

# CS-111

<Module No- 6>

➤ Lab7

NITK SURATHKAL



INBASEKARAN.P

201EC226

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// Lab 7 Questin 1
// Inbasekaran.P 201EC226
/*Program to input and display book information ( Title of the book,
Author , ISBN,Price)*/
#include<stdio.h>
#include<stdlib.h>
struct books{
    char title[30],author[30],isbn[10];
    int price;
};
void input_details(struct books *st){
    printf("Enter the Title of the book:");
    gets(st->title);
    printf("Enter the author:");
    gets(st->author);
    printf("Enter the ISBN:");
    gets(st->isbn);
    printf("Enter the price in RS: ");
    scanf("%d",&st->price);
}
void print_details(struct books st){
    printf("Book Deatils:\n");
    printf("Book Title is \"%s\" \n",st.title);
    printf("Book Name is \"%s\" \n",st.author);
    printf("Book ISBN is \"%s\" \n",st.isbn);
    printf("Book price in RS%d \n",st.price);
}

int main(){
    system("clear");
    struct books st;
    input_details(&st);
    print_details(st);
    return 0;
}

```

## OUTPUT

```

Enter the Title of the book:Romeo and Juliet
Enter the author:William Shakespeare
Enter the ISBN:9876543210
Enter the price in RS: 299
Book Deatils:
Book Title is "Romeo and Juliet"
Book Name is "William Shakespeare"
Book ISBN is "9876543210"
Book price in RS299
PS D:\Documents\NIT-K\My_Second_Sem\CS111\M6>

```

```

// Lab 7 Questin 2
// Inbasekaran.P 201EC226
/*
Program to accept 5 people's name, address and telephone number and to search
for the information of a particular person.
i. Based on name
ii. Based on telephone number
*/
// For printf() and scanf()
#include <stdio.h>
// Including stdlib for system("clear") to clear the screen in the terminal.
#include<stdlib.h>
#include<string.h>
struct person {
    char name[50];
    char address[50];
    char number[16];
};
struct person input(){
    struct person s;
    printf("Enter information:\n");
    printf("Enter name: ");
    gets(s.name);
    printf("Enter address: ");
    gets(s.address);
    printf("Enter number along with code: ");
    gets(s.number);
    return s;
}
void display(struct person s){
    printf("Displaying Information:\n");
    printf("Name: ");
    printf("%s\n", s.name);
    printf("Address: %s\n", s.address);
    printf("Phone number: %s\n", s.number);
}
struct person* find_number(char number [], struct person* data, int n){
    for (int i = 0; i < n; i++){
        if(!strcmp(number,data->number)){
            return data;
        }
        else{
            data ++;
        }
    }
    printf("Item not found !!!\n");
    return NULL;
}

```

```

struct person* find_name(char name [], struct person* data, int n){
    for (int i = 0; i < n; i++){
        if(!strcmp(name,data->name)){
            return data;
        }
        else{
            data ++;
        }
    }
    printf("Item not found !!!\n");
    return NULL;
}

struct person* find(struct person* data, int n){
    printf("Find\n");
    printf("1)Based on name\n");
    printf("2)Based on telephone number\n");
    int choice;
    scanf("%d",&choice);
    if(choice == 1){
        printf("Enter name: ");
        char name[50];
        scanf("%c");
        gets(name);
        return find_name(name,data,n);
    }else if(choice == 2){
        printf("Enter telephone number: ");
        char number[16];
        scanf("%c");
        gets(number);
        printf("%s", number);
        return find_number(number,data,n);
    }else{
        printf("Invalid Choice\n");
    }
    return NULL;
}

int main() {
    system("clear");
    struct person s[5];
    for(int i=0; i<5;++i){
        s[i] = input();
        display(s[i]);
    }
    struct person* item = find(s,5);
    display(*item);
    return 0;
}

```

# OUTPUT

