CS253_P6

6

Generated by Doxygen 1.8.13

Contents

1 Class Index **1**

1.1 Class List 1

2 File Index **3**

2.1 File List 3

3 Class Documentation **5**

3.1 fDriver Class Reference 5

3.1.1 Constructor & Destructor Documentation 5

3.1.1.1 fDriver() 5

3.1.2 Member Function Documentation 5

3.1.2.1 calcIDF() 6

3.1.2.2 calcMatrix() 6

3.1.2.3 calcSim() 6

3.1.2.4 calcTF() 6

3.1.2.5 calcTFIDF() 6

3.1.2.6 checkResultsMap() 6

3.1.2.7 printDocMatrix() 6

3.1.2.8 read() 7

3.2 lexo Class Reference 7

3.2.1 Constructor & Destructor Documentation 7

3.2.1.1 lexo() 7

3.2.2 Member Function Documentation 8

3.2.2.1 addambVector() 8

3.2.2.2 addFreqMap() . . . 8
3.2.2.3 addIVector() . . . 8
3.2.2.4 addunambVector() . . . 8
3.2.2.5 checkAlpha() . . . 8
3.2.2.6 checkAmbigous() . . . 8
3.2.2.7 checkDig() . . . 9
3.2.2.8 checkEng() . . . 9
3.2.2.9 checkPunct() . . . 9
3.2.2.10 checkWord() . . . 9
3.2.2.11 clearAmb() . . . 9
3.2.2.12 getMapWordCount() . . . 9
3.2.2.13 lexCalcFreq() . . . 9
3.2.2.14 lexSort() . . . 10
3.2.2.15 printMap() . . . 10
3.2.2.16 subString() . . . 10
3.2.3 Member Data Documentation . . . 10
3.2.3.1 freqMap . . . 10
3.3 Stem Class Reference . . . 10
3.3.1 Detailed Description . . . 11
3.3.2 Member Function Documentation . . . 11
3.3.2.1 Find() . . . 11
3.3.2.2 isDouble() . . . 12
3.3.2.3 isLiEnding() . . . 12
3.3.2.4 isShort() . . . 12
3.3.2.5 isShortSyllable() . . . 12
3.3.2.6 isVowel() [1/2] . . . 12
3.3.2.7 isVowel() [2/2] . . . 13
3.3.2.8 Preceder() . . . 13
3.3.2.9 Region1() . . . 13
3.3.2.10 Region2() . . . 13

3.3.2.11 Replace() . . . 13
3.3.2.12 Step1() . . . 13
3.3.2.13 Step2() . . . 14
3.3.2.14 Step3() . . . 14
3.3.2.15 step3Replace() . . . 14
3.3.2.16 Step4() . . . 14
3.3.2.17 Step5() . . . 14
3.3.2.18 Step6() . . . 14
3.3.2.19 step6SufIsReg1() . . . 15
3.3.2.20 step6SufIsReg2() . . . 15
3.3.2.21 Step7() . . . 15
3.3.2.22 step7Region2() . . . 15
3.3.2.23 Step8() . . . 15
3.4 StemExcep Class Reference . . . 15
3.4.1 Member Function Documentation . . . 16
3.4.1.1 checkExcep() . . . 16
3.4.1.2 initExcep() . . . 16

4 File Documentation **17**

4.1 fDriver.cpp File Reference . . . 17
4.2 fDriver.h File Reference . . . 17
4.3 lexo.cpp File Reference . . . 18
4.4 lexo.h File Reference . . . 18
4.5 main.cpp File Reference . . . 18
4.5.1 Function Documentation . . . 18
4.5.1.1 main() . . . 18
4.6 Stem.cpp File Reference . . . 19
4.7 Stem.h File Reference . . . 19
4.7.1 Detailed Description . . . 19
4.8 StemExcep.cpp File Reference . . . 19
4.9 StemExcep.h File Reference . . . 20

Index **21**

Chapter 1

Class Index

1.1 Class List

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

fDriver 5
lexo 7
Stem
My Stemmer class 10
StemExcep 15

Chapter 2

File Index

2.1 File List

Here is a list of all files with brief descriptions:

fDriver.cpp 17
fDriver.h 17
lexo.cpp 18
lexo.h 18
main.cpp 18
Stem.cpp 19
Stem.h
    Header file for the stem class which stems string that is passed into it 19
StemExcep.cpp 19
StemExcep.h 20

