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/*
02/05/2015
Adam Novoa
CS 417
Key Word In Context
*/

#include<iostream>
#include<iomanip>
#include<string>
#include<vector>

using namespace std;

string articles[3] = { "the", "a", "an"};

struct word
{
    string W;
    int count;
};

class KWIC
{
private:
    vector<word> text;
    bool noArticle;
    bool frequency;
public:
    KWIC()
    {
        noArticle = false;
        frequency = false;
        begin();
    }
    KWIC(string commands)
    {
        noArticle = false;
        frequency = false;
        string tempCom = "";
        for (int i = 0; i < commands.length(); i++)// change to read entire command
before checking if valid
        {
            tempCom += commands[i];
            if (tempCom == "-na")
            {
                noArticle = true;
                tempCom = "";
            }
            else if (tempCom == "-f")
            {
                frequency = true;
                tempCom = "";
            }
            if (commands[i + 1] == ' ')
            {
                i++;
            }
        }
        begin();
    }
};

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}
void begin()
{
    const int size = 1000;
    char words[size];
    string temp = "";
    cout << "Please enter the text to read." << endl;
    cin.getline(words, size - 1);
    int index = 0;
    while (words[index] != '\0')
    {
        while (isalpha(words[index]))
        {
            temp += tolower(words[index]);
            index++;
        }
        if (temp.length() > 0)
        {
            add(temp);
            temp = "";
        }
        else//words[index] is ' ' or '\n'
        {
            index++;
        }
    }
    if (frequency == true)
    {
        fequencyT();
    }
    else
    {
        context();
    }
}

void add(string temp)
{
    bool isNew = true;
    word t;
    t.W = temp;
    t.count = 0;

    for (int i = 0; i < text.size(); i++)
    {
        if (temp == text[i].W)
        {
            isNew = false;
            text[i].count++;
        }
    }
    if (isNew)
    {
        t.count = 1;
        text.push_back(t);
    }
    else
    {
        text.push_back(t);
    }
    return;
}
}

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void frequencyT()
{
    if (noArticle == false)
    {
        for (int i = 0; i < text.size(); i++)
        {
            if (text[i].count > 0)
            {
                cout << left << setw(15) << text[i].W << text[i].count
<< endl;
            }
        }
    }
    else
    {
        for (int i = 0; i < text.size(); i++)
        {
            if (text[i].count > 0 && text[i].W != articles[0] && text[i].W
!= articles[1] && text[i].W != articles[2])
            {
                cout << left << setw(15) << text[i].W << text[i].count
<< endl;
            }
        }
    }
    return;
}

void context()
{
    cout << left << "Word          Context" << endl;
    if (noArticle == false)
    {
        for (int i = 0; i < text.size(); i++)
        {
            cout << setw(15) << text[i].W;
            for (int j = -3; j < 4; j++)
            {
                if (i + j < text.size() && i + j >= 0)
                    cout << text[i + j].W << " ";
            }
            cout << endl;
        }
    }
    else
    {
        for (int i = 0; i < text.size(); i++)
        {
            if (text[i].W != articles[0] && text[i].W != articles[1] &&
text[i].W != articles[2])
            {
                cout << setw(15) << text[i].W;
                for (int j = -3; j < 4; j++)
                {
                    if (i + j < text.size() && i + j >= 0)
                        cout << text[i + j].W << " ";
                }
                cout << endl;
            }
        }
    }
}

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    }
};

int main()
{
    char temp[20];
    string com = "";
    cout << "Please enter -na to skip articles." << endl;
    cout << "Enter -f for a fequency table." << endl;
    cout << "Or enter nothing for a plain KWIC" << endl;
    cin.getline(temp, 19, '\n');
    int i = 0;
    while (temp[i] != '\0')
    {
        com += temp[i];
        i++;
    }

    KWIC list(com);

    system("pause");
    return 0;
}
/*

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Output

```

Please enter -na to skip articles.
Enter -f for a fequency table.
Or enter nothing for a plain KWIC
-f -na
Please enter the text to read.
The quick brown fox jumps over the lazy dog. The quick fox
quick          2
brown          1
fox            2
jumps          1
over           1
lazy           1
dog            1
Press any key to continue . . .

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```

Please enter -na to skip articles.
Enter -f for a fequency table.
Or enter nothing for a plain KWIC
-f
Please enter the text to read.
The quick brown fox jumps over the lazy dog. The quick fox
the            3
quick          2
brown          1
fox            2
jumps          1
over           1
the            1
lazy           1
dog            1
Press any key to continue . . .

```

```

Please enter -na to skip articles.
Enter -f for a fequency table.

```

Or enter nothing for a plain KWIC

-na

Please enter the text to read.

The quick brown fox jumps over the lazy dog.

Word	Context
quick	the quick brown fox jumps
brown	the quick brown fox jumps over
fox	the quick brown fox jumps over the
jumps	quick brown fox jumps over the lazy
over	brown fox jumps over the lazy dog
lazy	jumps over the lazy dog
dog	over the lazy dog

Press any key to continue . . .

Please enter -na to skip articles.

Enter -f for a fequency table.

Or enter nothing for a plain KWIC

Please enter the text to read.

The quick brown fox jumps over the lazy dog.

Word	Context
the	the quick brown fox
quick	the quick brown fox jumps
brown	the quick brown fox jumps over
fox	the quick brown fox jumps over the
jumps	quick brown fox jumps over the lazy
over	brown fox jumps over the lazy dog
the	fox jumps over the lazy dog
lazy	jumps over the lazy dog
dog	over the lazy dog

Press any key to continue . . .

*/