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5.1 Indexing

Library for stemming words down to their root words.

5.1.1 Detailed Description

Library for stemming words down to their root words.

Date

2003-2016

Copyright

Author

Oleander Software, Ltd.

5.2 Debugging

Functions used for debugging.

Macros

- #define **CASSERT**(x) typedef char __C_ASSERT__[(x) ? 1 : -1]
- #define **NON_UNIT_TEST_ASSERT**(x) assert(x)
- #define **DUMP_TO_FILE**(x, file) __debug::__dump_to_file((x), (file))

5.2.1 Detailed Description

Functions used for debugging.

Date

2008-2015

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Oleander Software, Ltd.

Author

Oleander Software, Ltd.

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5.2.2 Macro Definition Documentation

5.2.2.1 #define CASSERT(*x*) typedef char __C_ASSERT__[(x) ? 1 : -1]

Validates that an expression is true at compile time. If the expression is false then compilation will fail.

5.2.2.2 #define DUMP_TO_FILE(*x, file*) __debug::__dump_to_file((x), (file))

Prints data stream to a specified file.

5.2.2.3 #define NON_UNIT_TEST_ASSERT(*x*) assert(x)

If unit test symbol (__UNITTEST) is defined then does nothing; otherwise asserts. This is useful for suppressing asserts when unit testing.

5.3 Stemming

Library for stemming words down to their root words.

Namespaces

- **stemming**

  Namespace for stemming classes.

5.3.1 Detailed Description

Library for stemming words down to their root words.

Date

2003-2015

Copyright

Oleander Software, Ltd.

Author

Oleander Software, Ltd.

5.4 Mathematics

Math and statistics classes.

Classes

- class **double_less**

  "less" interface for double values.

Functions

- template<typename T >
  T **safe_modulus** (const T dividend, const T divisor)

  Modulus operation that checks for modulus by zero or into zero (returns zero for those situations).
- template<typename T >
  T **safe_divide** (const T dividend, const T divisor)

  Division operation that checks for division by zero or into zero (returns zero for those situations).
- bool **compare_doubles** (const double actual, const double expected, const double delta=1e-6)

  Compares two double values (given the specified precision).
- bool **compare_doubles_less** (const double left, const double right, const double delta=1e-6)

  Compares two double values for less than (given the specified precision).
- bool **compare_doubles_less_or_equal** (const double left, const double right, const double delta=1e-6)

  Compares two double values for less than or equal to (given the specified precision).
- bool **compare_doubles_greater** (const double left, const double right, const double delta=1e-6)

  Compares two double values for greater than (given the specified precision).
- bool **double_less::operator()** (const double &left, const double &right) const
- template<typename T >
  bool **int_to_bool** (const T intVal)

  Converts an integral type to a boolean. Compilers complain about directly assigning an int to a bool (casting doesn't help either), so this works around that.

5.4.1 Detailed Description

Math and statistics classes.

Date

2004-2015

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Oleander Software, Ltd.

Author

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5.4.2 Function Documentation

5.4.2.1 bool compare_doubles (const double *actual,* const double *expected,* const double *delta =* 1e-6) [inline]

Compares two double values (given the specified precision).

Parameters

actual	The value being reviewed.
expected	The expected value to compare against.
delta	The tolerance of how different the values can be. The larger the delta, the higher precision used in the comparison.

Returns

True if the value matches the expected value.

5.4.2.2 bool compare_doubles_greater (const double *left,* const double *right,* const double *delta* = `1e-6`) [inline]

Compares two double values for greater than (given the specified precision).

Parameters

left	The value being reviewed.
right	The other value to compare against.
delta	The tolerance of how different the values can be. The larger the delta, the higher precision used in the comparison.

Returns

True if the value is greater than the other value.

5.4.2.3 bool compare_doubles_less (const double *left,* const double *right,* const double *delta* = `1e-6`) [inline]

Compares two double values for less than (given the specified precision).

Parameters

left	The value being reviewed.
right	The other value to compare against.
delta	The tolerance of how different the values can be. The larger the delta, the higher precision used in the comparison.

Returns

True if the value is less than the other value.

5.4.2.4 bool compare_doubles_less_or_equal (const double *left,* const double *right,* const double *delta* = `1e-6`) [inline]

Compares two double values for less than or equal to (given the specified precision).

Parameters

left	The value being reviewed.
right	The other value to compare against.
delta	The tolerance of how different the values can be. The larger the delta, the higher precision used in the comparison.

Returns

True if the value is less than or equal to the other value.

5.4.2.5 template<typename T > bool int_to_bool (const T *intVal*) [inline]

Converts an integral type to a boolean. Compilers complain about directly assigning an int to a bool (casting doesn't help either), so this works around that.

Parameters

intVal	The integer value to convert to a boolean.

Returns

The boolean equivalent of the integer.

5.4.2.6 template<typename T > T safe_divide (const T *dividend,* const T *divisor*) [inline]

Division operation that checks for division by zero or into zero (returns zero for those situations).

Parameters

dividend	The dividend (i.e., the value being divided).
divisor	The divisor (i.e., the value dividing by).

Returns

The quotient of the division operation, or zero if one of the values was invalid.

Note

If the template type has floating point precision, then the result will retain its precision.

5.4.2.7 template<typename T > T safe_modulus (const T *dividend,* const T *divisor*) [inline]

Modulus operation that checks for modulus by zero or into zero (returns zero for those situations).

Parameters

dividend	The dividend (i.e., the value being divided).
divisor	The divisor (i.e., the value dividing by).

Returns

The remainder of the modulus operation, or zero if one of the values was invalid.

5.5 StringOperations

Classes

- class **string_util::string_tokenize**< **T** >
  Tokenizes a string using a set of delimiters.

5.5.1 Detailed Description

Classes for string operations.

5.6 Utilities

Utility classes.

Classes

- class **within**< **T** >

  Determines if a value is within a given range.
- class **comparable_first_pair**< **T1, T2** >

  pair interface that compares on the first item
- class **backup_variable**< **T** >

  class that remembers its original value from construction.

Macros

- #define **size_of_array**(x) (sizeof(x)/sizeof(x[0]))

Functions

- template<typename T >
  T **within_range** (const T start, const T end, const T value)
- template<typename T >
  bool **is_within** (const T value, const T first, const T second)
- **within**< **T** >**::within** (T range_begin, T range_end)
- bool **within**< **T** >**::operator()** (T value) const
- **comparable_first_pair**< **T1, T2** >**::comparable_first_pair** (const T1 &t1, const T2 &t2)
- bool **comparable_first_pair**< **T1, T2** >**::operator**< (const **comparable_first_pair**< T1, T2 > &that) const
- bool **comparable_first_pair**< **T1, T2** >**::operator==** (const **comparable_first_pair**< T1, T2 > &that) const
- **backup_variable**< **T** >**::backup_variable** (const T &value)
- void **backup_variable**< **T** >**::operator=** (const T &value)
- bool **backup_variable**< **T** >**::operator==** (const T &value) const
- bool **backup_variable**< **T** >**::operator**< (const T &value) const
- bool **backup_variable**< **T** >**::operator**<**=** (const T &value) const
- bool **backup_variable**< **T** >**::operator**> (const T &value) const
- bool **backup_variable**< **T** >**::operator**>**=** (const T &value) const
- void **backup_variable**< **T** >**::operator+** (const T &value)
- void **backup_variable**< **T** >**::operator+=** (const T &value)
- void **backup_variable**< **T** >**::operator-** (const T &value)
- void **backup_variable**< **T** >**::operator-=** (const T &value)
- **backup_variable**< **T** >**::operator const T** () const
- T * **backup_variable**< **T** >**::operator&** ()
- const T & **backup_variable**< **T** >**::get_value** () const
- T & **backup_variable**< **T** >**::get_value** ()
- bool **backup_variable**< **T** >**::has_changed** () const
- template<typename T >
  bool **is_either** (const T value, const T first, const T second)

  Determines if a given value is either of two other given values.
- template<typename T >
  bool **is_neither** (const T value, const T first, const T second)

Determines if a given value is neither of two other given values.

- template<typename inT , typename outT , typename member_extract_functorT >
  outT **copy_member** (inT begin, inT end, outT dest, member_extract_functorT get_value)
- template<typename inT , typename outT , typename _Pr , typename member_extract_functorT >
  outT **copy_member_if** (inT begin, inT end, outT dest, _Pr meets_criteria, member_extract_functorT get_↩ value)

  Copies a member value between objects based on specified criteria.

5.6.1 Detailed Description

Utility classes.

Date

2003-2015

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Oleander Software, Ltd.

Author

Oleander Software, Ltd.

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5.6.2 Macro Definition Documentation

5.6.2.1 #define size_of_array(*x*) (sizeof(x)/sizeof(x[0]))

Returns

The item count of an array.

Note

Do not call this on an empty array. Also, this is meant for arrays of intrinsic types only.

5.6.3 Function Documentation

5.6.3.1 template<typename inT , typename outT , typename member_extract_functorT > outT copy_member (inT *begin,* inT *end,* outT *dest,* member_extract_functorT *get_value*) [inline]

calls a member function of elements in a container for each element in another container

5.6.3.2 template<typename T > bool is_within (const T *value,* const T *first,* const T *second*) [inline]

Returns

True if a value is within a given range.

5.6.3.3 template<typename T > bool within< T >::operator() (T *value*) const [inline]

Returns

True if value is within the valid range of values.

Parameters

value	The value to review.

5.6.3.4 template<typename T > within< T >::within (T *range_begin,* T *range_end*) [inline]

Constructor.

Parameters

range_begin	The beginning of the valid range.
range_end	The end of the valid range.

5.6.3.5 template<typename T > T within_range (const T *start,* const T *end,* const T *value*) [inline]

Range checks a given value and truncates it if it is too high or low.

Parameters

start	The start of the valid range.
end	The end of the valid range.
value	The value to be range checked.

Returns

The value if within the valid range. If it was too large, then the end of the range is returned. If too low, then the start of the range is returned.

Chapter 6

Namespace Documentation

6.1 stemming Namespace Reference

Namespace for stemming classes.

Classes

- class **english_stem**

  English stemmer.
- class **no_op_stem**
- class **stem**

  The base class for language-specific stemmers.

Enumerations

- enum **stemming_type** {
  no_stemming, **danish**, **dutch**, **english**,
  finnish, **french**, **german**, **italian**,
  norwegian, **portuguese**, **spanish**, **swedish**,
  STEMMING_TYPE_COUNT }

Variables

- const wchar_t **UPPER_Y_HASH** = 7
- const wchar_t **LOWER_Y_HASH** = 9
- const wchar_t **UPPER_I_HASH** = 10
- const wchar_t **LOWER_I_HASH** = 11
- const wchar_t **UPPER_U_HASH** = 12
- const wchar_t **LOWER_U_HASH** = 13

6.1.1 Detailed Description

Namespace for stemming classes.