Chapter 3

Class Documentation

3.1 fDriver Class Reference

```
#include <fDriver.h>
```

Public Member Functions

- fDriver (int fCount)
- int read (char *list[ ])
- void calcMatrix ()
- long double calcSim (lexo &A, lexo &B)
- double calcTFIDF (const string &sIn, lexo &doc)
- double calcTF (const string &sIn, lexo &doc)
- double calcIDF (const string &sIn)
- void printDocMatrix ()
- bool checkResultsMap (string &name)

3.1.1 Constructor & Destructor Documentation

3.1.1.1 fDriver()

```
fDriver::fDriver (
            int fCount )  [inline]
```

3.1.2 Member Function Documentation

3.1.2.1 calcIDF()

```
double fDriver::calcIDF (
            const string & sIn )
```

3.1.2.2 calcMatrix()

```
void fDriver::calcMatrix ( )
```

3.1.2.3 calcSim()

```
long double fDriver::calcSim (
            lexo & A,
            lexo & B )
```

3.1.2.4 calcTF()

```
double fDriver::calcTF (
            const string & sIn,
            lexo & doc )
```

3.1.2.5 calcTFIDF()

```
double fDriver::calcTFIDF (
            const string & sIn,
            lexo & doc )
```

3.1.2.6 checkResultsMap()

```
bool fDriver::checkResultsMap (
            string & name )
```

3.1.2.7 printDocMatrix()

```
void fDriver::printDocMatrix ( )
```

3.1.2.8 read()

```
int fDriver::read (
            char * list[] )
```

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

- fDriver.h
- fDriver.cpp

3.2 lexo Class Reference

```
#include <lexo.h>
```

Public Member Functions

- lexo (StemExcep &se)
- void checkEng (string &sIn)
- void checkPunct (string &sIn, int pos)
- void checkDig (string &sIn, int pos)
- void checkAlpha (string &sIn, int pos)
- string checkWord (string &sIn)
- string subString (string &sIn, int size)
- void addambVector (const string &sIn)
- void addunambVector (const string &sIn)
- void addlVector (const string &sIn)
- void lexSort ()
- void lexCalcFreq ()
- void addFreqMap (const string &sIn)
- bool checkAmbigous (string sIn)
- void clearAmb ()
- const void printMap ()
- const int getMapWordCount (const string &sIn)

Public Attributes

- map< string, int > freqMap

3.2.1 Constructor & Destructor Documentation

3.2.1.1 lexo()

```
lexo::lexo (
            StemExcep & se )  [inline]
```

3.2.2 Member Function Documentation

3.2.2.1 addambVector()

```
void lexo::addambVector (
            const string & sIn )
```

3.2.2.2 addFreqMap()

```
void lexo::addFreqMap (
            const string & sIn )
```

3.2.2.3 addlVector()

```
void lexo::addlVector (
            const string & sIn )
```

3.2.2.4 addunambVector()

```
void lexo::addunambVector (
            const string & sIn )
```

3.2.2.5 checkAlpha()

```
void lexo::checkAlpha (
            string & sIn,
            int pos )
```

3.2.2.6 checkAmbigous()

```
bool lexo::checkAmbigous (
            string sIn )
```

3.2.2.7 checkDig()

```
void lexo::checkDig (
            string & sIn,
            int pos )
```

3.2.2.8 checkEng()

```
void lexo::checkEng (
            string & sIn )
```

3.2.2.9 checkPunct()

```
void lexo::checkPunct (
            string & sIn,
            int pos )
```

3.2.2.10 checkWord()

```
string lexo::checkWord (
            string & sIn )
```

3.2.2.11 clearAmb()

```
void lexo::clearAmb ( )
```

3.2.2.12 getMapWordCount()

```
const int lexo::getMapWordCount (
            const string & sIn )
```

3.2.2.13 lexCalcFreq()

```
void lexo::lexCalcFreq ( )
```

3.2.2.14 lexSort()

```
void lexo::lexSort ( )
```

3.2.2.15 printMap()

```
const void lexo::printMap ( )
```

3.2.2.16 subString()

```
string lexo::subString (
            string & sIn,
            int size )
```

