Lab 1 Report

Changgag Zheng UESTC:2016200302027 UoG:2289258z

Yue Zeng UESTC:2016200302023 UoG:2289254z

Through tis lab, we got some knowledge about how to build a structure and how to use pointers.
In order to build (Declare) a structure, we need to use function 'struct' followed by an optional name.
Then we can declare the type of the variables in a curlybracket behind the struct name.
Pointer is a useful tool to call those variables in 'struct' function. For instance, if we want to call the variables in structure A, firstly we need to declare 'struct A *B'(B is a name chosen by ourselves). When we want to call a variable(var.a) in struct function, what we need to do is to use 'B->var.a' to represent the variable, var.a.
The struct is a kind of type and the data is the instance.

Task 1:

```c
//
//  main.c
//  Lab_1_task1
//
//  Created by Musk Zheng (Changgang Zheng) on 3/6/18.
// Auther: Changgang Zheng Glasgow college UESTC 2016200302027 UoG 2289258z & partener Yue Zeng
//  Copyright © 2018 Musk Zheng (Changgang Zheng). All rights reserved.
//

#include <stdio.h>

float add(double a, double b){
    double add; // Define it as double
    add=a+b; // Add togehter
    return add; // return it to main function
}

int main(int argc, const char * argv[]) {
    float a, b, sum; // define the variable
    printf("Please input your first number: \n"); // print the first number I want to add
    scanf("%f", &a); // input the first number I choose
    printf("Please input your second number: \n"); // print the second number I want to add
    scanf("%f", &b);// input the second number I choose
    // set a and b.
    sum=add(a,b);    // My add function.
    printf("%.3f + %.3f = %.3f\n", a, b, sum); // Print my result.(I just keep three decimal places by using '.3' between '%' and f.)
    return 0;
}
```

Task 2:

```c
//
//  main.c
//  Lab_1_task2
//
//  Created by Musk Zheng (Changgang Zheng) on 3/6/18.
// Auther: Changgang Zheng Glasgow college UESTC 2016200302027 UoG
2289258z & partener Yue Zeng
//  Copyright © 2018 Musk Zheng(Changgang Zheng). All rights reserved.
//

#include <stdio.h>
static char daytable[2][13] = {
    { 0, 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31 },
    { 0, 31, 29, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31 }
};

struct date {
    int day; // Define it as int variable.
    int month; // Define it as int variable.
    int year; // Define it as int variable.
};

int day_of_year(struct date *pd) //set day of year from month and day
{
    int i, day, leap; // Define it as int variables.
    day = 0;
    leap = ((pd->year % 4 == 0) && (pd->year % 100 != 0)) ||
(pd->year % 400 == 0);
    printf(": %d\n", leap); // judge whether the year we choose is a
leap year
    for (i = 0; i<(pd->month); i++) {
        if (leap == 0) {
            day = day + daytable[0][i]; // add the number of days in
the month before the month we choose (in common yaer)
        }
        else {
            day = day + daytable[1][i]; // add the number of days in
the month before the month we choose (in leap year)
        }
    }
    day = day + pd->day;    //add the number of days we choose in the
last month

    /*You need to calculate how many days from the start of the year
the date of pd->day, pd->month, pd->year correspond to.
     e.g., For Feb 1, 2015 (1, 2, 2015) the result should be 32 */

    return(day);
```

```c
}
int main() {
    struct date d = { 0 };   /* statement d, with the type of date and
initialize all the variables in it */
    int dayofyear;
    // You need to initialize d with the day, month, and year of your
choice.
    printf("Please input the year \n"); // print"Please input the
year"
    scanf("%d", &d.year);    // input the year
    printf("Please input the month \n");    // print"Please input the
month"
    scanf("%d", &d.month);  // input the month
    printf("Please input the day \n");  // print"Please input the day"
    scanf("%d", &d.day);     // input the day
    dayofyear = day_of_year(&d);    // asign the value of dayofyear to
be the value retuned in the function day_of_year
    printf("Day: %d\n", dayofyear); // print"Day: "
    return 0;
}
```