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// Muhammad Afiq Danial Bin Rozaidie
// A23CS0117
// Scenario 1
#include <iostream>
#include <cstring>
#include <cctype>
#include <iomanip>
using namespace std;

double calculateKeywordPercentage(const char userInput[],int lengthchar, int totalword){
    double dataCount = 0;
    const char word []= "data";

    for (int i = 0; i < lengthchar; i++){
        if (strstr(userInput+i,word) == (userInput+i)) // count total words of "data"
            dataCount++;
    }
    return (dataCount/totalword*100);
}

int main(){
    const int MAX_SIZE = 999;
    char userInput[MAX_SIZE];
    int total = 1, totalchar = 0;

    cout << "Enter the input (up to 999 characters, end with the empty line):" << endl;
    cout << "A data engineer is someone who builds and maintains the systems that data
scientists and data analysts use to collect, store, and analyze data. They use their skills to design and
build data pipelines, and to ensure that data is stored in a secure and efficient way. Data engineers
are in high demand across a wide range of industries, including finance, healthcare, retail, and
technology." << endl;

    cout << "\nInput:" << endl;
    cin.getline(userInput, MAX_SIZE);
    cout << endl;

    for(int i = 0; userInput[i] != '\0'; i++){
        userInput[i] = tolower(userInput[i]); // convert the letter of D in "Data" into lower
case
        totalchar++;
    }

    for(int i = 0; userInput[i] != '\0'; i++){
        if (userInput[i] == ' ') // count total words
            total++;
    }
}

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double percent = calculateKeywordPercentage(userInput, totalchar, total);

cout << fixed << setprecision(2);
cout << "Percentage of the word containing 'data' in the text: : " << percent << "%" << endl;
return 0;
}
```

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// Muhammad Afiq Danial Bin Rozaidie
// A23CS0117
// Scenario 2
#include <iostream>
#include <cstring>
#include <cctype>
#include <iomanip>
#include <fstream>
using namespace std;

double calculateKeywordPercentage(const char userInput[],int lengthchar, int totalword){
    double dataCount = 0;
    const char word []= "data";

    for (int i = 0; i < lengthchar; i++){
        if (strstr(userInput+i,word) == (userInput+i)) // count total words of "data"
            dataCount++;
    }
    return (dataCount/totalword*100);
}

int main(){
    const int MAX_SIZE = 999;
    char userInput[MAX_SIZE];
    int total = 1, totalchar = 0;

    ifstream in("input2.txt");
    ofstream out("output2.txt");
    if (in.fail()){
        cout << "Error. Cannot open file" << endl;
        return 0;
    }
    in.getline(userInput, MAX_SIZE);
    out << "Input:\n";
    out << userInput << " " << endl << endl;

    for(int i = 0; userInput[i] != '\0'; i++){
        userInput[i] = tolower(userInput[i]); // convert the letter of D in "Data" into lower
        totalchar++;
    }

    for(int i = 0; userInput[i] != '\0'; i++){
        if (userInput[i] == ' ') // count total words
            total++;
    }
}

```

```
double percent = calculateKeywordPercentage(userInput, totalchar, total);

out << fixed << setprecision(2);
out << "Percentage of the word containing 'data' in the text: " << percent << "%" << endl;

in.close();
out.close();
cout << "Results written to 'output2.txt'" << endl;
return 0;
}
```

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// Muhammad Afiq Danial Bin Rozaidie
// A23CS0117
// Scenario 3
#include <iostream>
#include <cstring>
#include <cctype>
#include <iomanip>
#include <fstream>
using namespace std;

double calculateKeywordPercentage(const char* userInput,int lengthchar, int totalword){
    double dataCount = 0;
    const char word []= "data";

    for (int i = 0; i < lengthchar; i++){
        if (strstr(userInput+i,word) == (userInput+i)) // count total words of "data"
            dataCount++;
    }
    return (dataCount/totalword*100);
}

int main(){
    const int MAX_SIZE = 999;
    char userInput[MAX_SIZE];
    int total = 1, totalchar = 0;

    ifstream in("input2.txt");
    ofstream out("output2.txt");
    if (in.fail()){
        cout << "Error. Cannot open file" << endl;
        return 0;
    }
    in.getline(userInput, MAX_SIZE);
    out << "Input:\n";
    out << userInput << " " << endl << endl;

    for(int i = 0; userInput[i] != '\0'; i++){
        userInput[i] = tolower(userInput[i]); // convert the letter of D in "Data" into lower
        totalchar++;
    }

    for(int i = 0; userInput[i] != '\0'; i++){
        if (userInput[i] == ' ') // count total words
            total++;
    }
}

```

```
double percent = calculateKeywordPercentage(userInput, totalchar, total);

out << fixed << setprecision(2);
out << "Percentage of the word containing 'data' in the text: " << percent << "%" << endl;

in.close();
out.close();
cout << "Results written to 'output2.txt'" << endl;
return 0;
}
```