3.2.3 Member Data Documentation

3.2.3.1 freqMap

```
map<string,int> lexo::freqMap
```

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

- lexo.h
- lexo.cpp

3.3 Stem Class Reference

My Stemmer class.

```
#include <Stem.h>
```

Public Member Functions

- string Step1 (string sIn)
- string Step2 (string &sIn)
- string Step3 (string &sIn)
- string Step4 (string &sIn)
- string Step5 (string &sIn)
- string Step6 (string &sIn)
- string Step7 (string &sIn)
- string Step8 (string &sIn)
- const string step3Replace (string &sIn, const string &suffix)
- const bool step6SufIsReg1 (const string &sIn, const string &suffix)
- const bool step6SufIsReg2 (const string &sIn, const string &suffix)
- string step7Region2 (string &sIn)
- const bool isVowel (const string &sIn, int at)
- const bool isVowel (const string &sIn)
- const bool isDouble (const string &sIn, int at)
- const bool isLiEnding (const string &sIn)
- const string Region1 (const string &sIn)
- const string Region2 (const string &sIn)
- const string Preceder (const string &sIn, const string &suffix)
- const bool isShortSyllable (const string &sIn)
- const bool isShort (const string &sIn)
- string Replace (string &sIn, const string &sNew, int start)
- const bool Find (const string &sIn, const string &suffix)

3.3.1 Detailed Description

My Stemmer class.

Stem will take in strings and using a algorithim return a very specific change to that string depending on the algorithim.

Note

stem uses the default constructor

3.3.2 Member Function Documentation

3.3.2.1 Find()

```
const bool Stem::Find (
            const string & sIn,
            const string & suffix )
```

Find if the suffix is in the sIn string Return true if it is in it, false if not

3.3.2.2 isDouble()

```
const bool Stem::isDouble (
            const string & sIn,
            int at )
```

Checks to see if a string contains a double, takes a int, will check that char(at index) and the char after for pair A double is any of the following letter pairs: {'bb', 'dd', 'ff', 'gg', 'mm', 'nn', 'pp', 'rr', 'tt'}.

3.3.2.3 isLiEnding()

```
const bool Stem::isLiEnding (
            const string & sIn )
```

Checks to see if a string contains a valid li-ending A valid li-ending is one of {'c', 'd', 'e', 'g', 'h', 'k', 'm', 'n', 'r', 't'}.

3.3.2.4 isShort()

```
const bool Stem::isShort (
            const string & sIn )
```

A word is called short if both (1) it ends in a short syllable and (2) its Region1 is empty. For example, bed, shed, and shred are short words, but bead, embed and beds are not.

3.3.2.5 isShortSyllable()

```
const bool Stem::isShortSyllable (
            const string & sIn )
```

A string ends in a short syllable if either

1. It ends with a non-vowel followed by a vowel followed by a non-vowel that is not one of {'w', 'x' or 'y'}
2. The string is only two characters long, and is a vowel followed by a non-vowel

3.3.2.6 isVowel() [1/2]

```
const bool Stem::isVowel (
            const string & sIn,
            int at )
```

Checks to see if a certain char in the string is a vowel A vowel is any of {'a', 'e', 'i', 'o', 'u'} or the letter 'y' UNLESS the 'y' is the first letter in a word or immediately follows a vowel. (Note that this is a recursive definition.) Therefor the letter 'y' is considered a vowel in the word try but a consonant (non-vowel) in the words yellow and today.

3.3.2.7 isVowel() [2/2]

```
const bool Stem::isVowel (
            const string & sIn )
```

Overide of isVowel, where it checks if in any part of a string there is a vowel

3.3.2.8 Preceder()

```
const string Stem::Preceder (
            const string & sIn,
            const string & suffix )
```

The preceder is the part of a word before a given suffix. For example, if the suffix is ing then the preceder of talking is talk.

3.3.2.9 Region1()

```
const string Stem::Region1 (
            const string & sIn )
```

Region1 is the substring that follows the first consonant (non-vowel) that follows a vowel. Region1 may be empty (it often is for short words). Examples: Region1(try) is empty, but Region1(definition) is inition

3.3.2.10 Region2()

```
const string Stem::Region2 (
            const string & sIn )
```

Region2 is the Region1 of Region1. In other words, Region2(definition) = Region1(inition) = ition.