```
Enter information:
Enter name: Michal Rodriques
Enter address: 777 Brockton Avenue, Abington MA 2351
Enter number along with code: 206-200-2646
Displaying Information:
Name: Michal Rodriques
Address: 777 Brockton Avenue, Abington MA 2351
Phone number: 206-200-2646
Enter information:
Enter name: Beverlee Willey
Enter address: 30 Memorial Drive, Avon MA 2322
Enter number along with code: 206-201-4413

Enter information:
Enter name: Beverlee Willey
Enter address: 30 Memorial Drive, Avon MA 2322
Enter number along with code: 206-201-4413
Displaying Information:
Name: Beverlee Willey
Address: 30 Memorial Drive, Avon MA 2322
Phone number: 206-201-4413
Enter information:
Enter name: Shenita Chalker
Enter address: 250 Hartford Avenue, Bellingham MA 201
9
Enter number along with code: 206-202-5714
Displaying Information:
Name: Shenita Chalker
Address: 250 Hartford Avenue, Bellingham MA 2019
Phone number: 206-202-5714
Enter information:
Enter name: Katelynn Bentler
Enter address: 700 Oak Street, Brockton MA 2301
Enter number along with code: 206-203-4742
Displaying Information:
Name: Katelynn Bentler
Address: 700 Oak Street, Brockton MA 2301
Phone number: 206-203-4742
Enter information:
Enter name: Alexa Hurless
Enter address: 66-4 Parkhurst Rd, Chelmsford MA 1824
Enter number along with code: 206-204-2072
Displaying Information:
Name: Alexa Hurless
Address: 66-4 Parkhurst Rd, Chelmsford MA 1824
Phone number: 206-204-2072
Phone number: 206-204-2072
Find
1)Based on name
2)Based on telephone number
1
Enter name: Shenita Chalker
Displaying Information:
Name: Shenita Chalker
Address: 250 Hartford Avenue, Bellingham MA 2019
Phone number: 206-202-5714
```

```

// Lab 7 Questin 5
// Inbasekaran.P 201EC226
/*Write a menu driven program for the following
i. Add two distances (in inch-feet) using structures
ii. Add two complex numbers by passing structure to a function
iii. Calculate the difference between two time periods using structures.*/

// For printf() and scanf()
#include <stdio.h>
// Including stdlib for system("clear") to clear the screen in the terminal.
#include <stdlib.h>

struct Distance {
    int feet;
    float inch;
};

struct Distance input_dist(struct Distance d){
    printf("Enter the distance\n");
    printf("Enter feet: ");
    scanf("%d", &d.feet);
    printf("Enter inch: ");
    scanf("%f", &d.inch);
    return d;
}

struct Distance add_dist(struct Distance d1, struct Distance d2){
    struct Distance result;
    // adding distances
    result.feet = d1.feet + d2.feet;
    result.inch = d1.inch + d2.inch;
    // convert inches to feet if greater than 12
    while (result.inch >= 12.0) {
        result.inch = result.inch - 12.0;
        ++result.feet;
    }
    printf("\nSum of distances = %d\'-%.1f\'", result.feet, result.inch);
    return result;
}

```

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```

struct complex{
    float real;
    float imaginary;
};

struct complex input_cnum(struct complex cnum){
    printf("Enter real and imaginary part of the complex number:\n");
    scanf("%f%f", &cnum.real, &cnum.imaginary);
    return cnum;
}

struct complex add_cnum(struct complex cnum1, struct complex cnum2){
    struct complex sum;
    sum.real = cnum1.real + cnum2.real;
    sum.imaginary = cnum1.imaginary + cnum2.imaginary;
    printf("SUM = %.2f + i %.2f", sum.real, sum.imaginary);
}

struct TIME {
    int seconds;
    int minutes;
    int hours;
};

struct TIME input_time(struct TIME time){
    printf("Enter the time. \n");
    printf("Enter hours, minutes and seconds: ");
    scanf("%d %d %d", &time.hours,&time.minutes,&time.seconds);
    return time;
}

struct TIME differenceBetweenTimePeriod(struct TIME start, struct TIME stop) {
    struct TIME diff;
    while (stop.seconds > start.seconds){
        --start.minutes;
        start.seconds += 60;
    }
    diff.seconds = start.seconds - stop.seconds;
    while (stop.minutes > start.minutes){
        --start.hours;
        start.minutes += 60;
    }
    diff.minutes = start.minutes - stop.minutes;
    diff.hours = start.hours - stop.hours;
    printf("\nTime Difference: %d:%d:%d -", start.hours, start.minutes, start.seconds);
    printf("%d:%d:%d ", stop.hours, stop.minutes, stop.seconds);
    printf("= %d:%d:%d\n", diff.hours, diff.minutes, diff.seconds);
    return diff;
}

