RandAnything

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Chapter 1

Class Index

1.1 Class List

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

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Chapter 2

File Index

2.1 File List

Here is a list of all documented files with brief descriptions:

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Chapter 3

Class Documentation

3.1 RandAnything< ValueType > Class Template Reference

Generate a random value of any numeric type or std::string.

`#include <RandAnything.h>`

Inheritance diagram for RandAnything< ValueType >:

Collaboration diagram for RandAnything< ValueType >:

Public Member Functions

- RandAnything ()
- ValueType operator() (const ValueType &low, const ValueType &high) const

3.1.1 Detailed Description

template<typename ValueType>class RandAnything< ValueType >

Generate a random value of any numeric type or std::string.

Generate (almost) any type of uniform random value in a range [low,high] (for integral values) or [low, high) (for floating-point values). Just instantiate the class with whatever type you want as the template argument, then use it as a function where the arguments are the lower and upper bounds of the range for the resulting random value. To generate `std::string` values, RandAnything<std::string> specialization.

Template Parameters

ValueType	Type of value that should be generated. Supports integral types, Real-number types, and `std::string`.

Definition at line 59 of file RandAnything.h.

3.1.2 Constructor & Destructor Documentation

3.1.2.1 template<typename ValueType > RandAnything< ValueType >::RandAnything ( )

constructs the random number generator and prepares it for use (seeding included)

Template Parameters

ValueType	Type of value that should be generated. Supports integral types, Real-number types, and `std::string`.

Definition at line 78 of file RandAnything.h.

3.1.3 Member Function Documentation

3.1.3.1 template<typename ValueType> ValueType RandAnything< ValueType >::operator() (const ValueType & *low*, const ValueType & *high*) const

Generate random value in range [low,high].

Parameters

low	smallest value that can be generated
high	largest value that can be generated

Template Parameters

ValueType	Type of value that should be generated. Supports integral types, Real-number types, and `std::string`.

Returns

a (uniform) random number in the range [low, high]

Definition at line 102 of file RandAnything.h.

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

- RandAnything.h

3.2 RandAnything< std::string > Class Template Reference

RandAnything specialization for std::string generation.

`#include <RandAnything.h>`

Collaboration diagram for RandAnything< std::string >:

Public Member Functions

- std::string operator() (int length, std::string alphabet="") const

  generate a random `std::string` of a specific length from a chosen alphabet
- std::string operator() (int min_length, int max_length, std::string alphabet="") const

  generate a random `std::string` in a range of lengths from a chosen alphabet
- std::string alphabet_printable () const

  generates the alphabet of all printable (non-whitespace) characters
- std::string alphabet_alphaAllCase () const

  generates the alphabet of all alphabetical characters (upper- and lower-case)
- std::string alphabet_alphaLowerCase () const

generates the alphabet of all lowercase alphabetical characters

- std::string alphabet_alphaUpperCase () const

  generates the alphabet of all uppercase alphabetical characters

- std::string alphabet_alphaNumeric () const

  generates the alphabet of all alphabetical (upper- and lower-case) and numeric digits

- std::string alphabet_numeric () const

  generates the alphabet of all numeric characters

- std::string alphabet_punctuation () const

  generates the alphabet of all punctuation and symbol characters (all non-whitespace printable characters that are not alphabetical or numeric)

- std::string alphabet_hexadecimal () const

  generates the alphabet of all hexadecimal digits [0,f]

3.2.1 Detailed Description

template<>class RandAnything< std::string >

RandAnything specialization for std::string generation.

Generates std::strings with either a fixed length or with a range of lengths given an alphabet of characters to choose from (or using all printable characters). This class also exposes methods to generate several useful alphabets.

Template Parameters

[description]	

Definition at line 199 of file RandAnything.h.