3.3.2.11 Replace()

```
string Stem::Replace (
            string & sIn,
            const string & sNew,
            int start )
```

Replace will erase a portion of string sIn starting at start to length of sIn Replace then will push the string sNew to the back, if sNew is null then nothing will be pushed to back

3.3.2.12 Step1()

```
string Stem::Step1 (
            string sIn )
```

Step #1 starts with a special case: if the word (i.e. string) begins with an apostrophe, remove the apostrophe. Then apply the longest of the following substitutions that apply (see assignment sheet for break down)

3.3.2.13 Step2()

```
string Stem::Step2 (
            string & sIn )
```

Step #2 is as follows (remember, use only the longest that applies) (see assignment sheet for break down)

3.3.2.14 Step3()

```
string Stem::Step3 (
            string & sIn )
```

Step #3 (see assignment sheet for break down)

3.3.2.15 step3Replace()

```
const string Stem::step3Replace (
            string & sIn,
            const string & suffix )
```

driver for step3, checks conditions for the 2nd row replace (see assignment sheet for break down)

3.3.2.16 Step4()

```
string Stem::Step4 (
            string & sIn )
```

Step #4 (see assignment sheet for break down)

3.3.2.17 Step5()

```
string Stem::Step5 (
            string & sIn )
```

Step #5 (see assignment sheet for break down)

3.3.2.18 Step6()

```
string Stem::Step6 (
            string & sIn )
```

Step #6 rules all require that the prefix be in Region1 (one of the rules has a stronger condition, and requires the prefix to be in Region2) (see assignment sheet for break down)

3.3.2.19 step6SufIsReg1()

```
const bool Stem::step6SufIsReg1 (
            const string & sIn,
            const string & suffix )
```

driver for step6, checks to see if the suffix is inside of region1 if suffix is in region1 return true else return false

3.3.2.20 step6SufIsReg2()

```
const bool Stem::step6SufIsReg2 (
            const string & sIn,
            const string & suffix )
```

driver for step6, checks to see if the suffix is inside of region2 (which is in region1) if suffix is in region1 return true else return false

3.3.2.21 Step7()

```
string Stem::Step7 (
            string & sIn )
```

Step #7 (see assignment sheet for break down)

3.3.2.22 step7Region2()

```
string Stem::step7Region2 (
            string & sIn )
```

driver for step7, checks the row1 suffixs to be in region2

3.3.2.23 Step8()

```
string Stem::Step8 (
            string & sIn )
```

Step #8 (see assignment sheet for break down)

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

- Stem.h
- Stem.cpp

3.4 StemExcep Class Reference

```
#include <StemExcep.h>
```

Public Member Functions

- bool initExcep (char *list)
- string checkExcep (string &sIn)

3.4.1 Member Function Documentation

3.4.1.1 checkExcep()

```
string StemExcep::checkExcep (
            string & sIn )
```

3.4.1.2 initExcep()

```
bool StemExcep::initExcep (
            char * list )
```

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

- StemExcep.h
- StemExcep.cpp

Chapter 4

File Documentation

4.1 fDriver.cpp File Reference

```
#include <fDriver.h>
#include <lexo.h>
#include <StemExcep.h>
#include <string>
#include <iostream>
#include <fstream>
#include <vector>
#include <map>
#include <math.h>
```

4.2 fDriver.h File Reference

```
#include <lexo.h>
#include <string>
#include <iostream>
#include <fstream>
#include <vector>
#include <map>
#include <math.h>
```

Classes

- class fDriver

4.3 lexo.cpp File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#include <lexo.h>
#include <iostream>
#include <vector>
#include <map>
#include <algorithm>
#include <string>
```

4.4 lexo.h File Reference

```
#include <iostream>
#include <StemExcep.h>
#include <vector>
#include <map>
#include <algorithm>
#include <string>
```

Classes

- class lexo

4.5 main.cpp File Reference

```
#include <fDriver.h>
#include <iostream>
```

Functions

- int main (int argc, char ∗argv[ ])

4.5.1 Function Documentation

4.5.1.1 main()

```
int main (
            int argc,
            char * argv[] )
```

4.6 Stem.cpp File Reference

```
#include <stdio.h>
#include <stdlib.h>
#include <Stem.h>
#include <lexo.h>
#include <iostream>
#include <string>
```

4.7 Stem.h File Reference

Header file for the stem class which stems string that is passed into it.