6.2 string_util Namespace Reference

Classes

- class **equal_basic_string_i_compare**
- class **equal_string_compare**
- class **equal_string_i_compare**
- class **less_basic_string_compare**
- class **less_string_compare**
- class **less_string_i_compare**
- class **less_string_n_compare**
- class **less_string_natural_order_i_compare**
- class **less_string_ni_compare**
- class **string_tokenize**

  Tokenizes a string using a set of delimiters.
- class **string_trim**

  trims whitespace from around a string

Functions

- wchar_t **tolower_western** (const wchar_t c)

  lowercases any Western European alphabetic characters
- double **strtol** (const char ∗str, char ∗∗strend, int radix)
- double **strtol** (const wchar_t ∗str, wchar_t ∗∗strend, int radix)
- double **strtod** (const char ∗str, char ∗∗strend)

  strtod
- double **strtod** (const wchar_t ∗str, wchar_t ∗∗strend)
- int **atoi** (const char ∗str)

  atoi
- int **atoi** (const wchar_t ∗str)
- long **atol** (const char ∗str)

  atol
- long **atol** (const wchar_t ∗str)
- int **tolower** (char c)

  tolower
- wchar_t **tolower** (wchar_t c)
- int **toupper** (char c)

  toupper
- wchar_t **toupper** (wchar_t c)
- template<typename T >
  T ∗ **memset** (T ∗dest, int c, size_t count)

  memset
- char ∗ **memset** (char ∗dest, int c, size_t count)
- wchar_t ∗ **memset** (wchar_t ∗dest, int c, size_t count)
- const char ∗ **strchr** (const char ∗s, int ch)

  strchr
- const wchar_t ∗ **strchr** (const wchar_t ∗s, wchar_t ch)
- const char ∗ **strstr** (const char ∗s1, const char ∗s2)

  strstr
- const wchar_t ∗ **strstr** (const wchar_t ∗s1, const wchar_t ∗s2)
- size_t **strcspn** (const char ∗string1, const char ∗string2)

strcspn

- size_t **strcspn** (const wchar_t *string1, const wchar_t *string2)
- char * **strncat** (char *strDest, const char *strSource, size_t count)

  strncat
- wchar_t * **strncat** (wchar_t *strDest, const wchar_t *strSource, size_t count)
- int **wctomb** (wchar_t *s, wchar_t wc)

  wctomb
- int **wctomb** (char *s, wchar_t wc)
- size_t **strlen** (const char *text)
- size_t **strlen** (const wchar_t *text)
- int **strcmp** (const char *string1, const char *string2)

  strcmp
- int **strcmp** (const wchar_t *string1, const wchar_t *string2)
- int **strncmp** (const char *string1, const char *string2, size_t count)

  strncmp
- int **strncmp** (const wchar_t *string1, const wchar_t *string2, size_t count)
- char * **strncpy** (char *strDest, const char *strSource, size_t count)

  strncpy
- wchar_t * **strncpy** (wchar_t *strDest, const wchar_t *strSource, size_t count)
- template<typename charT >
  int **itoa** (long value, charT *out, const size_t length)

  functions not available in ANSI C
- template<typename T >
  bool **is_space** (const T ch)
- template<typename T >
  bool **is_hex_digit** (const T ch)
- template<typename T >
  int **axtoi** (const T *hexStr, size_t length=-1)
- template<typename T >
  size_t **strnlen** (const T *str, const size_t maxlen)
- template<typename T >
  const T * **stristr** (const T *string, const T *strSearch)

  search for substring in string (case-insensitive)
- template<typename T >
  const T * **strnistr** (const T *string, const T *strSearch, const size_t string_len)
- template<typename T >
  const T * **strrstr** (const T *string, const T *search, size_t offset)
- template<typename T >
  int **strnicmp** (const T *first, const T *last, size_t count)

  Case-insensitive comparison by character count.
- template<typename T >
  int **stricmp** (const T *first, const T *last)

  Case-insensitive comparison.
- template<typename T >
  int **strnatordcmp** (const T *first_string, const T *second_string, bool case_insensitive=false)
- template<typename T >
  int **strnatordncasecmp** (const T *a, const T *b)

  Compare, recognizing numeric strings and ignoring case.
- template<typename T >
  bool **has_suffix** (const T *text, const size_t text_length, const T *suffix, const size_t suffix_length)
- template<typename T >
  const T * **find_matching_close_tag** (const T *string, const T openSymbol, const T closeSymbol, const bool fail_on_overlapping_open_symbol=false)

- template<typename T >
  const T * **find_matching_close_tag** (const T *string, const T *openSymbol, const T *closeSymbol)

  Searches for a matching tag, skipping an extra open/close pairs of symbols in between.
- template<typename T >
  const T * **strnchr** (const T *string, const T ch, size_t numberOfCharacters)
- template<typename T >
  const T * **strcspn_pointer** (const T *string1, const T *string2, const size_t string2Length)
- template<typename T >
  size_t **strncspn** (const T *stringToSearch, const size_t stringToSearchLength, const T *searchString, const size_t searchStringLength)
- template<typename T >
  size_t **find_last_not_of** (const T *string, const T *search, size_t offset=std::basic_string< T >::npos)
- template<typename T >
  size_t **find_last_of** (const T *string, const T ch, size_t offset=-1)
- template<typename T >
  size_t **find_first_not_of** (const T *stringToSearch, const size_t stringToSearchLength, const T *search↩String, const size_t searchStringLength)
- template<typename T >
  T **remove_all_whitespace** (const T &text)

  Removes all whitespace from a string.
- template<typename Tchar_type , typename T >
  void **remove_all** (T &text, Tchar_type char_to_replace)

  Removes all instances of a character from a string.
- template<typename Tchar_type , typename T >
  void **replace_all** (T &text, Tchar_type text_to_replace, Tchar_type replacement_text)

  helper functions for stemmers
- template<typename T , typename Tchar_type >
  void **replace_all** (T &text, const Tchar_type *text_to_replace, const Tchar_type *replacement_text)
- template<typename T >
  void **replace_all** (T &text, const T &text_to_replace, const T &replacement_text)
- template<typename string_typeT >
  size_t **remove_extra_spaces** (string_typeT &Text)
- template<typename string_typeT >
  size_t **remove_blank_lines** (string_typeT &Text)
- template<typename Tchar_type >
  double **strtod_ex** (const Tchar_type *nptr, Tchar_type **endptr)
- template<typename Tchar_type >
  bool **is_one_of** (const Tchar_type character, const Tchar_type *char_string)

6.2.1 Detailed Description

Date

2003-2015

Copyright

Oleander Software, Ltd.

Author

Oleander Software, Ltd.

6.2.2 Function Documentation

6.2.2.1 template<typename T > int string_util::axtoi (const T * *hexStr,* size_t *length* = -1) [inline]

Converts string in hex format to int. Default figures out how much of the string is a valid hex string, but passing a value to the second parameter overrides this and allows you to indicate how much of the string to try to convert.

Parameters

hexStr	The string to convert. How much of the string to analyze. The value -1 (the default) will tell the function to read until there are no more valid hexadecimal digits.

Returns

The value of the string as an integer.

6.2.2.2 template<typename T > size_t string_util::find_last_not_of (const T * *string,* const T * *search,* size_t *offset* = std::basic_string<T>::npos) [inline]

Searches for a single character not from a sequence in a string in reverse.

Parameters

string	The string to search in.
search	The sequence of characters to skip.
offset	Where to begin the search. If -1, then the reverse search will begin at the end of the string.

Returns

The position of where the last non-matching character is at, or -1 if it can't be found.

6.2.2.3 template<typename T > size_t string_util::find_last_of (const T * *string,* const T *ch,* size_t *offset* = -1) [inline]

Searches for the last instance of a character in a string in reverse.

Parameters

string	The string to search.
ch	The character to search for.
offset	The offset in the string to begin the search from. The default (-1) will begin the search at the end of the string.

Returns

The offset of the found character, or -1 if not found.

6.2.2.4 template<typename T > const T* string_util::find_matching_close_tag (const T * *string,* const T *openSymbol,* const T *closeSymbol,* const bool *fail_on_overlapping_open_symbol* = false) [inline]

Searches for a matching tag, skipping an extra open/close pairs of symbols in between.

Parameters

openSymbol	The opening symbol.
closeSymbol	The closing symbol that we are looking for.
fail_on_overlapping_open_symbol	Whether it should immediately return failure if an open symbol is found before a matching close symbol.

Returns

A pointer to where the closing tag is, or NULL if one can't be found.

6.2.2.5 template<typename T > bool string_util::has_suffix (const T * *text,* const size_t *text_length,* const T * *suffix,* const size_t *suffix_length*) [inline]

Indicates whether a larger strings ends with the specified suffix. Lengths are provided by the caller for efficiency. This function is case sensitive.

6.2.2.6 template<typename T > bool string_util::is_hex_digit (const T *ch*) [inline]

Determines whether a character is a hexademical digit (0-9,A-F,a-f).

Parameters

ch	The letter to be analyzed.

6.2.2.7 template<typename T > bool string_util::is_space (const T *ch*) [inline]

Determines whether a character is a space, tab, or newline. Also includes double-width and no break spaces.

Parameters

ch	The letter to be analyzed.

6.2.2.8 template<typename string_typeT > size_t string_util::remove_blank_lines (string_typeT & *Text*)

Removes blank lines from a block of text

Parameters

Text	The text to have blank lines removed from.

Returns

Number of characters (not lines) removed from the block.

6.2.2.9 template<typename string_typeT > size_t string_util::remove_extra_spaces (string_typeT & *Text*)

Strips extraneous spaces/tabs/carriage returns from a block of text so that there isn't more than one space consecutively.

6.2.2.10 template<typename T > const T* string_util::strcspn_pointer (const T * *string1,* const T * *string2,* const size_t *string2Length*) [inline]

Searches for a single character from a sequence in a string and return a pointer if found.

6.2.2.11 template<typename T > int string_util::strnatordcmp (const T * *first_string,* const T * *second_string,* bool *case_insensitive* = false) [inline]

Natural order comparison functions. Compare, recognizing numeric strings.

6.2.2.12 template<typename T > const T* string_util::strnchr (const T * *string,* const T *ch,* size_t *numberOfCharacters*) [inline]

Searches for a single character in a string for n number of characters. Size argument should be less than or equal to the length of the string being searched.

Parameters

string	The string to search in.
ch	The character to search for.
numberOfCharacters	The number of characters to search through in the string.

Returns

A pointer in the string where the character was found, or NULL if not found.

6.2.2.13 template<typename T > size_t string_util::strncspn (const T * *stringToSearch,* const size_t *stringToSearchLength,* const T * *searchString,* const size_t *searchStringLength*) [inline]

Searches for a single character from a sequence in a string for n number of characters.

Parameters

stringToSearch	The string to search.
stringToSearchLength	The length of the string being searched.
searchString	The sequence of characters to search for.
searchStringLength	The length of the sequence string.

Returns

The index into the string that the character was found. Returns the length of the string if not found.

6.2.2.14 template<typename T > const T* string_util::strnistr (const T * *string,* const T * *strSearch,* const size_t *string_len*) [inline]

Searches for substring in a larger string (case-insensitively), limiting the search to a specified number of characters.

6.2.2.15 template<typename T > size_t string_util::strnlen (const T * *str,* const size_t *maxlen*) [inline]

Returns

The number of characters in the string pointed to by str, not including the terminating '\0' character, but at most maxlen. In doing this, strnlen looks only at the first maxlen characters at str and never beyond str+maxlen. This function should be used for input that may not be NULL terminated.

Parameters

str	The string to review.
maxlen	The maximum length of the string to scan.

Returns

The valid length of the string or maxlen, whichever is shorter.

6.2.2.16 template<typename T > const T* string_util::strrstr (const T * *string,* const T * *search,* size_t *offset*) [inline]

Search string in reverse for substring. "offset" is how far we are in the source string already and how far to go back.

