Assignment 9: Structure

Submitted By: U19CS012(D-12)

1. Implement struct to store the ISBN number, Title and price of n Books and display them.

Code:

```c
#include <stdio.h>
#include <conio.h>
#include <string.h>

struct book
{
    int ISBN_No;
    char Title[100];
    int Price;
};
void output(struct book book[], int n)
{
    int i, t = 1;
    for (i = 0; i < n; i++, t++)
    {
        printf("\n");
        printf("Book No. %d\n", t);
        printf("\t\tBook %d ISBN No. is = %d \n", t, book[i].ISBN_No);
        printf("\t\tBook %d Title is = %s \n", t, book[i].Title);
        printf("\t\tBook %d Price is = %d \n", t, book[i].Price);
        printf("\n");
    }
}

void main()
{
    int n;
    printf("Enter the Number of Book(<100): ");
    scanf("%d", &n);
    fflush(stdin);
    struct book b[100];
    for (int i = 0; i < n; ++i)
    {
        printf("\nEnter I.S.B.N. Number: ");
        scanf("%d", &b[i].ISBN_No);
        printf("Enter Title of Book: ");
        scanf("%s", &b[i].Title);
        fflush(stdin);  //Otherwise takes "Enter" as Input
        printf("Enter Price of Book: ");
        scanf("%d", &b[i].Price);
    }
    printf("\nThe Details of Books are as follows :");
```

```
    output(b, n);
    getch();
}
```

Output:

```
Enter the Number of Book(<100): 3

Enter I.S.B.N. Number: 1002
Enter Title of Book: Think_And_Grow_Rich
Enter Price of Book: 500

Enter I.S.B.N. Number: 1234
Enter Title of Book: 7_Habits_of_Highly_Successful_People
Enter Price of Book: 1000

Enter I.S.B.N. Number: 1589
Enter Title of Book: Power_Of_Subconscious_Mind
Enter Price of Book: 250

The Details of Books are as follows :
Book No. 1
                Book 1 ISBN No. is = 1002
                Book 1 Title is = Think_And_Grow_Rich
                Book 1 Price is = 500


Book No. 2
                Book 2 ISBN No. is = 1234
                Book 2 Title is = 7_Habits_of_Highly_Successful_People
                Book 2 Price is = 1000


Book No. 3
                Book 3 ISBN No. is = 1589
                Book 3 Title is = Power_Of_Subconscious_Mind
                Book 3 Price is = 250
```

2. Create a Structure named item that has members namely, item_name, Quantity, price and amount. Implement a user defined function that takes read item_name, quantity and price as input and calculate amount= quantity * price and print the same as output..

Code:

```
#include <stdio.h>
```

```c
struct item
{
    char item_name[100];
    int Qty;
    int Price;
    int Amount;
};

void calculate(struct item b)
{
    printf("\n\t Bill ");
    printf("\nItem Name : %s", b.item_name);
    printf("\nQuantity of Item : %d", b.Qty);
    printf("\nPrice of Item : %d", b.Price);
    b.Amount = (b.Price) * (b.Qty);
    printf("\nAmount : %d", b.Amount);
}

void main()
{
    struct item a;
    printf("Enter Item Name : ");
    scanf("%s", &a.item_name);
    printf("Enter Quantity of Item : ");
    scanf("%d", &a.Qty);
    printf("Enter Price of Item : ");
    scanf("%d", &a.Price);
    calculate(a);
}
```

Output:

```
Enter Item Name : Kurkure
Enter Quantity of Item : 25
Enter Price of Item : 20

         Bill
Item Name : Kurkure
Quantity of Item : 25
Price of Item : 20
Amount : 500
```

3. Create a structure Time with second, minutes and hour. Take inputs from user and calculate time difference between two time periods using user defined function.

Code:

```c
#include <stdio.h>
#include <math.h>
```

```c
struct time
{
    int second;
    int minute;
    int hour;
};

void timediff(struct time a, struct time b)
{
    int t1_sec = (a.hour * 60 * 60) + (a.minute * 60) + (a.second * 1);
    int t2_sec = (b.hour * 60 * 60) + (b.minute * 60) + (b.second * 1);
    int diff;
    if (t2_sec >= t1_sec)
    {
        diff = t2_sec - t1_sec;
    }
    else
    {
        diff = t1_sec - t2_sec;
    }
    int hr = diff / (60 * 60);
    diff = diff % 3600;
    int min = diff / 60;
    diff = diff % 60;
    int sec = diff;
    printf("\nTime Difference : %d Hours %d Minutes %d Seconds", hr, min, sec);
}

void main()
{
    struct time t1, t2;

    printf("\nEnter Time 1 Details :\n");
    printf("Time 1 Hours : ");
    scanf("%d", &t1.hour);
    printf("Time 1 Minutes : ");
    scanf("%d", &t1.minute);
    printf("Time 1 Seconds : ");
    scanf("%d", &t1.second);

    printf("\nEnter Time 2 Details :\n");
    printf("Time 2 Hours : ");
    scanf("%d", &t2.hour);
    printf("Time 2 Minutes : ");
    scanf("%d", &t2.minute);
    printf("Time 2 Seconds : ");
    scanf("%d", &t2.second);

    timediff(t1, t2);
```

```
}
```

Output:

```
Enter Time 1 Details :
Time 1 Hours : 5
Time 1 Minutes : 34
Time 1 Seconds : 30

Enter Time 2 Details :
Time 2 Hours : 7
Time 2 Minutes : 38
Time 2 Seconds : 10

Time Difference : 2 Hours 3 Minutes 40 Seconds
```

4. Implement struct to store the roll number, name and marks of 5 subjects of n students.

Also display that they have passed the exam or not. (< 35 marks=fail else pass).

Code:

```c
#include <stdio.h>

struct student
{
    int rollno;
    char name[100];
    int mark[5];
    int avg;
};

void result(struct student s[],int n)
{
    int j,avg;
    for (int i = 0; i < n; i++)
    {
        for(j=0;j<5;j++)
        {
            avg += s[i].mark[j];
        }
        if((avg/5)>=35)
            printf("\nResult of Roll No %d : Pass",s[i].rollno);
        else
            printf("\nResult of Roll No %d : Fail",s[i].rollno);
        avg = 0;
    }
}
```

```c
void main()
{
    struct student s[100];
    int n;
    printf("Enter the Number of Students(<100) : ");
    scanf("%d", &n);
     for (int i = 0; i < n; ++i)
    {
        printf("Enter Roll Number : ");
        scanf("%d",&s[i].rollno);
        printf("Enter Name of Student : ");
        scanf("%s",&s[i].name);
        printf("Enter Marks in 5 Subjects : ");
        scanf("%d %d %d %d %d",&s[i].mark[0],&s[i].mark[1],&s[i].mark[2],&s[i].mark[3],&s[i].
mark[4]);
    }
    result(s,n);
}
```

Output:

```
Enter the Number of Students(<100) : 3
Enter Roll Number : 12
Enter Name of Student : Ram
Enter Marks in 5 Subjects : 100 95 98 92 99
Enter Roll Number : 29
Enter Name of Student : Shyam
Enter Marks in 5 Subjects : 59 89 73 77 92
Enter Roll Number : 36
Enter Name of Student : Nobita
Enter Marks in 5 Subjects : 10 22 33 28 17

Result of Roll No 12 : Pass
Result of Roll No 29 : Pass
Result of Roll No 36 : Fail
```


Submitted By:

Bhagya Rana

U19CS012 (D-12) (CSE, SVNIT)