```
#include <iostream>
#include <string>
```

Classes

- class Stem

  My Stemmer class.

4.7.1 Detailed Description

Header file for the stem class which stems string that is passed into it.

Author

Luke Burford

Date

10/03/17

See also

lburford@rams.colostate.edu

4.8 StemExcep.cpp File Reference

```
#include <StemExcep.h>
#include <iostream>
#include <fstream>
#include <sstream>
#include <unordered_map>
#include <string>
```

4.9 StemExcep.h File Reference

```
#include <Stem.h>
#include <iostream>
#include <fstream>
#include <sstream>
#include <unordered_map>
#include <algorithm>
#include <string>
```

Classes

- class StemExcep

Index

addFreqMap
    lexo, 8
addambVector
    lexo, 8
addlVector
    lexo, 8
addunambVector
    lexo, 8

calcIDF
    fDriver, 5
calcMatrix
    fDriver, 6
calcSim
    fDriver, 6
calcTFIDF
    fDriver, 6
calcTF
    fDriver, 6
checkAlpha
    lexo, 8
checkAmbigous
    lexo, 8
checkDig
    lexo, 8
checkEng
    lexo, 9
checkExcep
    StemExcep, 16
checkPunct
    lexo, 9
checkResultsMap
    fDriver, 6
checkWord
    lexo, 9
clearAmb
    lexo, 9

fDriver, 5
    calcIDF, 5
    calcMatrix, 6
    calcSim, 6
    calcTFIDF, 6
    calcTF, 6
    checkResultsMap, 6
    fDriver, 5
    printDocMatrix, 6
    read, 6
fDriver.cpp, 17
fDriver.h, 17

Find
    Stem, 11
freqMap
    lexo, 10

getMapWordCount
    lexo, 9

initExcep
    StemExcep, 16
isDouble
    Stem, 11
isLiEnding
    Stem, 12
isShort
    Stem, 12
isShortSyllable
    Stem, 12
isVowel
    Stem, 12

lexCalcFreq
    lexo, 9
lexSort
    lexo, 9
lexo, 7
    addFreqMap, 8
    addambVector, 8
    addlVector, 8
    addunambVector, 8
    checkAlpha, 8
    checkAmbigous, 8
    checkDig, 8
    checkEng, 9
    checkPunct, 9
    checkWord, 9
    clearAmb, 9
    freqMap, 10
    getMapWordCount, 9
    lexCalcFreq, 9
    lexSort, 9
    lexo, 7
    printMap, 10
    subString, 10
lexo.cpp, 18
lexo.h, 18

main
    main.cpp, 18
main.cpp, 18

main, 18

Preceder
Stem, 13
printDocMatrix
fDriver, 6
printMap
lexo, 10

read
fDriver, 6
Region1
Stem, 13
Region2
Stem, 13
Replace
Stem, 13

Stem, 10
Find, 11
isDouble, 11
isLiEnding, 12
isShort, 12
isShortSyllable, 12
isVowel, 12
Preceder, 13
Region1, 13
Region2, 13
Replace, 13
Step1, 13
Step2, 13
Step3, 14
step3Replace, 14
Step4, 14
Step5, 14
Step6, 14
step6SufIsReg1, 14
step6SufIsReg2, 15
Step7, 15
step7Region2, 15
Step8, 15
Stem.cpp, 19
Stem.h, 19
StemExcep, 15
checkExcep, 16
initExcep, 16
StemExcep.cpp, 19
StemExcep.h, 20
Step1
Stem, 13
Step2
Stem, 13
Step3
Stem, 14
step3Replace
Stem, 14
Step4
Stem, 14
Step5
Stem, 14
Step6
Stem, 14
step6SufIsReg1
Stem, 14
step6SufIsReg2
Stem, 15
Step7
Stem, 15
step7Region2
Stem, 15
Step8
Stem, 15
subString
lexo, 10