6.2.2.17 template<typename Tchar_type > double string_util::strtod_ex (const Tchar_type * *nptr,* Tchar_type ** *endptr*) [inline]

Converts strings to double values, but also takes into account ranges (returning the average). For example, a string like "5-8" will return 6.5. Hyphens and colons are seen as range separators.

6.2.2.18 double string_util::strtol (const char * *str,* char ** *strend,* int *radix*) [inline]

ANSI C decorators strtol

Chapter 7

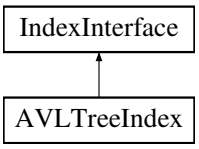
Class Documentation

7.1 AVLTreeIndex Class Reference

The **AVLTreeIndex** (p. 29) class The **AVLTreeIndex** (p. 29) class has multiple custom insert methods to allow it to either insert from inverted index or directly from parser.

`#include <avltreeindex.h>`

Inheritance diagram for AVLTreeIndex:



Public Member Functions

- **AVLTreeIndex** ()

  AVLTreeIndex::AVLTreeIndex *(*p. *29) The AVLTree constructor.*
- virtual vector< **document** > ∗ **findIndex** (string key)

  AVLTreeIndex::findIndex *(*p. *30) This finds the index of a specified word.*
- virtual void **addIndex** (string &word, string &doc)

  AVLTreeIndex::addIndex *(*p. *30) This adds the index given a word and PDF name.*
- void **insert** (string x, string docname)

  AVLTreeIndex::insert This inserts a word and PDF name into the AVL tree.
- void **insert** (string x, string docname, int count)

  AVLTreeIndex::insert This inserts the data from the inverted file index and into the hash table.
- void **remove** (string x)

  AVLTreeIndex::remove This removes a word from the AVLTree.
- virtual void **display** ()

  AVLTreeIndex::display *(*p. *29) This displays the AVLTree.*
- virtual void **readIndex** ()

  AVLTreeIndex::readIndex *(*p. *29) This reads the inverted file index and inserts the data into the AVLTree.*
- virtual void **writeIndex** ()

  AVLTreeIndex::writeIndex *(*p. *29) This writes the AVLTree to the inverted file index .txt file.*

- virtual vector< **document** > **topwords** ()

  AVLTreeIndex::topwords *(p. 31) This returns the top fifty words from the AVLTree.*
- virtual int **totalWordsIndexed** ()

  AVLTreeIndex::totalWordsIndexed *(p. 31) This returns the total words indexed.*
- vector< std::string > **split** (const std::string &s, char delim)

  AVLTreeIndex::split *(p. 31) This splits the supplied string by a given delimiter.*

7.1.1 Detailed Description

The **AVLTreeIndex** (p. 29) class The **AVLTreeIndex** (p. 29) class has multiple custom insert methods to allow it to either insert from inverted index or directly from parser.

7.1.2 Member Function Documentation

7.1.2.1 void AVLTreeIndex::addIndex (string & *word,* string & *docname*) [virtual]

AVLTreeIndex::addIndex (p. 30) This adds the index given a word and PDF name.

Parameters

word	The given word.
docname	The given PDF name.

Implements **IndexInterface** (p. 50).

7.1.2.2 vector< document > * AVLTreeIndex::findIndex (string *word_key*) [virtual]

AVLTreeIndex::findIndex (p. 30) This finds the index of a specified word.

Parameters

word_key	The specified word.

Returns

vector<document> The vector of document that contains all off the PDF names and counts of the specified word.

Implements **IndexInterface** (p. 50).

7.1.2.3 void AVLTreeIndex::insert (string *x,* string *docname*)

AVLTreeIndex::insert This inserts a word and PDF name into the AVL tree.

Parameters

x	The word to be inserted.
docname	The PDF name to be inserted.

7.1.2.4 void AVLTreeIndex::insert (string *x*, string *docname*, int *count*)

AVLTreeIndex::insert This inserts the data from the inverted file index and into the hash table.

Parameters

x	The word to be inserted.
docname	The PDF name to be inserted.
count	The count to be inserted.

7.1.2.5 vector< string > AVLTreeIndex::split (const std::string & *s*, char *delim*)

AVLTreeIndex::split (p. 31) This splits the supplied string by a given delimiter.

Parameters

s	The string to be split.
delim	The character to be used as the delimiter.

Returns

vector<string> The vector of delimited strings.

7.1.2.6 vector< document > AVLTreeIndex::topwords ( ) [virtual]

AVLTreeIndex::topwords (p. 31) This returns the top fifty words from the AVLTree.

Returns

vector<document> The vector of documents objects of the top fifty words and their counts.

Implements **IndexInterface** (p. 50).

7.1.2.7 int AVLTreeIndex::totalWordsIndexed ( ) [virtual]

AVLTreeIndex::totalWordsIndexed (p. 31) This returns the total words indexed.

Returns

int The total words indexed.

Implements **IndexInterface** (p. 50).

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

- avltreeindex.h
- avltreeindex.cpp

7.2 backup_variable< T > Class Template Reference

class that remembers its original value from construction.

`#include <utilities.h>`

Public Member Functions

- **backup_variable** (const T &value)
- void **operator=** (const T &value)
- bool **operator==** (const T &value) const
- bool **operator<** (const T &value) const
- bool **operator<=** (const T &value) const
- bool **operator>** (const T &value) const
- bool **operator>=** (const T &value) const
- void **operator+** (const T &value)
- void **operator+=** (const T &value)
- void **operator-** (const T &value)
- void **operator-=** (const T &value)
- **operator const T** () const
- T * **operator&** ()
- const T & **get_value** () const
- T & **get_value** ()
- bool **has_changed** () const

7.2.1 Detailed Description

template<typename T>
class backup_variable< T >

class that remembers its original value from construction.

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

- utilities.h

7.3 bookmark Struct Reference

The bookmark struct This struct uses two strings, one for the PDF name, the other for the query.

`#include <searchengine.h>`

Public Member Functions

- **bookmark** (string m, string q)

Public Attributes

- string **mark**
- string **query**

7.3.1 Detailed Description

The bookmark struct This struct uses two strings, one for the PDF name, the other for the query.

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

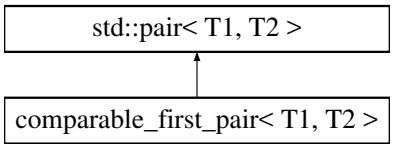
- searchengine.h

7.4 comparable_first_pair< T1, T2 > Class Template Reference

pair interface that compares on the first item

`#include <utilities.h>`

Inheritance diagram for comparable_first_pair< T1, T2 >:



Public Member Functions

- **comparable_first_pair** (const T1 &t1, const T2 &t2)
- bool **operator<** (const **comparable_first_pair**< T1, T2 > &that) const
- bool **operator==** (const **comparable_first_pair**< T1, T2 > &that) const

7.4.1 Detailed Description

template<typename T1, typename T2>
class comparable_first_pair< T1, T2 >

pair interface that compares on the first item

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

- utilities.h

7.5 document Struct Reference

The document struct This struct conatins a string used as the word or the PDF name, and an int used as the count, and a double for the tf/idf. This struct is used in many different ways depending on the function it is used in.

`#include <indexinterface.h>`

Public Member Functions

- **document** (string name)
- **document** (string name, int count)
- string **getName** ()
- void **setName** (string name)
- void **setCount** (int num)
- int **getCount** ()

Public Attributes

- string **docname**
- int **count** =1
- double **tdif** =0

7.5.1 Detailed Description

The document struct This struct conatins a string used as the word or the PDF name, and an int used as the count, and a double for the tf/idf. This struct is used in many different ways depending on the function it is used in.

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

- indexinterface.h

7.6 DocumentParser Class Reference

The **DocumentParser** (p. 34) class parses the PDFs. It extracts the text using the **TextExtractor** (p. 72) class, stems the words and removes stop words using the IndexExtractor class, and computes the term frequency using the custom AVLTree or the custom Hash table.

`#include <DocumentParser.h>`

Public Member Functions

- **DocumentParser** (**IndexHandler** $*$)

  *The **DocumentParser** (p. 34) class parses the PDFs. It extracts the text using the **TextExtractor** (p. 72) class, stems the words and removes stop words using the IndexExtractor class, and computes the term frequency using the custom AVLTree or the custom Hash table.*
- **DocumentParser** ()

  ***DocumentParser::DocumentParser** (p. 36) The overloaded defualt **DocumentParser** (p. 34) constructor.*
- string **getStemmed** (string &)

  ***DocumentParser::getStemmed** (p. 36) This gets the stemmed version of the word.*
- bool **isStopWord** (string &)

  ***DocumentParser::isStopWord** (p. 37) This checks if the word is a stop word.*
- bool **extract** (string)

  ***DocumentParser::extract** (p. 36) This ectracts the text from the PDF. This also stores the total pages and the total word indexed count in the appropriate .txt file.*
- int **getTotalPages** ()

  ***DocumentParser::getTotalPages** (p. 37) This gets the total number of pages.*
- void **readInWordyMap** ()

  ***DocumentParser::readInWordyMap** (p. 35) This reads the word count and associated PDF name to a .txt file.*
- int **numOfDocs** ()

  ***DocumentParser::numOfDocs** (p. 37) This returns the number of documents in the corpus.*
- void **clearWordTxt** ()

  ***DocumentParser::clearWordTxt** (p. 35) This clears the word count and associated PDf name from the .txt file.*
- bool **rawTextExtract** (string fileStream)

  ***DocumentParser::rawTextExtract** (p. 37) This outputs the raw text from a supplied PDF.*

Public Attributes

- map$<$ string, int $>$ **wordy**
- vector$<$ **TextExtractor** $>$ **m**
- vector$<$ string $>$ **k**

7.6.1 Detailed Description

The **DocumentParser** (p. 34) class parses the PDFs. It extracts the text using the **TextExtractor** (p. 72) class, stems the words and removes stop words using the IndexExtractor class, and computes the term frequency using the custom AVLTree or the custom Hash table.

CSE 2341 **DocumentParser.h** (p. **??**)

Author

Aviraj Sinha (owner)
Patrick Yienger

Version

1.0 05/07/17 The **DocumentParser** (p. 34) class

7.6.2 Constructor & Destructor Documentation

7.6.2.1 DocumentParser::DocumentParser (IndexHandler * i)

The **DocumentParser** (p. 34) class parses the PDFs. It extracts the text using the **TextExtractor** (p. 72) class, stems the words and removes stop words using the IndexExtractor class, and computes the term frequency using the custom AVLTree or the custom Hash table.

CSE 2341 DocumentParser.cpp

Author

Aviraj Sinha (owner)
Patrick Yienger

Version

1.0 05/07/17 **DocumentParser::DocumentParser** (p. 36) The **DocumentParser** (p. 34) constructor.

Parameters

i	The **IndexHandler** (p. 48) object.

7.6.3 Member Function Documentation

7.6.3.1 bool DocumentParser::extract (string *fileStream*)

DocumentParser::extract (p. 36) This ectracts the text from the PDF. This also stores the total pages and the total word indexed count in the appropriate .txt file.

Parameters

fileStream	The file path to the corpus of PDFs.

Returns

bool The flag for a sucessful text extract.

7.6.3.2 string DocumentParser::getStemmed (string & *word*)

DocumentParser::getStemmed (p. 36) This gets the stemmed version of the word.

Parameters

word	The word to be stemmed

Returns

string The stemmed word

7.6.3.3 int DocumentParser::getTotalPages ( )

DocumentParser::getTotalPages (p. 37) This gets the total number of pages.