3.2.2 Member Function Documentation

3.2.2.1 std::string RandAnything< std::string >::alphabet_alphaAllCase ( ) const

generates the alphabet of all alphabetical characters (upper- and lower-case)

Returns

a `std::string` consisting of all alphabetical characters

Definition at line 290 of file RandAnything.h.

3.2.2.2 std::string RandAnything< std::string >::alphabet_alphaLowerCase ( ) const

generates the alphabet of all lowercase alphabetical characters

Returns

a `std::string` consisting of all lowercase alphabetical characters

Definition at line 260 of file RandAnything.h.

3.2.2.3 std::string RandAnything< std::string >::alphabet_alphaNumeric ( ) const

generates the alphabet of all alphabetical (upper- and lower-case) and numeric digits

Returns

a `std::string` consisting of all alphabetical characters and digits

Definition at line 297 of file RandAnything.h.

3.2.2.4 std::string RandAnything< std::string >::alphabet_alphaUpperCase ( ) const

generates the alphabet of all uppercase alphabetical characters

Returns

a `std::string` consisting of all uppercase alphabetical characters

Definition at line 270 of file RandAnything.h.

3.2.2.5 std::string RandAnything< std::string >::alphabet_hexadecimal ( ) const

generates the alphabet of all hexadecimal digits [0,f]

Returns

a `std::string` consisting of all hexadecimal digits [0,f]

Definition at line 328 of file RandAnything.h.

3.2.2.6 std::string RandAnything< std::string >::alphabet_numeric ( ) const

generates the alphabet of all numeric characters

Returns

a `std::string` consisting of all numeric characters

Definition at line 280 of file RandAnything.h.

3.2.2.7 std::string RandAnything< std::string >::alphabet_printable ( ) const

generates the alphabet of all printable (non-whitespace) characters

Returns

a `std::string` consisting of all printable (non-whitespace) characters

Definition at line 321 of file RandAnything.h.

3.2.2.8 std::string RandAnything< std::string >::alphabet_punctuation ( ) const

generates the alphabet of all punctuation and symbol characters (all non-whitespace printable characters that are not alphabetical or numeric)

Returns

a `std::string` consisting of all punctuation and symbol printable characters

Definition at line 305 of file RandAnything.h.

3.2.2.9 std::string RandAnything< std::string >::operator() (int *length*, std::string *alphabet* = " ") const [inline]

generate a random `std::string` of a specific length from a chosen alphabet

Generates a `std::string` of characters containing characters chosen at random from `alphabet` (uniform choice, with replacement). The length of the generated string is given by `length`.

Parameters

length	length of generated string
alphabet	set of characters that may appear in the generated string

Returns

a random string of characters from `alphabet` whose length is given by `length`

Definition at line 232 of file RandAnything.h.

3.2.2.10 std::string RandAnything< std::string >::operator() (int *min_length*, int *max_length*, std::string *alphabet* = " ") const

generate a random `std::string` in a range of lengths from a chosen alphabet

Generates a `std::string` of characters containing characters chosen at random from `alphabet` (uniform choice, with replacement). The minimum and maximum possible lengths for the generated string are given by `min_length` and `max_length`, respectively.

Parameters

min_length	shortest possible string to generate
max_length	longest possible string to generate
alphabet	set of characters that may appear in the generated string

Returns

a random string of characters from `alphabet` whose length is in the range [`min_length`, `max_length`]

Definition at line 250 of file RandAnything.h.

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

- RandAnything.h

Chapter 4

File Documentation

4.1 RandAnything.h File Reference

```
#include <functional>
#include <memory>
#include <random>
#include <type_traits>
```

Include dependency graph for RandAnything.h:

Classes

- class RandAnything< ValueType >

  Generate a random value of any numeric type or std::string.
- class RandAnything< std::string >

  RandAnything specialization for std::string generation.

4.1.1 Detailed Description

Defines a class RandAnything that will allow you to quickly generate a quality pseudo-random value of (almost) any standard type without worrying about STL type names or doing a lot of setup.

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