

CSE102L Computer Programming Lab
LAB # 10



2020

Submitted to:

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Semester: 2nd

Class Section: C

“On my honor, as student of University of Engineering and Technology,
I have neither given nor received unauthorized assistance on
this academic work.”

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Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Data Structures

Task 1:

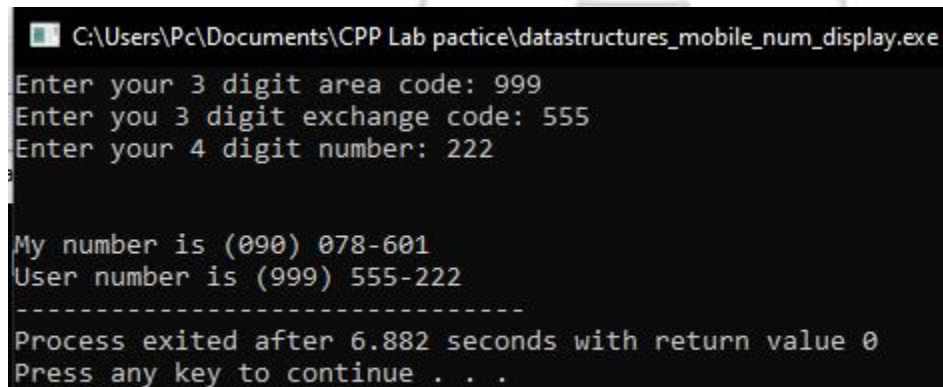
Title:

Write a program where you take area code, exchange and number from user and stores in data structure.....

Code:

```
#include<iostream>
#include<cstring>
using namespace std;
struct phone
{
    char area[4];
    char exchange[4];
    char num[4];
};
int main()
{
    struct phone my, usr;
    strcpy(my.area, "096");
    strcpy(my.exchange, "890");
    strcpy(my.num, "3294");
    cout<<"Enter your 3 digit area code: ";
    cin>>usr.area;
    cout<<"Enter you 3 digit exchange code: ";
    cin>>usr.exchange;
    cout<<"Enter your 4 digit number: ";
    cin>>usr.num;
    cout<<"\n\nMy number is ("<<my.area<<") "<<my.exchange<<"-"<<my.num<<endl;
    cout<<"User number is ("<<usr.area<<") "<<usr.exchange<<"-"<<usr.num;
    return 0; }
```

Output:



```
C:\Users\Pc\Documents\CPP Lab pactice\datastructures_mobile_num_display.exe
Enter your 3 digit area code: 999
Enter you 3 digit exchange code: 555
Enter your 4 digit number: 222

My number is (090) 078-601
User number is (999) 555-222
-----
Process exited after 6.882 seconds with return value 0
Press any key to continue . . .
```

Task 2:

Title:

Create a movie database structure containing two members (title and year) for test run assign three movies and display their title and years.

Code:

```
#include<iostream>
#include<cstring>

struct movie {
char title[20];
int year;
};
using namespace std;

int main()
{
struct movie m1, m2, m3;
strcpy(m1.title, "Harry Potter");
m1.year = 2000;

cout<<"Enter a movie name: ";
cin>>(m2.title);
cout<<"Enter "<<m2.title<<"s year of release: ";
cin>>m2.year;

cout<<"Enter a movie name: ";
cin>>(m3.title);
cout<<"Enter "<<m3.title<<"s year of release: ";
cin>>m3.year;

cout<<"\n\nMovie Name\t\t\tMovie Year\n";
cout<<m1.title<<"\t\t\t"<<m1.year<<endl;
cout<<m2.title<<"\t\t\t"<<m2.year<<endl;
cout<<m3.title<<"\t\t\t"<<m3.year<<endl;
return 0;
}
```

Output:

```
C:\Users\Pc\Documents\CPP Lab pactice\data_struct_movies_DB.exe
Enter a movie name: HomeAlone
Enter HomeAlone's year of release: 1997
Enter a movie name: FantastisBeasts
Enter FantastisBeasts's year of release: 2003

Movie Name          Movie Year
Harry Potter        2000
HomeAlone            1997
FantastisBeasts      2003

-----
Process exited after 37.1 seconds with return value 0
Press any key to continue . . .
```

Task 3:

Title:

A point in 2D plane has X and Y coordinates. Write a program having a structure named point and draw rectangle of '*' (asterisk) using the given width and height of point.