Returns

totalPages The total number of pages.

7.6.3.4 bool DocumentParser::isStopWord (string & *word*)

DocumentParser::isStopWord (p. 37) This checks if the word is a stop word.

Parameters

word	The word to be checked

Returns

bool The flag of whether the word is a stop word

7.6.3.5 int DocumentParser::numOfDocs ( )

DocumentParser::numOfDocs (p. 37) This returns the number of documents in the corpus.

Returns

int The number of documents in the corpus.

7.6.3.6 bool DocumentParser::rawTextExtract (string *fileStream*)

DocumentParser::rawTextExtract (p. 37) This outputs the raw text from a supplied PDF.

Parameters

fileStream	The file path to the supplied PDF.

Returns

bool The flag for a successful text extract.

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

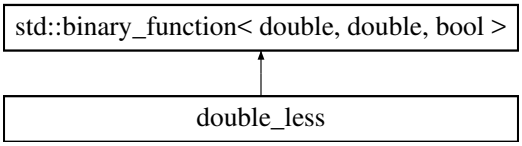
- DocumentParser.h
- DocumentParser.cpp

7.7 double_less Class Reference

"less" interface for double values.

`#include <safe_math.h>`

Inheritance diagram for double_less:



Public Member Functions

- bool **operator()** (const double &left, const double &right) const

7.7.1 Detailed Description

"less" interface for double values.

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

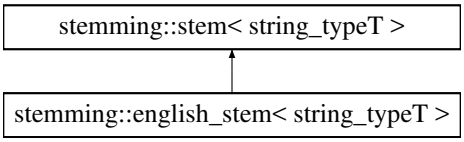
- safe_math.h

7.8 stemming::english_stem< string_typeT > Class Template Reference

English stemmer.

`#include <english_stem.h>`

Inheritance diagram for stemming::english_stem< string_typeT >:



Public Member Functions

- void **operator()** (string_typeT &text)

Additional Inherited Members

7.8.1 Detailed Description

template<typename string_typeT = std::wstring>
class stemming::english_stem< string_typeT >

English stemmer.

Overview:

I have made more than one attempt to improve the structure of the Porter algorithm by making it follow the pattern of ending removal of the Romance language stemmers. It is not hard to see why one should want to do this: step 1b of the Porter stemmer removes ed and ing, which are i-suffixes (∗) attached to verbs. If these suffixes are removed, there should be no need to remove d-suffixes which are not verbal, although it will try to do so. This seems to be a deficiency in the Porter stemmer, not shared by the Romance stemmers. Again, the divisions between steps 2, 3 and 4 seem rather arbitrary, and are not found in the Romance stemmers. Nevertheless, these attempts at improvement have been abandoned. They seem to lead to a more complicated algorithm with no very obvious improvements. A reason for not taking note of the outcome of step 1b may be that English endings do not determine word categories quite as strongly as endings in the Romance languages. For example, condition and position in French have to be nouns, but in English they can be verbs as well as nouns, We are all conditioned by advertising They are positioning themselves differently today A possible reason for having separate steps 2, 3 and 4 is that d-suffix combinations in English are quite complex, a point which has been made elsewhere. But it is hardly surprising that after twenty years of use of the Porter stemmer, certain improvements do suggest themselves, and a new algorithm for English is therefore offered here. (It could be called the 'Porter2' stemmer to distinguish it from the Porter stemmer, from which it derives.) The changes are not so very extensive: (1) terminating y is changed to i rather less often, (2) suffix us does not lose its s, (3) a few additional suffixes are included for removal, including (4) suffix ly. In addition, a small list of exceptional forms is included. In December 2001 there were two further adjustments: (5) Steps 5a and 5b of the old Porter stemmer were combined into a single step. This means that undoubling final ll is not done with removal of final e. (6) In Step 3 ative is removed only when in region R2. To begin with, here is the basic algorithm without reference to the exceptional forms. An exact comparison with the Porter algorithm needs to be done quite carefully if done at all. Here we indicate by ∗ points of departure, and by + additional features. In the sample vocabulary, Porter and Porter2 stem slightly under 5% of words to different forms. Dr. Martin Porter Define a vowel as one of

- a e i o u y Define a double as one of
- bb dd ff gg mm nn pp rr tt Define a valid li-ending as one of
- c d e g h k m n r t Define a short syllable in a word as either (a) a vowel followed by a non-vowel other than w, x or Y and preceded by a non-vowel, or ∗ (b) a vowel at the beginning of the word followed by a non-vowel. So rap, trap, entrap end with a short syllable, and ow, on, at are classed as short syllables. But uproot, bestow, disturb do not end with a short syllable. A word is called short if it consists of a short syllable preceded by zero or more consonants. R1 is the region after the first non-vowel following a vowel, or the end of the word if there is no such non-vowel. R2 is the region after the first non-vowel following a vowel in R1, or the end of the word if there is no such non-vowel. If the word has two letters or less, leave it as it is. Otherwise, do each of the following operations, Set initial y, or y after a vowel, to Y, and then establish the regions R1 and R2.

Algorithm:

Step 1a: Search for the longest among the following suffixes, and perform the action indicated:

- sses
  - Replace by ss.
- ied+ ies∗
  - Replace by i if preceded by just one letter, otherwise by ie (so ties -> tie, cries -> cri).

- s
  - Delete if the preceding word part contains a vowel not immediately before the s (so gas and this retain the s, gaps and kiwis lose it).
- us+ ss
  - Do nothing. **Step 1b:** Search for the longest among the following suffixes, and perform the action indicated:
- eed eedly+
  - Replace by ee if in R1.
- ed edly+ ing ingly+
  - Delete if the preceding word part contains a vowel, and then
  - If the word ends at, bl or iz add e (so luxuriat -> luxuriate), or
  - If the word ends with a double remove the last letter (so hopp -> hop), or
  - If the word is short, add e (so hop -> hope). **Step 1c:** Replace suffix y or Y by i if preceded by a non-vowel which is not the first letter of the word (so cry -> cri, by -> by, say -> say) **Step 2:** Search for the longest among the following suffixes, and, if found and in R1, perform the action indicated:
- tional
  - Replace by tion.
- enci
  - Replace by ence.
- anci
  - Replace by ance
- abli
  - Replace by able.
- entli
  - Replace by ent.
- izer ization
  - Replace by ize.
- ational ation ator
  - Replace by ate.
- alism aliti alli
  - Replace by al.
- fulness
  - Replace by ful.
- ousli ousness
  - Replace by ous.
- iveness iviti
  - Replace by ive.
- biliti bli+
  - Replace by ble.
- ogi+
  - Replace by og if preceded by l.
- fulli+
  - Replace by ful.
- lessli+
  - Replace by less.
- li+

  - Delete if preceded by a valid li-ending. **Step 3:** Search for the longest among the following suffixes, and, if found and in R1, perform the action indicated:
- tional+
  - Replace by tion.
- ational+
  - Replace by ate.
- alize
  - Replace by al.
- icate iciti ical
  - Replace by ic.
- ful ness
  - Delete.
- ative∗
  - Delete if in R2. **Step 4:** Search for the longest among the following suffixes, and, if found and in R2, perform the action indicated:
- al ance ence er ic able ible ant ement ment ent ism ate iti ous ive ize
  - Delete
- ion
  - Delete if preceded by s or t. **Step 5:** Search for the following suffixes, and, if found, perform the action indicated:
- e
  - Delete if in R2, or in R1 and not preceded by a short syllable.
- l
  - Delete if in R2 and preceded by l.

7.8.2 Member Function Documentation

7.8.2.1 template<typename string_typeT = std::wstring> void stemming::english_stem< string_typeT >::operator() (string_typeT & *text*) [inline]

Parameters

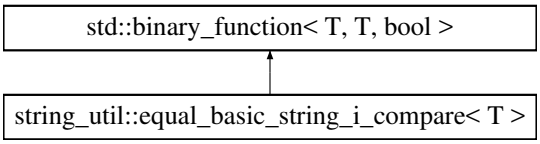
in,out	*text*	English string to stem.

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

- english_stem.h

7.9 string_util::equal_basic_string_i_compare< T > Class Template Reference

Inheritance diagram for string_util::equal_basic_string_i_compare< T >:



Public Member Functions

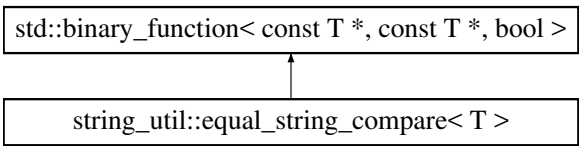
- bool **operator()** (const T &a_, const T &b_) const

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

- string_util.h

7.10 string_util::equal_string_compare< T > Class Template Reference

Inheritance diagram for string_util::equal_string_compare< T >:



Public Member Functions

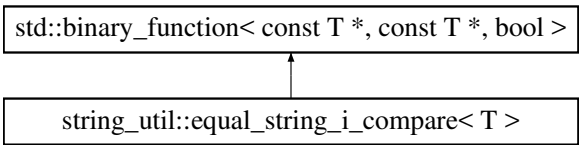
- bool **operator()** (const T *a_, const T *b_) const

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

- string_util.h

7.11 string_util::equal_string_i_compare< T > Class Template Reference

Inheritance diagram for string_util::equal_string_i_compare< T >:



Public Member Functions

- bool **operator()** (const T *a_, const T *b_) const

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

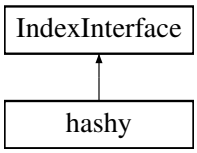
- string_util.h

7.12 hashy Class Reference

The hashy class The hashy class has multiple custom insert methods to allow it to either insert from inverted index or directly from parser.

`#include <hash.h>`

Inheritance diagram for hashy:



Public Member Functions

- **hashy** ()

  The hashy class is the custom implementation of the HashTable. The basic hash parts of the code was based off of the series of videos by Paul Programming.
- int **Hashy** (string key)

  hashy::Hashy *(*p. *45) The hash function that retuns the int value of the supplied string. This function is based off of the hash function for strings developed by Paul Larson.*
- void **addIndex** (string &word, string &name)

  hashy::addIndex *(*p. *44) This adds the supplied word and name to the hash table. It also updates the count.*
- int **NumItemsInIndex** (int index)

  hashy::NumItemsInIndex *(*p. *45) This returns the number of items in a specified index.*
- void **display** ()

  hashy::display *(*p. *43) This displays the contents of the hash table.*
- void **displayIndex** (int index)

  hashy::displayIndex *(*p. *44) This displays the cotents oh the hash table at a specified index.*
- vector< **document** > * **findIndex** (string word)

  hashy::findIndex *(*p. *44) This finds the index of a specified word.*
- virtual void **readIndex** ()

  hashy::readIndex *(*p. *43) This reads the data from the inverted file index and into the hash table.*
- virtual void **writeIndex** ()

  hashy::writeIndex *(*p. *43) This writes the inverted file index from the hash table and into the index .txt.*
- virtual void **insertFromFile** (string &word, string &doc, int &count)

  hashy::insertFromFile *(*p. *45) This inserts the data from the inverted file index and into the hash table.*
- vector< std::string > **split** (const std::string &s, char delim)

  hashy::split *(*p. *45) This splits the supplied string by a given delimiter.*
- virtual vector< **document** > **topwords** ()

  hashy::topwords *(*p. *46) This finds and returns the top fifty words and their counts.*
- virtual int **totalWordsIndexed** ()

  hashy::totalWordsIndexed *(*p. *46) This returns the total words indexed.*

7.12.1 Detailed Description

The hashy class The hashy class has multiple custom insert methods to allow it to either insert from inverted index or directly from parser.

