time span.

3.3.2 Member Function Documentation

3.3.2.1 accumulateDetail()

```
virtual void averagePrice::accumulateDetail (
            const pricePoint _data )  [inline], [override], [virtual]
```

Details for accumulation; should be overriden according to specific statistic

Parameters

_data	data point

Returns

: none

Implements simpleStat< double >.

3.3.2.2 calculate()

```
virtual void averagePrice::calculate ( )  [inline], [override], [virtual]
```

Calculate statistic to get ready for exporting to string

Returns

: none

Implements simpleStat< double >.

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

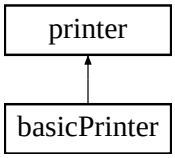
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h

3.4 basicPrinter Class Reference

A printer with simple line-separated layout.

```
#include <printer.h>
```

Inheritance diagram for basicPrinter:



Public Member Functions

- virtual void print (std::list< std::list< std::array< std::string, 2 >>> _input, std::ostream &_output) override

3.4.1 Detailed Description

A printer with simple line-separated layout.

3.4.2 Member Function Documentation

3.4.2.1 print()

```
void basicPrinter::print (
            std::list< std::list< std::array< std::string, 2 >>> _input,
            std::ostream & _output )  [override], [virtual]
```

Print data into an output stream

Parameters

_input	a list with each element representing one statistic; each statistic has a list of results; each result is pair of attribute name and value
_output	an reference to an std::ostream object taking the output

Returns

: none

Implements printer.

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

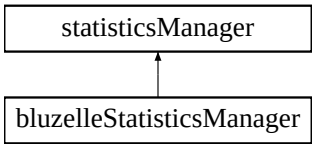
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/printer.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/printer.cpp

3.5 bluzelleStatisticsManager Class Reference

A statistics manager customized to the statistics asked by bluzelle.

```
#include <statistic.h>
```

Inheritance diagram for bluzelleStatisticsManager:



Additional Inherited Members

3.5.1 Detailed Description

A statistics manager customized to the statistics asked by bluzelle.

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

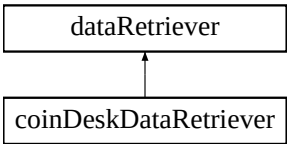
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.cpp

3.6 coinDeskDataRetriever Class Reference

Special dataRetriever dealing with data from coindesk.

`#include <dataRetriever.h>`

Inheritance diagram for coinDeskDataRetriever:



Additional Inherited Members

3.6.1 Detailed Description

Special dataRetriever dealing with data from coindesk.

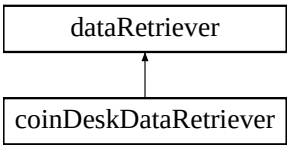
The documentation for this class was generated from the following files:

- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/dataRetriever.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/dataRetriever.cpp

3.7 dataRetriever Class Reference

`#include <dataRetriever.h>`

Inheritance diagram for dataRetriever:



Public Member Functions

- bool retrieveFromString (std::string _source, std::shared_ptr< priceDatabase > _target)
- bool retrieveFromFile (std::string _fileName, std::shared_ptr< priceDatabase > _target)
- bool retrieveFromWeb (boost::gregorian::date _start, boost::gregorian::date _end, std::shared_ptr< priceDatabase > _target)

Protected Attributes

- std::string m_rawData

  string that stores raw data retrieved and ready for processing

3.7.1 Detailed Description

An abstract class that retrieves price data from various sources (e.g. string, file or web) and parse them into a ready-to-use format. Derived classes need to specify formats related to raw data for processing.

3.7.2 Member Function Documentation

3.7.2.1 retrieveFromFile()

```
bool dataRetriever::retrieveFromFile (
            std::string _fileName,
            std::shared_ptr< priceDatabase > _target )
```

Retrieve and process data from a file

Parameters

_fileName	name of the file containing raw data
_target	pointer to where the process data will be saved

Returns

: if successful

3.7.2.2 retrieveFromString()

```
bool dataRetriever::retrieveFromString (
            std::string _source,
            std::shared_ptr< priceDatabase > _target )
```

Retrieve and process data from a string

Parameters

_source	raw data as a string
_target	pointer to where the process data will be saved

Returns

: if successful

3.7.2.3 retrieveFromWeb()

```
bool dataRetriever::retrieveFromWeb (
            boost::gregorian::date _start,
            boost::gregorian::date _end,
            std::shared_ptr< priceDatabase > _target )
```

Retrieve and process data from the web

Parameters

_start	start date of time span of interest
_end	end date of time span of interest
_target	pointer to where the process data will be saved

Returns

: if successful

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

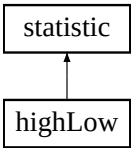
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/dataRetriever.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/dataRetriever.cpp

3.8 highLow Class Reference

High/low prices with dates.

```
#include <statistic.h>
```

Inheritance diagram for highLow:



Public Member Functions

- virtual void accumulateDetail (const pricePoint _data) override
- virtual void toStringsDetail () override

Additional Inherited Members

3.8.1 Detailed Description

High/low prices with dates.