```

```

int menue(){
    printf("Enter Your choice\n");
    printf("1. Add two distances (in inch-feet) using structures\n");
    printf("2. Add two complex numbers by passing structure to a function\n");
    printf("3. Calculate the difference between two time periods using structures\n");
    int choice;
    scanf("%d",&choice);
    return choice;
}

void switch_case(int choice){
    switch (choice) {
        case 1: {
            struct Distance d1;
            printf("Distance 1\n");
            d1 = input_dist(d1);
            printf("Distance 2\n");
            struct Distance d2;
            d2 = input_dist(d2);
            add_dist(d1,d2);
            break;
        }
        case 2: {
            struct complex c1;
            printf("Complex number 1\n");
            c1 = input_cnum(c1);
            printf("Complex number 2\n");
            struct complex c2;
            c2 = input_cnum(c2);
            add_cnum(c1,c2);
            break;
        }
        case 3: {
            struct TIME start;
            printf("Start Time\n");
            start = input_time(start);
            struct TIME end;
            printf("End Time\n");
            end = input_time(end);
            differenceBetweenTimePeriod(start,end);
            break;
        }
        default:
            printf("wrong Input\n");
    }
}

int main(){
    switch_case(menue());
    return 0;
}

```



# OUTPUT

Enter Your choice

1. Add two distances (in inch-feet) using structures
2. Add two complex numbers by passing structure to a function
3. Calculate the difference between two time periods using structures

2

Complex number 1

Enter real and imaginary part of the complex number:

1 2

Complex number 2

Enter real and imaginary part of the complex number:

3 4

SUM = 4.00 + i 6.00

PS D:\Documents\NIT-K\My\_Second\_Sem\CS111\M6> █

```

// Lab 7 Questin 6
// Inbasekaran.P 201EC226
/* Write a C program to compare structure and union variables */
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
struct my_struct{
    int int_data;
    float float_data;
    char name[20];
};
union my_union{
    int int_data;
    float float_data;
    char name[20];
};

int main(){
    system("clear");
    struct my_struct s = {1,3.14,"my_struct"};
    union my_union u={2,4.96,"my_union"};

    printf("Structure data:\nint_data: %d\n"
           "float_data: %.2f\nname: %s\n",
           s.int_data, s.float_data, s.name);
    printf("\nunion data:\nint_data: %d\n"
           "float_data: %.2f\nname: %s\n",
           u.int_data, u.float_data, u.name);

    printf("\nsizeof structure : %d\n", sizeof(s));
    printf("sizeof union : %d\n\n\n", sizeof(u));

    strcpy(u.name, "New name");

    printf("Structure data:\nint_data: %d\n"
           "float_data: %.2f\nname: %s\n",
           s.int_data, s.float_data, s.name);
    printf("\nunion data:\nint_data: %d\n"
           "float_data: %.2f\nname: %s\n",
           u.int_data, u.float_data, u.name);
    return 0 ;
}

```

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# OUTPUT

Structure data:

int\_data: 1

float\_data: 3.14

name: my\_struct

union data:

int\_data: 2

float\_data: 0.00

name: ☹

sizeof structure : 28

sizeof union : 20

Structure data:

int\_data: 1

float\_data: 3.14

name: my\_struct

union data:

int\_data: 544695630

float\_data: 0.00

name: New name