7.12.2 Constructor & Destructor Documentation

7.12.2.1 hashy::hashy ( )

The hashy class is the custom implementation of the HashTable. The basic hash parts of the code was based off of the series of videos by Paul Programming.

CSE 2341 hash.cpp

Author

Parick Yienger (owner)

Version

1.0 05/07/17 **hashy::hashy** (p. 44) This is the hashy constructor. It sets all of the elements of the HashTable to default values.

7.12.3 Member Function Documentation

7.12.3.1 void hashy::addIndex (string & *word,* string & *name*) [virtual]

hashy::addIndex (p. 44) This adds the supplied word and name to the hash table. It also updates the count.

Parameters

word	The word to be added.
name	The pdf the word came from.

Implements **IndexInterface** (p. 50).

7.12.3.2 void hashy::displayIndex (int *index*)

hashy::displayIndex (p. 44) This displays the cotents oh the hash table at a specified index.

Parameters

index	The specified index.

7.12.3.3 vector< document > * hashy::findIndex (string *word*) [virtual]

hashy::findIndex (p. 44) This finds the index of a specified word.

Parameters

word	The specified word.

Returns

vector<document> The vector of document that contains all off the PDF names and counts of the specified word.

Implements **IndexInterface** (p. 50).

7.12.3.4 int hashy::Hashy (string *key*)

hashy::Hashy (p. 45) The hash function that retuns the int value of the supplied string. This function is based off of the hash function for strings developed by Paul Larson.

Parameters

key	The string to be hashed.

Returns

int The integer hash value of the string.

7.12.3.5 void hashy::insertFromFile (string & *word,* string & *doc,* int & *count*) [virtual]

hashy::insertFromFile (p. 45) This inserts the data from the inverted file index and into the hash table.

Parameters

word	The word to be inserted.
doc	The PDF name to be inserted.
count	The count to be inserted.

7.12.3.6 int hashy::NumItemsInIndex (int *index*)

hashy::NumItemsInIndex (p. 45) This returns the number of items in a specified index.

Parameters

index	The specified index.

Returns

int The number of words in the index.

7.12.3.7 vector< string > hashy::split (const std::string & *s,* char *delim*)

hashy::split (p. 45) This splits the supplied string by a given delimiter.

Parameters

s	The string to be split.
delim	The character to be used as the delimiter.

Returns

vector<string> The vector of delimited strings.

7.12.3.8 vector< document > hashy::topwords ( ) [virtual]

hashy::topwords (p. 46) This finds and returns the top fifty words and their counts.

Returns

vector<document> The vector of documents objects of the top fifty words and their counts.

Implements **IndexInterface** (p. 50).

7.12.3.9 int hashy::totalWordsIndexed ( ) [virtual]

hashy::totalWordsIndexed (p. 46) This returns the total words indexed.

Returns

The total words indexed.

Implements **IndexInterface** (p. 50).

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

- hash.h
- hash.cpp

7.13 index_node Struct Reference

The **index_node** (p. 46) struct allows for storage of inverted indices with other data in tree; most importantly the documents it is found in.

`#include <avltreeindex.h>`

Public Attributes

- string **word_key**
- **index_node** * **left**
- **index_node** * **right**
- vector< **document** > **documents**
- int **height**

7.13.1 Detailed Description

The **index_node** (p. 46) struct allows for storage of inverted indices with other data in tree; most importantly the documents it is found in.

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

- avltreeindex.h

7.14 indexextractor Class Reference

The indexextractor class.

`#include <indexextractor.h>`

Public Member Functions

- **indexextractor** (string)

  The IndexExtractor class stems the words and removes stopwords. The code makes use of the .....
- void **useStopWords** (string)

  indexextractor::useStopWords *(p. 47) adds the stop words from a file*
- bool **isStopWord** (string &)

  indexextractor::isStopWord *(p. 47) This checks if it is in the stop words set*
- string **getStemmed** (string &)

  indexextractor::getStemmed *(p. 47) This gets the stemmed version of the word*

7.14.1 Detailed Description

The indexextractor class.

7.14.2 Constructor & Destructor Documentation

7.14.2.1 indexextractor::indexextractor (string *stoptxt*)

The IndexExtractor class stems the words and removes stopwords. The code makes use of the .....

CSE 2341 IndexExtractor.cpp

Author

Aviraj Shina (owner)

Version

1.0 05/07/17 **indexextractor::indexextractor** (p. 47) This class is repsonsible for stemming and stop words

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

- indexextractor.h
- indexextractor.cpp

7.15 IndexHandler Class Reference

The **IndexHandler** (p. 48) class.

`#include <indexhandler.h>`

Public Member Functions

- **IndexHandler** (char type)

  *The **IndexHandler** (p. 48) class creates and stores the inverted index file. It uses the custom data structures to write and read the inverted index.*
- void **writeIndex** ()

  ***IndexHandler::writeIndex** (p. 48) This writes the inverted index file to the .txt file from the appropriate data structure.*
- void **addIndex** (string, string)

  ***IndexHandler::addIndex** (p. 49) This adds the word and the PDf name to the chosen data structure.*
- vector< **document** > * **getDocs** (string)

  ***IndexHandler::getDocs** (p. 49) This returns the name of all of the PDFs containing the requested word.*
- int **getDocumentFrequency** (string word, string docname)
- int **getCorpusFrequency** (string word)
- void **displayIndices** ()

  ***IndexHandler::displayIndices** (p. 48) This dispays the indicies of the appropriate data structure.*
- void **readIndex** ()

  ***IndexHandler::readIndex** (p. 48) This reads the data from the inverted index file and into the appropriate data structure.*
- vector< **document** > **topFifty** ()

  ***IndexHandler::topFifty** (p. 49) This returns the top fifty words and their count.*
- int **totalWordsIndexed** ()

  ***IndexHandler::totalWordsIndexed** (p. 49) This returns the total number of words indexed.*

7.15.1 Detailed Description

The **IndexHandler** (p. 48) class.

7.15.2 Constructor & Destructor Documentation

7.15.2.1 IndexHandler::IndexHandler (char *type*)

The **IndexHandler** (p. 48) class creates and stores the inverted index file. It uses the custom data structures to write and read the inverted index.

CSE 2341 IndexHandler.h

Author

Aviraj Shina (owner)
Patrick Yienger

Version

1.0 05/07/17 **IndexHandler::IndexHandler** (p. 48) The index handler constructor. This initialaizes the chosen data structure.

Parameters

type	The data structure to be initalized.

7.15.3 Member Function Documentation

7.15.3.1 void IndexHandler::addIndex (string *word,* string *docname*)

IndexHandler::addIndex (p. 49) This adds the word and the PDf name to the chosen data structure.

Parameters

word	The word to be added.
docname	The PDF name to be added.

7.15.3.2 vector< document > * IndexHandler::getDocs (string *word*)

IndexHandler::getDocs (p. 49) This returns the name of all of the PDFs containing the requested word.

Parameters

word	The word requested.

Returns

vector<document> The vector of document object that stores the count and PDF name of the requested word.

7.15.3.3 vector< document > IndexHandler::topFifty ( )

IndexHandler::topFifty (p. 49) This returns the top fifty words and their count.

Returns

vector<document> This returns the vector of document objects containing the word and the count.

7.15.3.4 int IndexHandler::totalWordsIndexed ( )

IndexHandler::totalWordsIndexed (p. 49) This returns the total number of words indexed.

Returns

totalWordsIndexed

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

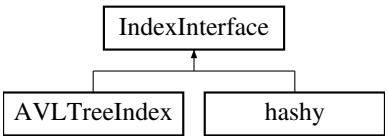
- indexhandler.h
- indexhandler.cpp

7.16 IndexInterface Class Reference

The **IndexInterface** (p. 50) class.

`#include <indexinterface.h>`

Inheritance diagram for IndexInterface:



Public Member Functions

- virtual vector< **document** > * **findIndex** (string key)=0
- virtual void **addIndex** (string &word, string &doc)=0
- virtual void **display** ()=0
- virtual void **readIndex** ()=0
- virtual void **writeIndex** ()=0
- virtual vector< **document** > **topwords** ()=0
- virtual int **totalWordsIndexed** ()=0

7.16.1 Detailed Description

The **IndexInterface** (p. 50) class.

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

- indexinterface.h

7.17 item Struct Reference

The hashy class is the custom implementation of the HashTable. The basic hash parts of the code was based off of the series of videos by Paul Programming.

`#include <hash.h>`

Public Attributes

- string **word_key**
- int **count**
- string **docName**
- vector< **item** > **vec**

7.17.1 Detailed Description

The hashy class is the custom implementation of the HashTable. The basic hash parts of the code was based off of the series of videos by Paul Programming.

CSE 2341 **hash.h** (p. **??**)

Author

Parick Yienger (owner)

Version

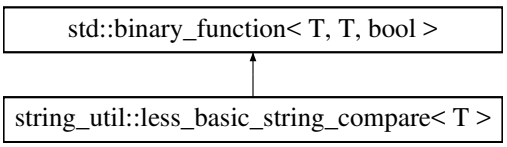
1.0 05/07/17 The item struct This is a struct that contains the word, count, and PDFName. It also uses a vector in the top index on the hash table to handle collisions.

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

- hash.h

7.18 string_util::less_basic_string_compare< T > Class Template Reference

Inheritance diagram for string_util::less_basic_string_compare< T >:



Public Member Functions

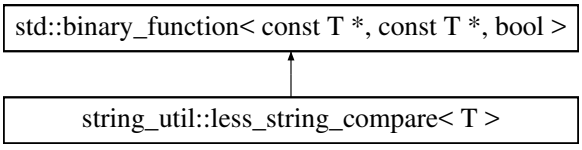
- bool **operator()** (const T &a_, const T &b_) const

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

- string_util.h

7.19 string_util::less_string_compare< T > Class Template Reference

Inheritance diagram for string_util::less_string_compare< T >:



Public Member Functions

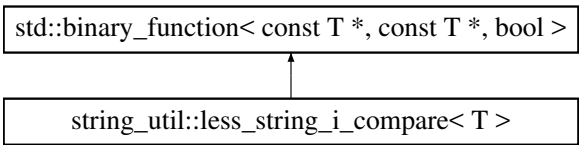
- bool **operator()** (const T *a_, const T *b_) const

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

- string_util.h

7.20 string_util::less_string_i_compare< T > Class Template Reference

Inheritance diagram for string_util::less_string_i_compare< T >:



Public Member Functions

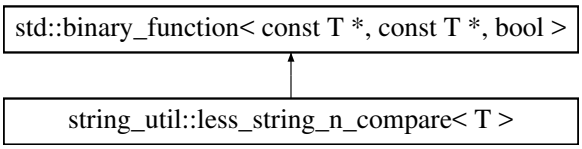
- bool **operator()** (const T *a_, const T *b_) const

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

- string_util.h

7.21 string_util::less_string_n_compare< T > Class Template Reference

Inheritance diagram for string_util::less_string_n_compare< T >:



Public Member Functions

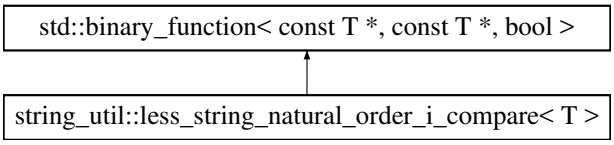
- **less_string_n_compare** (size_t comparison_size)
- bool **operator()** (const T *a_, const T *b_) const

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

- string_util.h

7.22 string_util::less_string_natural_order_i_compare< T > Class Template Reference

Inheritance diagram for string_util::less_string_natural_order_i_compare< T >:



Public Member Functions

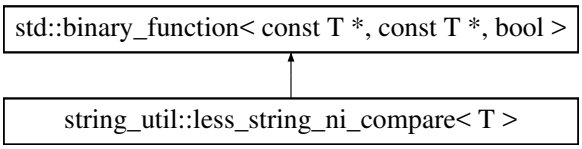
- bool **operator()** (const T *a_, const T *b_) const

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

- string_util.h

7.23 string_util::less_string_ni_compare< T > Class Template Reference

Inheritance diagram for string_util::less_string_ni_compare< T >:



Public Member Functions

- **less_string_ni_compare** (size_t comparison_size)
- bool **operator()** (const T *a_, const T *b_) const

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

- string_util.h

7.24 stemming::no_op_stem< string_typeT > Class Template Reference

Public Member Functions

- void **operator()** (const string_typeT &) const

  No-op stemming of declared string type.
- template<typename T >
  void **operator()** (const T &) const

  No-op stemming of flexible string type.

