```
ee43254@ares:~$ pwd
/home/students/ee43254
ee43254@ares:~$ cat flesch.info
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Class: CSC122-W01


Activity: Say WHAT?!

Level: 7, 4 (base program), 3 (file input)


Description:


This lab allows the user to calculate the Flesch Index of a text by allowing

the user to input their own text file. The program prompts the user for a

filename and then calculates the Flesch Index. In the end, the program returns

the Flesch Index.

ee43254@ares:~$ show-code flesch.cpp


flesch.cpp:
```

```cpp
 1  #include <iostream>
 2  #include <fstream>
 3  #include <sstream>
 4  #include <string>
 5  #include <limits>
 6  #include <cctype>
 7
 8  // Function to count the number of syllables in a word
 9  short countSyllables(const std::string& word) {
10      short syllableCount = 0;
11      bool prevVowel = false;
12
13      for (char c : word) {
14          char lowerC = static_cast<char>(std::tolower(c));
15          if (lowerC == 'a' || lowerC == 'e' || lowerC == 'i'
16          || lowerC == 'o' || lowerC == 'u' || lowerC == 'y') {
17              if (!prevVowel) {
18                  syllableCount++;
19                  prevVowel = true;
20              }
21          } else {
22              prevVowel = false;
23          }
24      }
25
26      // Adjust for words ending in 'e'
27      char lastChar = static_cast<char>(std::tolower(word.back()));
28      if (lastChar == 'e' && syllableCount > 1)
29      syllableCount--;
30
31      return syllableCount;
32  }
33
34
35  // Function to calculate the number of sentences in a string
36  short countSentences(const std::string& text) {
37      short count = 0;
38      for (char c : text) {
39          if (c == '.' || c == '!' || c == '?') {
40              count++;
41          }
42      }
43      return count;
44  }
45
46
47  // Function to calculate the number of words in a string
48  short countWords(const std::string& text) {
49      std::istringstream iss(text);
50      short count = 0;
51      std::string word;
52      while (iss >> word) {
53          count++;
54      }
55      return count;
56  }
57
58
59  // Function to calculate the Flesch Index
60  double calculateFleschIndex(short wordCount,
61      short sentenceCount, short syllableCount) {
62
63  return 206.835 - 1.015 * (static_cast<double>(wordCount)/sentenceCount)
64              - 84.6 * (static_cast<double>(syllableCount) / wordCount);
65  }
66
67
68  // Function to calculate the Flesch Index for given text
69  double calculateComponents(const std::string& text) {
70      short wordCount = countWords(text);
71      short sentenceCount = countSentences(text);
72      short syllableCount = 0;
73
74      std::istringstream iss(text);
```

```cpp
 75            std::string word;
 76            while (iss >> word) {
 77                    syllableCount += countSyllables(word);
 78            }
 79
 80     return calculateFleschIndex(wordCount, sentenceCount, syllableCount);
 81  }
 82
 83  // Driver program
 84
 85  using namespace std;
 86
 87  int main(void) {
 88
 89            std::string filename;
 90        std::cout << "Enter the filename: ";
 91        std::cin >> filename;
 92
 93        std::ifstream file(filename);
 94        if (!file.is_open()) {
 95            std::cerr << "Error opening file." << std::endl;
 96            return 1;
 97        }
 98
 99        std::string text;
100        std::string line;
101        while (std::getline(file, line)) {
102            text += line + " ";
103        }
104
105        file.close();
106
107        double fleschIndex = calculateComponents(text);
108        std::cout << "Flesch Index: " << fleschIndex << std::endl;
109
110        return 0;
111  }
```

```
ee43254@ares:~$ cat flesch.dat
Did you know that Mongolia is home to the world's second-largest population

of snow leopards? These majestic and elusive creatures roam the mountainous

regions of the country, particularly in the Altai, Sayan, and Khangai mountain

ranges. Mongolia's commitment to conservation efforts has been crucial in

protecting these endangered cats and their habitats.ee43254@ares:~$ CPP flesch
flesch.cpp***


ee43254@ares:~$ ./flesch.out
Enter the filename: flesch.dat
Flesch Index: 34.684
ee43254@ares:~$ exit
```

```
exit

Script done on 2024-04-11 18:08:35-05:00 [COMMAND_EXIT_CODE="0"]
```