

Program1

```
//20191128 Jian Park
#include <iostream>
#include <cmath>
#include <iomanip>
#include <fstream>
using namespace std;

int main() {
    ifstream inFile;
    ofstream outFile; //set file open mode
    inFile.open("Input.txt"); //open input file
    outFile.open("Output.txt"); //open output file
    int C, T, S, count=0; //count is number of score that it is lower then average
    double avg=0; //avg is average
    long place;

    inFile >> C; //read C

    for(int i=0; i<C; i++){
        avg=0; count=0; //reset average and count
        inFile >> T; //read T
        place = inFile.tellg(); //set position

        for(int j=0; j<T; j++){
            inFile >> S; //read S
            avg+=S;
        }
        avg = avg/T; //calculate average
        inFile.seekg(place,ios::beg); //move point to before score for each class
        for(int j=0; j<T; j++){
            inFile >> S;
            if(S < avg) count++; //count score that it is lower then average
        }
        outFile << '#' << i+1 << ' ' << fixed << setprecision(6) << double(count)/double(T)*100 << '%' << endl; //write output file
    }

    inFile.close(); //close input file
    outFile.close(); //close output file
    return 0;
}
```

Read total number of class(C) and total number of students(T). Before read each student score, set position(place) use tellg(). Read each student score and calculate average. Move point to 'place' that before read each student score. Count number of score that lower then average. Calculate percentage count division by T. When this, we have to change int to double. 'setprecision(6)' with 'fixed' is print floats with 6 digits after the decimal.

Program2

```
//20191128 Jian Park
#include <iostream>
#include <fstream>
using namespace std;

int main() {
    fstream file; //set file open mode
    file.open("Paragraph.txt"); //open input file
    string search, word;
    int count=0, len1, len2; //count is number of find word

    cin >> search; //input word that to know
    len1 = search.length(); //len1 is number of search
    for(int i=0; i<len1; i++){
        search[i] = tolower(search[i]); //search changes to lowercase
    }
    while(file >> word) { //read in words until no more words
        len2 = word.length();
        for(int j=0; j<len2; j++){
            word[j] = tolower(word[j]); //word changes to lowercase
        }
        if(search == word) count++; //when search and word is same, add 1 to count
    }
    cout << count << endl; //output count
    file.close(); //close file
    return 0;
}
```

Input word(search) that want to know. And it changes to lowercase.

While until no more words, each word changes to lowercase, and compare with search.

When search and word is same, add 1 to count.