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

- stemming.h

7.25 QueryEngine Class Reference

The **QueryEngine** (p. 54) uses the inverted file index and searches it given a properly formatted Boolean query. It also ranks the results using tf/idf statistics.

`#include <queryengine.h>`

Public Member Functions

- **QueryEngine** (**IndexHandler** ∗, **DocumentParser** ∗)

  *The **QueryEngine** (p. 54) uses the inverted file index and searches it given a properly formatted Boolean query. It also ranks the results using tf/idf statistics.*
- vector< **document** > **querySearch** (string query)

  ***QueryEngine::querySearch** (p. 56) This searches the inverted index file for a given boolean query. It calls the search method to earch for the words and returning the proper results based on whether a union, intersection or difference was required.*
- vector< **document** > **search** (string word)

  ***QueryEngine::search** (p. 57) This searches the inverted index file for a word, returning the results.*
- vector< **document** > **getIntersection** (vector< **document** > l, vector< **document** > r)

  ***QueryEngine::getIntersection** (p. 56) This returns the intersection of two queries.*
- vector< **document** > **getUnion** (vector< **document** > l, vector< **document** > r)

  ***QueryEngine::getUnion** (p. 56) This returns the union of two queries.*
- vector< **document** > **getDifference** (vector< **document** > r, vector< **document** > l)

  ***QueryEngine::getDifference** (p. 55) This returns the difference of two queries.*
- void **findTDIFs** (vector< **document** > &currdocs)

  ***QueryEngine::findTDIFs** (p. 55) This caculates the tf/idf values of the query results.*
- void **relevencySort** (vector< **document** > &currdocs)

  ***QueryEngine::relevencySort** (p. 56) This sorts the vector<document> by tf/idf value.*

Public Attributes

- int **fileSize** =0

7.25.1 Detailed Description

The **QueryEngine** (p. 54) uses the inverted file index and searches it given a properly formatted Boolean query. It also ranks the results using tf/idf statistics.

CSE 2341 QueryEngine.h

Author

Aviraj Shina (owner)

Version

1.0 05/07/17 The **QueryEngine** (p. 54) class

7.25.2 Constructor & Destructor Documentation

7.25.2.1 QueryEngine::QueryEngine (IndexHandler * i, DocumentParser * d)

The **QueryEngine** (p. 54) uses the inverted file index and searches it given a properly formatted Boolean query. It also ranks the results using tf/idf statistics.

CSE 2341 QueryEngine.h

Author

Aviraj Shina (owner)

Version

1.0 05/07/17 **QueryEngine::QueryEngine** (p. 55) The constructor for the query engine.

Parameters

i	The index handler object.
d	The documpen parser object.

7.25.3 Member Function Documentation

7.25.3.1 void QueryEngine::findTDIFs (vector< document > & currdocs)

QueryEngine::findTDIFs (p. 55) This caculates the tf/idf values of the query results.

Parameters

currdocs	The vector<document> to caculate the tf/idf for.

7.25.3.2 vector< document > QueryEngine::getDifference (vector< document > r, vector< document > l)

QueryEngine::getDifference (p. 55) This returns the difference of two queries.

Parameters

l	The vector<document> of the first query.
r	The vector<document> of the secnd query.

Returns

vector<document> The difference of the first and second query.

7.25.3.3 vector< document > QueryEngine::getIntersection (vector< document > *l*, vector< document > *r*)

QueryEngine::getIntersection (p. 56) This returns the intersection of two queries.

Parameters

l	The vector<document> of the first query.
r	The vector<document> of the secnd query.

Returns

vector<document> The intersection of the first and second query.

7.25.3.4 vector< document > QueryEngine::getUnion (vector< document > *l*, vector< document > *r*)

QueryEngine::getUnion (p. 56) This returns the union of two queries.

Parameters

l	The vector<document> of the first query.
r	The vector<document> of the secnd query.

Returns

vector<document> The union of the first and second query.

7.25.3.5 vector< document > QueryEngine::querySearch (string *query*)

QueryEngine::querySearch (p. 56) This searches the inverted index file for a given boolean query. It calls the search method to earch for the words and returning the proper results based on whether a union, intersection or difference was required.

Parameters

query	The query to search for.

Returns

vector<document> A vector of document objects containing the results of the search sorted by tf/idf values.

7.25.3.6 void QueryEngine::relevancySort (vector< document > & *currdocs*)

QueryEngine::relevancySort (p. 56) This sorts the vector<document> by tf/idf value.

Parameters

currdocs	The vector<document> to be sorted.

7.25.3.7 vector< document > QueryEngine::search (string *word*)

QueryEngine::search (p. 57) This searches the inverted index file for a word, returning the results.

Parameters

word	The word to search for.

Returns

vector<document> A vector of document objects containing the results of the search.

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

- queryengine.h
- queryengine.cpp

7.26 rawOutputExtractor Class Reference

The **rawOutputExtractor** (p. 57) class.

```
#include <rawoutputextractor.h>
```

Public Member Functions

- **rawOutputExtractor** (**IndexHandler** ∗, **indexextractor** ∗)

  rawOutputExtractor::rawOutputExtractor *(p. 58) The* ***rawOutputExtractor*** *(p. 57) constructor.*
- **rawOutputExtractor** ()

  rawOutputExtractor::rawOutputExtractor *(p. 58) The* ***rawOutputExtractor*** *(p. 57) constructor.*
- virtual ∼**rawOutputExtractor** ()

  rawOutputExtractor::∼rawOutputExtractor *(p. 57) The* ***rawOutputExtractor*** *(p. 57) destroctor.*
- int **getTotalPages** ()

  rawOutputExtractor::getTotalPages *(p. 58) Returns the total pages.*
- string **getDocName** ()

  rawOutputExtractor::getDocName *(p. 58) Returns the PDF name.*
- int **getWordCount** ()

  rawOutputExtractor::getWordCount *(p. 59) Returns the word count.*
- void **Init** (const char ∗pszInput)

  rawOutputExtractor::Init *(p. 59) Uses Podofo to extract the text from the given PDF.*

Public Attributes

- **IndexHandler** ∗ **ih**
- **indexextractor** ∗ **ie**
- string **mm**
- vector< string > **a**
- int **wordCount** =0
- string **docsName**

7.26.1 Detailed Description

The **rawOutputExtractor** (p. 57) class.

7.26.2 Constructor & Destructor Documentation

7.26.2.1 rawOutputExtractor::rawOutputExtractor (IndexHandler ∗ *ih*, indexextractor ∗ *ie*)

rawOutputExtractor::rawOutputExtractor (p. 58) The **rawOutputExtractor** (p. 57) constructor.

Parameters

ih	The **IndexHandler** (p. 48) object.
ie	The IndexExtractor object.

7.26.3 Member Function Documentation

7.26.3.1 string rawOutputExtractor::getDocName ( )

rawOutputExtractor::getDocName (p. 58) Returns the PDF name.

Returns

docsName The PDF name.

7.26.3.2 int rawOutputExtractor::getTotalPages ( )

rawOutputExtractor::getTotalPages (p. 58) Returns the total pages.

Returns

totalPages

7.26.3.3 int rawOutputExtractor::getWordCount ( )

rawOutputExtractor::getWordCount (p. 59) Returns the word count.

Returns

wordCount The word count.

7.26.3.4 void rawOutputExtractor::Init (const char * *pszInput*)

rawOutputExtractor::Init (p. 59) Uses Podofo to extract the text from the given PDF.

Parameters

pszInput	The path to the corpus of PDFs
docName	The name of the pdf to extract text from.

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

- rawoutputextractor.h
- rawoutputextractor.cpp

7.27 SearchEngine Class Reference

The **SearchEngine** (p. 59) class.

`#include <searchengine.h>`

Public Member Functions

- **SearchEngine** (string docpath, char)
- **SearchEngine** ()

  *The **SearchEngine** (p. 59) class uses the various class to create a PDF Search Engine. The class makes use of the **DocumentParser** (p. 34), **IndexHandler** (p. 48), and QueryEngie class to perform all of the various tasks of the Mantience mode and Query mode of the user interface.*
- vector< **document** > **display_search_results** (string word)

  ***SearchEngine::display_search_results** (p. 62) This searches the inverted file index for a query and displays the results.*
- void **relevencySort** (vector< **document** > &)
- void **writeIndex** ()

  ***SearchEngine::writeIndex** (p. 59) This writes the index from the appropriate data structure and into the inverted file index.*
- void **readIndex** ()

  ***SearchEngine::readIndex** (p. 59) This reads the index from the inverted index file and into the appropriate data structure.*
- void **clearIndex** ()

  ***SearchEngine::clearIndex** (p. 59) This clears the inverted file index (.txt file).*

- int **getTotalPages** ()

  SearchEngine::getTotalPages *(*p. *63) Returns the total page count.*
- int **numWordsIndexed** ()

  SearchEngine::numWordsIndexed *(*p. *63) Returns the total indexed word count.*
- vector< **document** > **topfifty** ()

  SearchEngine::topfifty *(*p. *64) Returns the top fifty most common words.*
- bool **addDocumentsToIndex** (string docpath)

  SearchEngine::addDocumentsToIndex *(*p. *61) Allows the user to choose between using a Hash table or AVLTree to create the inverted index file. This also initalizes the* ***IndexHandler*** *(*p. *48), Documentparser, and* ***QueryEngine*** *(*p. *54) objects to allow the Search Engine access to their functions. It also updtes the tf/idf, inverted file index, page count, word count, and top fifty words.*
- void **chooseStructure** (char type)

  SearchEngine::chooseStructure *(*p. *62) Allows the user to choose between using a Hash table or AVLTree to create the inverted index file. This also initalizes the* ***IndexHandler*** *(*p. *48), Documentparser, and* ***QueryEngine*** *(*p. *54) objects to allow the Search Engine access to their functions. It also updtes the tf/idf, inverted file index, page count, word count, and top fifty words.*
- void **findTDIFs** (vector< **document** > &currdocs)
- int **readTotalPages** ()

  SearchEngine::readTotalPages *(*p. *63) This outputs the total number of pages stored from the PDFs on the inverted index.*
- void **clearTotalPages** ()

