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//
//   Sample Solution for pa7.cc   --   Fall 2005
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//*****
#include <iostream>
#include <fstream>
#include <iomanip>
#include <string>
using namespace std;

void CountVowels();
void CountConsonants();
void CountAll();
void FindHighest();
void FindLowest();

int main()
{
    int    choice;

    cout << fixed << showpoint;
    cout.precision(2);
    cout << endl;

    do
    {
        cout << "1. Count All Occurrences of Vowels (upper and lower case)\n";
        cout << "2. Count All Occurrences of Consonants\n";
        cout << "3. Count All Occurrences of Non-Alphabetic Characters\n";
        cout << "4. Find Employee with Highest Hourly Rate\n";
        cout << "5. Find Employee with Lowest Hourly Rate\n";
        cout << "6. Quit\n\n";

        cout << "Choice: ";
        cin >> choice;

        switch(choice)        // notice that choice is a char variable
        {
            case 1:  CountVowels();
                    break;
            case 2:  CountConsonants();
                    break;
            case 3:  CountAll();
                    break;
            case 4:  FindHighest();
                    break;
            case 5:  FindLowest();
                    break;
            case 6:  cout << "Thanks -- and Bye !!\n\n";
                    break;
            default: cout << "Invalid Selection  -- Please Try Again !\n\n";
                    break;
        }
    } while (choice != 6);

    return 0;
}

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//*****
void CountVowels()
{
    ifstream  inFile;
    int       count = 0;
    char      ch;

    inFile.open("pa7.text");
    if (inFile.fail())
    {
        cout << "Error opening input file: pa7.text -- Option Terminated!\n";
        return;
    }

    inFile >> ch;

    while (!inFile.eof())
    {
        switch(ch)
        {
            case 'a': case 'A':
            case 'e': case 'E':
            case 'i': case 'I':
            case 'o': case 'O':
            case 'u': case 'U': count++;
                               break;
            default: break;
        }

        inFile >> ch;
    }
    cout << "There are " << count << " vowels in pa7.text !\n\n";
}

//*****
void CountConsonants()
{
    ifstream  inFile;
    int       count = 0;
    char      ch;

    inFile.open("pa7.text");
    if (inFile.fail())
    {
        cout << "Error opening input file: pa7.text -- Option Terminated!\n";
        return;
    }

    inFile >> ch;

    while (!inFile.eof())
    {
        switch(ch)
        {
            case 'b': case 'B':
            case 'c': case 'C':
            case 'd': case 'D':
            case 'f': case 'F':
            case 'g': case 'G':
            case 'h': case 'H':
            case 'j': case 'J':

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        case 'k': case 'K':
        case 'l': case 'L':
        case 'm': case 'M':
        case 'n': case 'N':
        case 'p': case 'P':
        case 'q': case 'Q':
        case 'r': case 'R':
        case 's': case 'S':
        case 't': case 'T':
        case 'v': case 'V':
        case 'w': case 'W':
        case 'x': case 'X':
        case 'y': case 'Y':
        case 'z': case 'Z': count++;
                           break;
    default: break;
}

    inFile >> ch;
}
cout << "There are " << count << " consonants in pa7.text !\n\n";
}

//*****
void CountAll()
{
    ifstream inFile;
    int count = 0;
    char ch;

    inFile.open("pa7.text");
    if (inFile.fail())
    {
        cout << "Error opening input file: pa7.text -- Option Terminated!\n";
        return;
    }

    inFile >> ch;

    while (!inFile.eof())
    {
        count++;
        inFile >> ch;
    }
    cout << "There are " << count << " characters in pa7.text !\n\n";
}

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//*****
void FindHighest()
{
    ifstream  inFile;
    double    rate, hours, max;
    string    fileName, id;

    cout << "Enter the name of the employee file: ";
    cin >> fileName;

    inFile.open(fileName.c_str());
    if (inFile.fail())
    {
        cout << "Error opening input file: " << fileName
             << " -- Option Terminated!\n";
        return;
    }

    inFile >> id >> rate >> hours;
    max = rate;

    while (!inFile.eof())
    {
        if (rate > max)
            max = rate;

        inFile >> id >> rate >> hours;
    }
    cout << "Maximum hourly rate found in \"" << fileName << "\": $" << max << "\n\n";
}

//*****
void FindLowest()
{
    ifstream  inFile;
    double    rate, hours, min;
    string    fileName, id;

    cout << "Enter the name of the employee file: ";
    cin >> fileName;

    inFile.open(fileName.c_str());
    if (inFile.fail())
    {
        cout << "Error opening input file: " << fileName
             << " -- Option Terminated!\n";
        return;
    }

    inFile >> id >> rate >> hours;
    min = rate;

    while (!inFile.eof())
    {
        if (rate < min)
            min = rate;

        inFile >> id >> rate >> hours;
    }
    cout << "Minimum hourly rate found in \"" << fileName << "\": $" << min << "\n\n";
}

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