3.8.2 Member Function Documentation

3.8.2.1 accumulateDetail()

```
void highLow::accumulateDetail (
            const pricePoint _data )  [override], [virtual]
```

Details for accumulation; should be overriden according to specific statistic

Parameters

_data	data point

Returns

: none

Implements statistic.

3.8.2.2 toStringsDetail()

```
void highLow::toStringsDetail ( )  [override], [virtual]
```

Details for output statistic to strings; should be overriden according to specific statistic

Returns

: none

Implements statistic.

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

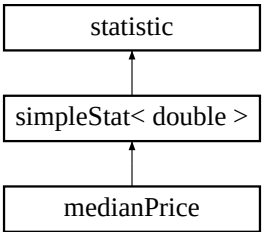
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.cpp

3.9 medianPrice Class Reference

The median price for the time span.

`#include <statistic.h>`

Inheritance diagram for medianPrice:



Public Member Functions

- virtual void accumulateDetail (const pricePoint _data) override
- virtual void calculate () override

Additional Inherited Members

3.9.1 Detailed Description

The median price for the time span.

3.9.2 Member Function Documentation

3.9.2.1 accumulateDetail()

```
virtual void medianPrice::accumulateDetail (
            const pricePoint _data )  [inline], [override], [virtual]
```

Details for accumulation; should be overriden according to specific statistic

Parameters

_data	data point

Returns

: none

Implements simpleStat< double >.

3.9.2.2 calculate()

```
void medianPrice::calculate ( )  [override], [virtual]
```

Calculate statistic to get ready for exporting to string

Returns

: none

Implements simpleStat< double >.

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

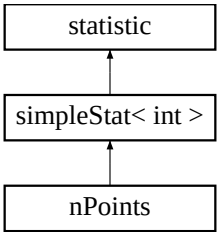
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.cpp

3.10 nPoints Class Reference

The number of data points in the time span.

```
#include <statistic.h>
```

Inheritance diagram for nPoints:



Additional Inherited Members

3.10.1 Detailed Description

The number of data points in the time span.

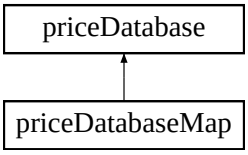
The documentation for this class was generated from the following file:

- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h

3.11 priceDatabase Class Reference

`#include <priceDatabase.h>`

Inheritance diagram for priceDatabase:



Public Member Functions

- virtual void push (pricePoint _in)=0
- virtual std::vector< pricePoint > getAll ()=0

3.11.1 Detailed Description

Abstract class for price data. Classes can be derived to satisfy special needs such as fast lookup of special price/date pattern for certain statistics.

3.11.2 Member Function Documentation

3.11.2.1 getAll()

```
virtual std::vector<pricePoint> priceDatabase::getAll ( )  [pure virtual]
```

Get all data in the database

Returns

: a vector of date-price pairs

Implemented in priceDatabaseMap.

3.11.2.2 push()

```
virtual void priceDatabase::push (
            pricePoint _in )  [pure virtual]
```

Push a date-price pair into the database

Parameters

↩ _↩ *in*	input data

Returns

: none

Implemented in priceDatabaseMap.

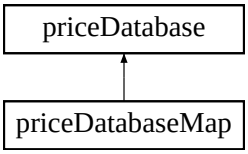
The documentation for this class was generated from the following file:

- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/priceDatabase.h

3.12 priceDatabaseMap Class Reference

`#include <priceDatabase.h>`

Inheritance diagram for priceDatabaseMap:



Public Member Functions

- virtual void push (pricePoint _in) override
  if there are price points with duplicated dates, only the first occurred is being pushed
- virtual std::vector< pricePoint > getAll () override
  returned data is sorted by date

Protected Attributes

- std::map< boost::gregorian::date, double > m_data
  date-price map storing price data internally

3.12.1 Detailed Description

Basic class for storing price data using map with date as key and price as value. The aim is to maintain the ordinary structure of raw data for simplicity and versatility.

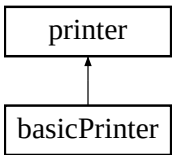
The documentation for this class was generated from the following files:

- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/priceDatabase.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/priceDatabase.cpp

3.13 printer Class Reference

`#include <printer.h>`

Inheritance diagram for printer:



Public Member Functions

- virtual void print (std::list< std::list< std::array< std::string, 2 >>> _input, std::ostream &_output)=0

3.13.1 Detailed Description

An abstract class responsible for output of statistics. Derived classes would output the statistics with different layouts.

3.13.2 Member Function Documentation

3.13.2.1 print()

```
virtual void printer::print (
            std::list< std::list< std::array< std::string, 2 >>> _input,
            std::ostream & _output )  [pure virtual]
```

Print data into an output stream

Parameters

_input	a list with each element representing one statistic; each statistic has a list of results; each result is pair of attribute name and value
_output	an reference to an std::ostream object taking the output

Returns

: none

Implemented in basicPrinter.