  SearchEngine::clearTotalPages *(*p. *60) This clears the total number of pages .txt file.*
- void **clearWordTxt** ()

  SearchEngine::clearWordTxt *(*p. *60) This clears the total indexed word count .txt file.*
- void **clear** ()

  SearchEngine::clear *(*p. *60) Allows the user to clear all of the stored data. It cleares the inverted file index, the total page count, the total indexed word count, the file paths, the bookmarks and the search history.*
- bool **displayRawFile** (string filePath)

  SearchEngine::displayRawFile *(*p. *63) This dispalys the raw text of a requested PDF.*
- void **displayTop50** ()

  SearchEngine::displayTop50 *(*p. *60) This displays the top fifty words from the PDFs on the inverted index.*
- void **writeFilePathToTXTFile** ()

  SearchEngine::writeFilePathToTXTFile *(*p. *60) This writes the file paths to a text file allowing the path to be stored.*
- vector< string > **readFilePathFromTXTFile** ()

  SearchEngine::readFilePathFromTXTFile *(*p. *63) This reads the file paths from the .txt file of file paths.*
- void **clearFilePath** ()

  SearchEngine::clearFilePath *(*p. *60) This clears the file path .txt file.*
- void **writeBookmark** (string book, string query)
- void **readBookmarks** ()

  SearchEngine::readBookmarks *(*p. *60) This reads the bookmarks from the .txt file and adds them to the bookmark vector.*
- void **addBookmark** (string book, string query)

  SearchEngine::addBookmark *(*p. *61) This adds bookmarks to the .txt file.*
- void **addToHistory** (string query)

  SearchEngine::addToHistory *(*p. *62) This adds the query to the search history.*
- void **clearHistory** ()

  SearchEngine::clearHistory *(*p. *60) This clears the history .txt file.*
- void **displayHistory** ()

  SearchEngine::displayHistory *(*p. *60) This displays the search history.*
- void **clearBookmarks** ()

  SearchEngine::clearBookmarksThis clears the bookmarks .txt file.
- vector< **bookmark** > **displayBookmarks** ()

  SearchEngine::displayBookmarks *(*p. *62) This displays the bookmarks.*

Public Attributes

- int **totalPages** =0

7.27.1 Detailed Description

The **SearchEngine** (p. 59) class.

7.27.2 Constructor & Destructor Documentation

7.27.2.1 SearchEngine::SearchEngine ( )

The **SearchEngine** (p. 59) class uses the various class to create a PDF Search Engine. The class makes use of the **DocumentParser** (p. 34), **IndexHandler** (p. 48), and QueryEngie class to perform all of the various tasks of the Mantience mode and Query mode of the user interface.

CSE 2341 SearchEngine.cpp

Author

Aviraj Shina (owner)
Patrick Yienger

Version

1.0 05/07/17 SearchEngine::SearchEngine The search engine constructor.

7.27.3 Member Function Documentation

7.27.3.1 void SearchEngine::addBookmark (string *book,* string *query*)

SearchEngine::addBookmark (p. 61) This adds bookmarks to the .txt file.

Parameters

book	The bookmark to be added.
query	The query the bookmark was from.

7.27.3.2 bool SearchEngine::addDocumentsToIndex (string *docpath*)

SearchEngine::addDocumentsToIndex (p. 61) Allows the user to choose between using a Hash table or AVLTree to create the inverted index file. This also initalizes the **IndexHandler** (p. 48), Documentparser, and **QueryEngine** (p. 54) objects to allow the Search Engine access to their functions. It also updtes the tf/idf, inverted file index, page count, word count, and top fifty words.

Parameters

type	The user choice

Returns

bool The flag for a sucessful text extract.

7.27.3.3 void SearchEngine::addToHistory (string *query*)

SearchEngine::addToHistory (p. 62) This adds the query to the search history.

Parameters

query	The query to be added.

7.27.3.4 void SearchEngine::chooseStructure (char *type*)

SearchEngine::chooseStructure (p. 62) Allows the user to choose between using a Hash table or AVLTree to create the inverted index file. This also initalizes the **IndexHandler** (p. 48), Documentparser, and **QueryEngine** (p. 54) objects to allow the Search Engine access to their functions. It also updtes the tf/idf, inverted file index, page count, word count, and top fifty words.

Parameters

type	The user choice

7.27.3.5 vector< document > SearchEngine::display_search_results (string *word*)

SearchEngine::display_search_results (p. 62) This searches the inverted file index for a query and displays the results.

Parameters

word	The query to search for.

Returns

vector<document> The vector containing the document objects from the query search.

7.27.3.6 vector< bookmark > SearchEngine::displayBookmarks ( )

SearchEngine::displayBookmarks (p. 62) This displays the bookmarks.

Returns

vector<bookmarks> The vector of bookmark objects that were displayed.

7.27.3.7 bool SearchEngine::displayRawFile (string *filePath*)

SearchEngine::displayRawFile (p. 63) This dispalys the raw text of a requested PDF.

Parameters

filePath	The path to the requested PDF

Returns

bool The flag for a successful text extract.

7.27.3.8 int SearchEngine::getTotalPages ( )

SearchEngine::getTotalPages (p. 63) Returns the total page count.

Returns

pages The total page count.

7.27.3.9 int SearchEngine::numWordsIndexed ( )

SearchEngine::numWordsIndexed (p. 63) Returns the total indexed word count.

Returns

totalWordsIndexed

7.27.3.10 vector< string > SearchEngine::readFilePathFromTXTFile ( )

SearchEngine::readFilePathFromTXTFile (p. 63) This reads the file paths from the .txt file of file paths.

Returns

vector<string> The vector of the file paths.

7.27.3.11 int SearchEngine::readTotalPages ( )

SearchEngine::readTotalPages (p. 63) This outputs the total number of pages stored from the PDFs on the inverted index.

Returns

totalPages

7.27.3.12 vector< document > SearchEngine::topfifty ( )

SearchEngine::topfifty (p. 64) Returns the top fifty most common words.

Returns

top50 The vector<document> containing the top fifty words and their count.

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

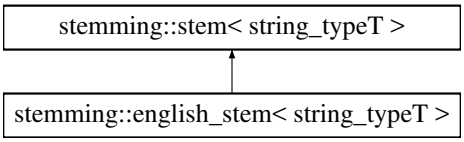
- searchengine.h
- searchengine.cpp

7.28 stemming::stem< string_typeT > Class Template Reference

The base class for language-specific stemmers.

`#include <stemming.h>`

Inheritance diagram for stemming::stem< string_typeT >:



Protected Member Functions

- void **find_r1** (const string_typeT &text, const wchar_t *vowel_list)
- void **find_r2** (const string_typeT &text, const wchar_t *vowel_list)
- void **find_spanish_rv** (const string_typeT &text, const wchar_t *vowel_list)
- void **find_french_rv** (const string_typeT &text, const wchar_t *vowel_list)
- void **find_russian_rv** (const string_typeT &text, const wchar_t *vowel_list)
- void **update_r_sections** (const string_typeT &text)
- bool **is_apostrophe** (const wchar_t &ch) const
- void **trim_western_punctuation** (string_typeT &text) const
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U) const

  is_suffix for one character
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U) const

  is_suffix for two characters
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U) const

  is_suffix for three characters
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U) const

  is_suffix for four characters

- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U) const

  is_suffix for five characters
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U) const

  is_suffix for six characters
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U) const

  is_suffix for seven characters
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const wchar_t suffix8L, const wchar_t suffix8U) const

  is_suffix for eight characters
- bool **is_suffix** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const wchar_t suffix8L, const wchar_t suffix8U, const wchar_t suffix9L, const wchar_t suffix9U) const

  is_suffix for nine characters
- bool **is_partial_suffix** (const string_typeT &text, const size_t start_index, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U)

  comparison for two characters
- bool **is_partial_suffix** (const string_typeT &text, const size_t start_index, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U)

  comparison for three characters
- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U)

  RV suffix functions.
- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U)

  RV suffix comparison for two characters.
- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U)

  RV suffix comparison for three characters.
- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U)

  RV suffix comparison for four characters.
- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U)

  RV suffix comparison for five characters.
- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U)

  RV suffix comparison for six characters.

- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U)

  RV suffix comparison for seven characters.
- bool **is_suffix_in_rv** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const wchar_t suffix8L, const wchar_t suffix8U)

  RV suffix comparison for eight characters.
- bool **is_suffix_in_r1** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U)

  R1 suffix functions.
- bool **is_suffix_in_r1** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U)

  R1 suffix comparison for two characters.
- bool **is_suffix_in_r1** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U)

  R1 suffix comparison for three characters.
- bool **is_suffix_in_r1** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U)

  R1 suffix comparison for four characters.
- bool **is_suffix_in_r1** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U)

  R1 suffix comparison for five characters.
- bool **is_suffix_in_r1** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U)

  R1 suffix comparison for six characters.
- bool **is_suffix_in_r2** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U)

  R2 suffix functions.
- bool **is_suffix_in_r2** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U)

  R2 suffix comparison for two characters.
- bool **is_suffix_in_r2** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U)

  R2 suffix comparison for three characters.
- bool **is_suffix_in_r2** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U)

  R2 suffix comparison for four characters.
- bool **is_suffix_in_r2** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U)

  R2 suffix comparison for five characters.
- bool **is_suffix_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U)

  R2 suffix comparison for six characters.

- bool **is_suffix_in_r2** (const string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U)

  R2 suffix comparison for seven characters.
- bool **delete_if_is_in_r1** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const bool success_on_find=true)
- bool **delete_if_is_in_r1** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const bool success_on_find=true)
- bool **delete_if_is_in_r1** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const bool success_on_find=true)
- bool **delete_if_is_in_r1** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const bool success_on_find=true)
- bool **delete_if_is_in_r1** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const bool success_on_find=true)
- bool **delete_if_is_in_r1** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const bool success_on_find=true)
- bool **delete_if_is_in_r1** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const bool success_on_find=true)
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const bool success_on_find=true)
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const bool success_on_find=true)
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const bool success_on_find=true)
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const bool success_on_find=true)
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const bool success_on_find=true)

  R2 deletion for five character suffix.
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const bool success_on_find=true)

  R2 deletion for six character suffix.
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const bool success_on_find=true)

  R2 deletion for seven character suffix.
- bool **delete_if_is_in_r2** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar_t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const wchar_t suffix8L, const wchar_t suffix8U, const bool success_on_find=true)

  R2 deletion for eight character suffix.

- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const bool success_on_find=true)
- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const bool success_on_find=true)
- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const bool success_on_↩ find=true)
- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const bool success_on_find=true)
- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar_t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const bool success_on_find=true)
- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar↩ _t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar↩ _t suffix6U, const bool success_on_find=true)
- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar↩ _t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar↩ _t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const bool success_on_find=true)
- bool **delete_if_is_in_rv** (string_typeT &text, const wchar_t suffix1L, const wchar_t suffix1U, const wchar↩ _t suffix2L, const wchar_t suffix2U, const wchar_t suffix3L, const wchar_t suffix3U, const wchar_t suffix4L, const wchar_t suffix4U, const wchar_t suffix5L, const wchar_t suffix5U, const wchar_t suffix6L, const wchar↩ _t suffix6U, const wchar_t suffix7L, const wchar_t suffix7U, const wchar_t suffix8L, const wchar_t suffix8U, const bool success_on_find=true)
- void **remove_german_umlauts** (string_typeT &text)
- void **italian_acutes_to_graves** (string_typeT &text)
- void **hash_dutch_yi** (string_typeT &text, const wchar_t ∗vowel_string)

  Hash initial y, y after a vowel, and i between vowels into hashed character.
- void **unhash_dutch_yi** (string_typeT &text)
- void **hash_german_yu** (string_typeT &text, const wchar_t ∗vowel_string)

  Hash 'u' and 'y' between vowels.
- void **unhash_german_yu** (string_typeT &text)
- void **hash_french_yui** (string_typeT &text, const wchar_t ∗vowel_string)
- void **unhash_french_yui** (string_typeT &text)
- void **hash_y** (string_typeT &text, const wchar_t ∗vowel_string)
- void **unhash_y** (string_typeT &text)
- void **hash_italian_ui** (string_typeT &text, const wchar_t ∗vowel_string)

  Hash u after q, and u, i between vowels.
- void **unhash_italian_ui** (string_typeT &text)
- void **remove_dutch_umlauts** (string_typeT &text)
- void **remove_dutch_acutes** (string_typeT &text)
- void **remove_spanish_acutes** (string_typeT &text)
- size_t **get_r1** () const
- void **set_r1** (const size_t val)
- size_t **get_r2** () const
- void **set_r2** (const size_t val)
- size_t **get_rv** () const
- void **set_rv** (const size_t val)
- void **reset_r_values** ()

7.28.1 Detailed Description

template<typename string_typeT = std::wstring>
class stemming::stem< string_typeT >

The base class for language-specific stemmers.

The template argument for the stemmers are the type of std::basic_string that you are trying to stem, by default std::wstring (Unicode strings). As long as the char type of your basic_string is wchar_t, then you can use any type of basic_string. This is to say, if your basic_string has a custom char_traits or allocator, then just specify it in your template argument to the stemmer.

Example:

```
typedef std::basic_string<wchar_t, myTraits, myAllocator> myString;
myString word(L"documentation");
stemming::english_stem<myString> StemEnglish;
StemEnglish(word);
```

7.28.2 Member Function Documentation

7.28.2.1 template<typename string_typeT = std::wstring> void stemming::stem< string_typeT >::hash_french_yui (string_typeT & *text,* const wchar_t * *vowel_string*) [inline], [protected]

Hash u or i preceded and followed by a vowel, and y preceded or followed by a vowel. u after q is also hashed. For example, jouer -> joUer ennuie -> ennuIe yeux -> Yeux quand -> qUand

7.28.2.2 template<typename string_typeT = std::wstring> bool stemming::stem< string_typeT >::is_apostrophe (const wchar_t & *ch*) const [inline], [protected]

Determines if a character is an apostrophe (includes straight single quotes).

Parameters

ch	The letter to be analyzed.

7.28.2.3 template<typename string_typeT = std::wstring> bool stemming::stem< string_typeT >::is_suffix_in_r1 (const string_typeT & *text,* const wchar_t *suffix1L,* const wchar_t *suffix1U*) [inline], [protected]

R1 suffix functions.

R1 suffix comparison for one character

7.28.2.4 template<typename string_typeT = std::wstring> bool stemming::stem< string_typeT >::is_suffix_in_r2 (const string_typeT & *text,* const wchar_t *suffix1L,* const wchar_t *suffix1U*) [inline], [protected]

R2 suffix functions.

R2 suffix comparison for one character

7.28.2.5 template<typename string_typeT = std::wstring> bool stemming::stem< string_typeT >::is_suffix_in_rv (const string_typeT & *text,* const wchar_t *suffix1L,* const wchar_t *suffix1U*) [inline], [protected]

RV suffix functions.

RV suffix comparison for one character

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

- stemming.h

7.29 string_util::string_tokenize< T > Class Template Reference

Tokenizes a string using a set of delimiters.

`#include <string_util.h>`

Public Member Functions

- **string_tokenize** (const T &val, const T &delim)
- bool **has_more_tokens** () const
- bool **has_more_delimiters** () const
- T **get_next_token** ()

7.29.1 Detailed Description

template<typename T>
class string_util::string_tokenize< T >

Tokenizes a string using a set of delimiters.

Date

2010

7.29.2 Constructor & Destructor Documentation

7.29.2.1 template<typename T > string_util::string_tokenize< T >::string_tokenize (const T & *val,* const T & *delim*) [inline]

Constructor which takes the string to parse and the delimiters to use.

Parameters

val	The string to parse.
delim	The set of delimiters to separate the string.

7.29.3 Member Function Documentation

7.29.3.1 template<typename T > T string_util::string_tokenize< T >::get_next_token ( ) [inline]

Returns

The next token from the original string as a string object Note that empty tokens can be returned if there is proceeding or trailing delimiters in the string, or if there are repeated delimiters next to each other.

7.29.3.2 template<typename T > bool string_util::string_tokenize< T >::has_more_delimiters ( ) const [inline]

Returns

Whether or not there are more delimiters in the string. This is useful for seeing if there are any delimiters at all when first loading the string.

7.29.3.3 template<typename T > bool string_util::string_tokenize< T >::has_more_tokens ( ) const [inline]

Returns

Whether or not there are more tokens in the string.

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

- string_util.h

7.30 string_util::string_trim< char_typeT > Class Template Reference

trims whitespace from around a string

`#include <string_util.h>`

Public Member Functions

- const char_typeT * **operator()** (const char_typeT *value, size_t length=std::basic_string< char_typeT >↩ ::npos)
- size_t **get_trimmed_string_length** () const

7.30.1 Detailed Description

template<typename char_typeT>
class string_util::string_trim< char_typeT >

trims whitespace from around a string

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

- string_util.h

7.31 TextExtractor Class Reference

The **TextExtractor** (p. 72) class.

`#include <textextractor.h>`

Public Member Functions

- **TextExtractor** (**IndexHandler** ∗, **indexextractor** ∗)

  TextExtractor::TextExtractor *(*p. *72) The* ***TextExtractor*** *(*p. *72) constructor.*
- virtual ∼**TextExtractor** ()

  TextExtractor::∼TextExtractor *(*p. *72) The* ***TextExtractor*** *(*p. *72) destructor.*
- int **getTotalPages** ()

  TextExtractor::getTotalPages *(*p. *73) Returns the total number of pages in the pdf.*
- string **getDocName** ()

  TextExtractor::getDocName *(*p. *73) Returns the PDF name.*
- int **getWordCount** ()

  TextExtractor::getWordCount *(*p. *73) Returns the word count.*
- void **Init** (const char ∗pszInput, string docName)

  TextExtractor::Init *(*p. *73) Uses Podofo to extract the text from the given PDF.*

Public Attributes

- **IndexHandler** ∗ **ih**
- **indexextractor** ∗ **ie**
- string **mm**
- vector< string > **a**
- int **wordCount** =0
- string **docsName**

7.31.1 Detailed Description

The **TextExtractor** (p. 72) class.

7.31.2 Constructor & Destructor Documentation

7.31.2.1 TextExtractor::TextExtractor (IndexHandler ∗ *ih,* indexextractor ∗ *ie*)

TextExtractor::TextExtractor (p. 72) The **TextExtractor** (p. 72) constructor.

Parameters

ih	The **IndexHandler** (p. 48) object.
ie	The **IndexInterface** (p. 50) object.

7.31.3 Member Function Documentation

7.31.3.1 string TextExtractor::getDocName ( )

TextExtractor::getDocName (p. 73) Returns the PDF name.

Returns

docsName The PDF name.

7.31.3.2 int TextExtractor::getTotalPages ( )

TextExtractor::getTotalPages (p. 73) Returns the total number of pages in the pdf.

Returns

totalPages The total number of pages in the pdf.

7.31.3.3 int TextExtractor::getWordCount ( )

TextExtractor::getWordCount (p. 73) Returns the word count.

Returns

wordCount The word count.

7.31.3.4 void TextExtractor::Init (const char * *pszInput,* string *docName*)

TextExtractor::Init (p. 73) Uses Podofo to extract the text from the given PDF.

Parameters

pszInput	The path to the corpus of PDFs
docName	The name of the pdf to extract text from.

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

- textextractor.h
- textextractor.cpp

7.32 userinterface Class Reference

The UserInterface is a command line menu driven class that makes use of the **SearchEngine** (p. 59). It allows the user to enter into two modes, Maintainence and Query, allows the user many options including adding a new pdf

to the inverted index, clearing the index, searching the PDF, outputting total pages, outputting total words indexed, outputting the top fifty words, outputting the corpus paths, storing and clearing the search history, storing and clearing bookmarks and outputting the raw text from a selected pdf.

`#include <userinterface.h>`

Public Member Functions

- **userinterface** ()

  *The UserInterface is a command line menu driven class that makes use of the **SearchEngine** (p. 59). It allows the user to enter into two modes, Maintainence and Query, allows the user many options including adding a new pdf to the inverted index, clearing the index, searching the PDF, outputting total pages, outputting total words indexed, outputting the top fifty words, outputting the corpus paths, storing and clearing the search history, storing and clearing bookmarks and outputting the raw text from a selected pdf.*
- void **use** ()

  use method runs the user interface. It

7.32.1 Detailed Description

The UserInterface is a command line menu driven class that makes use of the **SearchEngine** (p. 59). It allows the user to enter into two modes, Maintainence and Query, allows the user many options including adding a new pdf to the inverted index, clearing the index, searching the PDF, outputting total pages, outputting total words indexed, outputting the top fifty words, outputting the corpus paths, storing and clearing the search history, storing and clearing bookmarks and outputting the raw text from a selected pdf.

CSE 2341 UserInterface.h

Author

Patrick Yienger (owner)

Version

1.0 05/07/17 The userinterface class

7.32.2 Constructor & Destructor Documentation

7.32.2.1 userinterface::userinterface ( )

The UserInterface is a command line menu driven class that makes use of the **SearchEngine** (p. 59). It allows the user to enter into two modes, Maintainence and Query, allows the user many options including adding a new pdf to the inverted index, clearing the index, searching the PDF, outputting total pages, outputting total words indexed, outputting the top fifty words, outputting the corpus paths, storing and clearing the search history, storing and clearing bookmarks and outputting the raw text from a selected pdf.

CSE 2341 UserInterface.cpp

Author

Patrick Yienger (owner)

Version

1.0 05/07/17 **userinterface::userinterface** (p. 74) The constructor for the user interface.

7.32.3 Member Function Documentation

7.32.3.1 void userinterface::use ( )

use method runs the user interface. It

userinterface::use (p. 75) The method that runs the user interface menu. It allows the user to enter into two modes, Maintainence and Query, allows the user many options including adding a new pdf to the inverted index, clearing the index, searching the PDF, outputting total pages, outputting total words indexed, outputting the top fifty words, outputting the corpus paths, storing and clearing the search history, storing and clearing bookmarks and outputting the raw text from a selected pdf.

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

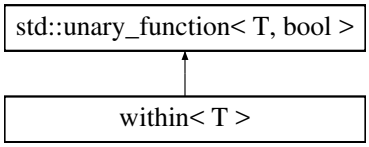
- userinterface.h
- userinterface.cpp

7.33 within< T > Class Template Reference

Determines if a value is within a given range.

`#include <utilities.h>`

Inheritance diagram for within< T >:



Public Member Functions

- **within** (T range_begin, T range_end)
- bool **operator()** (T value) const

7.33.1 Detailed Description

template<typename T>
class within< T >

Determines if a value is within a given range.

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

- utilities.h

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