

● Lab 1-1: Find Min and Max numbers

*program에 “이름, 학번, 프로그램ID(ex. Lab1-1) 표기할 것.

문제: 다음 데이터 파일에서 10개의 데이터를 읽고

Max, Min number(위치 포함)를 찾아서 답하시오

- 1) **Data file:** 10개의 정수로 데이터파일 구성.
(예: 90, 40, 60, 10, 50, 80, 20, 70, 15, 25)
- 2) **Output:** Minimum number is 10 at position 4,
Maximum number is 90 at position 1

● 알고리즘 참조

```
int main(){
    ifstream infile;  int data[10]; .....
    //check file open

    Save the input data into data[i];  // read data from input data file

    int minnum = findMin(data, size);
    cout << "Min number is " << minnum << "at position" << pos << endl;

    int maxnum = findMax(data, size);
    cout << "Max number is " << maxnum << " at position " << pos << endl;
    .....
}

int findMin(int data[], int n) {
    int min = data[0];           // first data
    for (int i = 1; i < n; i++)
        if (data[i] < min) {
            min = data[i];       save min position;
        }
    return min;
}
```

LAB 1-2: File I/O 연습

* program에 “이름, 학번, 프로그램ID(ex. Lab1-2) 표기할것.

문제(word count): 다음 데이터 파일에서 한 line씩 읽고 각 Line의 단어 개수를 출력하는 프로그램을 작성하시오

예) [Data File] 다음 데이터 파일 이름을 “lab1-2.txt”로 저장.

A program that translates a high level language to a machine language is called a compiler. A compiler is thus somewhat peculiar sort of program and its output is another program.

[출력] 다음은 실행 결과임

A program that translates a high level language to a machine language

The number of words: 12

is called a compiler. A compiler is thus a somewhat peculiar sort

The number of words: 12

of program and its output is yet another program.

The number of words: 9

Total Number of Words: 33

* 참조: Word Count알고리즘

Open data file // open input data file

```
While (buffer is not empty)) {  
    Print One Line;                      // print one line of data  
    WordCount (buffer, WC);  
    Print Count (WC)                      // print word count per line  
}  
Print TotalWordCount;                      // print total word count
```

WordCount(buffer, WC) {

//Initialize pointer IN=1, OUT=0; //단어 시작시, state=IN, OUT=0

int i = 0; int state = OUT; // 단어가 아직 시작안됨

while (buffer[i] != '\0') { //Until End of Line

if (isalpha(buffer[i])) { // 문자이고..

if (state == OUT) {

++wc;

state = IN;

} //문자이고 state=IN이면 do nothing

else if (buffer[i] == ' ')

state = OUT;

i++;

}

● C++ File IO 참조

#include <iostream>

#include <fstream> // for ifstream, open

#include <stdlib.h> // for exit

using namespace std;

void main() {

ifstream infile;

char buffer[80];

infile.open("lab1.txt", ios::in);

if (infile.fail()) { cout << "can't open the input file" << endl;

exit(1); }

.....

while (infile.getline(buffer, 80)) {

wordcount();

.....

}