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

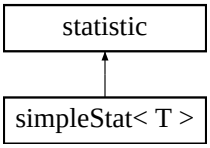
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/printer.h

3.14 simpleStat< T > Class Template Reference

A abtract class template for simple statistics with single attribute.

`#include <statistic.h>`

Inheritance diagram for simpleStat< T >:



Protected Attributes

- std::string m_name

  attribute name; needs to be defined in children's constructor
- T m_data

  attribute value, to be calculated

Additional Inherited Members

3.14.1 Detailed Description

template<class T>
class simpleStat< T >

A abtract class template for simple statistics with single attribute.

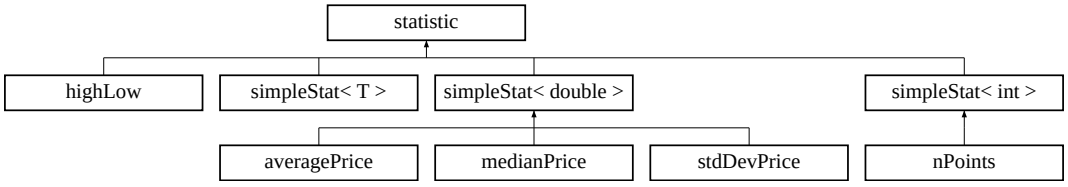
The documentation for this class was generated from the following files:

- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.cpp

3.15 statistic Class Reference

`#include <statistic.h>`

Inheritance diagram for statistic:



Public Member Functions

- void accumulate (const pricePoint _data)
- decltype(m_output) toStrings ()

Protected Attributes

- unsigned int m_count = 0

  number of data points accumulated
- std::list< std::array< std::string, 2 > > m_output

3.15.1 Detailed Description

Abstract class for statistics calculated from accumulated data. Non-virtual functions define the basic work flow. Derived classes should define detailed calculation methods of particular statistics.

3.15.2 Member Function Documentation

3.15.2.1 accumulate()

```
void statistic::accumulate (
            const pricePoint _data )  [inline]
```

Add one data point for accumulation

Parameters

_data	data point

Returns

: none

3.15.2.2 toStrings()

```
std::list< std::array< std::string, 2 > > statistic::toStrings ( )
```

Output statistic to strings

Returns

: a list of atribute name-value pairs

3.15.3 Member Data Documentation

3.15.3.1 m_output

```
std::list<std::array<std::string, 2> > statistic::m_output  [protected]
```

member for manipulation of output strings; contains a list of attributes of the statistic; column 1=name,column 1=value; needs to be initialized in constructor of children with the first column containing attribute name

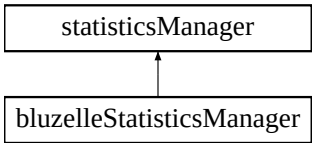
The documentation for this class was generated from the following files:

- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.cpp

3.16 statisticsManager Class Reference

```
#include <statistic.h>
```

Inheritance diagram for statisticsManager:



Public Member Functions

- void accumulate (const pricePoint _data)
- std::list< std::list< std::array< std::string, 2 > > > print ()

Protected Attributes

- std::list< std::unique_ptr< statistic > > m_statistics
  collection of statistics

3.16.1 Detailed Description

Abstract class that manages the initialization, accumulation, output, etc of a collection of statistics. Constructors of derived classes should define what statistics are to be managed.

3.16.2 Member Function Documentation

3.16.2.1 accumulate()

```
void statisticsManager::accumulate (
            const pricePoint _data )
```

Add one data point for accumulation for each statistic

Parameters

_data	data point

Returns

: none

3.16.2.2 print()

```
std::list< std::list< std::array< std::string, 2 > > > statisticsManager::print ( )
```

Output statistics to strings

Returns

: a list of outputs of statistic::toStrings()

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

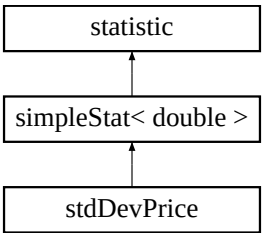
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h
- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.cpp

3.17 stdDevPrice Class Reference

The standard deviation of the prices for the time span.

```
#include <statistic.h>
```

Inheritance diagram for stdDevPrice:



Public Member Functions

- virtual void accumulateDetail (const pricePoint _data) override
- virtual void calculate () override

Additional Inherited Members

3.17.1 Detailed Description

The standard deviation of the prices for the time span.

3.17.2 Member Function Documentation

3.17.2.1 accumulateDetail()

```
virtual void stdDevPrice::accumulateDetail (
            const pricePoint _data )  [inline], [override], [virtual]
```

Details for accumulation; should be overriden according to specific statistic

Parameters

_data	data point

Returns

: none

Implements simpleStat< double >.

3.17.2.2 calculate()

```
virtual void stdDevPrice::calculate ( )  [inline], [override], [virtual]
```

Calculate statistic to get ready for exporting to string

Returns

: none

Implements simpleStat< double >.

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

- C:/Users/Shangwei/source/repos/bpistats/bpistats/stable version/src/statistic.h

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