Code:

```
#include<iostream>
using namespace std;

struct Point {
int x;
int y;
};

int main() {
struct Point point;
cout<<"Enter width: ";
cin>>point.x;
cout<<"Enter height: ";
cin>>point.y;
cout<<"Your pattern is :\n"<<endl;
for(int vertical = 0; vertical < point.y; vertical++)
{ cout<<"\t";
for(int horizontal = 0; horizontal < point.x; horizontal++)
{cout<<"* ";}

cout<<"\n";
}
return 0;
}
```

Output:

```
C:\Users\Pc\Documents\CPP Lab pactice\data_struct_star_printing.exe
Enter width: 8
Enter height: 8
Your pattern is :

* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *

-----
Process exited after 6.598 seconds with return value 0
Press any key to continue . . .
```

Task 4:

Title:

Write a program having a structure with members name, reg and semester. The user should enter for 5 students and then search the student data by registration number.

Code:

```
#include<iostream>
using namespace std;

struct Student_t
{
    char name[20]; int reg;
    int semester;
};

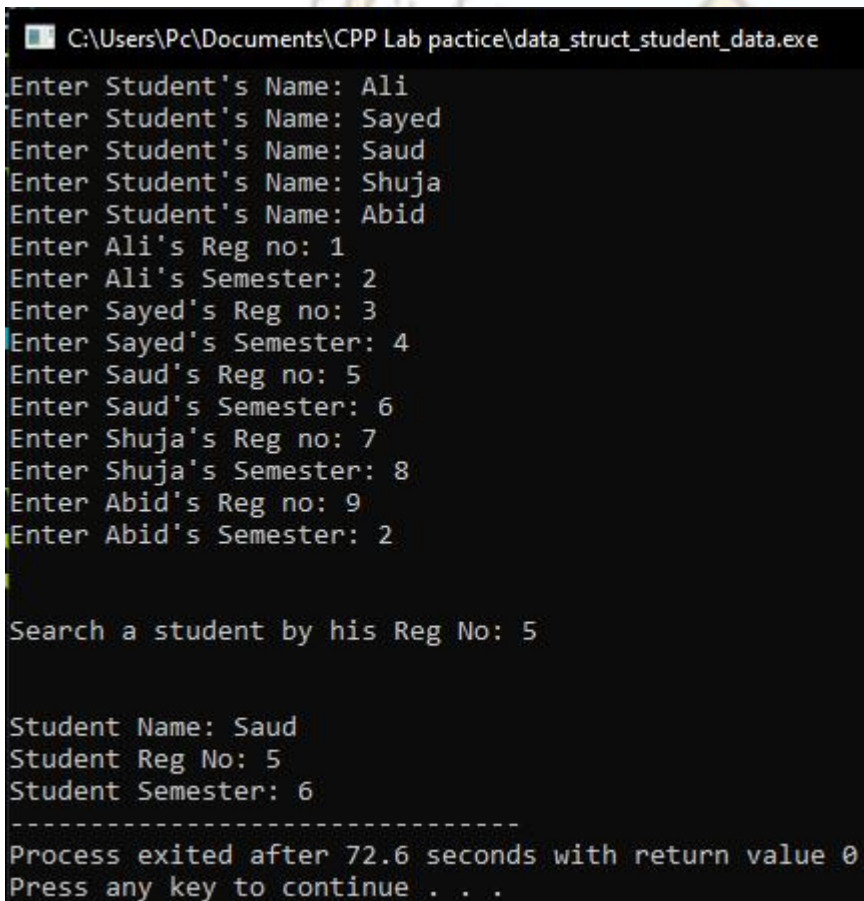
int main()
{
    int reg;
    bool found = false;
    struct Student_t arr[5];
    for(int i = 0; i < 5; i++) {
        cout<<"Enter Student's Name: ";
        cin>>(arr[i].name);
    }
    for(int i = 0; i < 5; i++) {
        cout<<"Enter "<<arr[i].name<<"s Reg no: ";
        cin>>arr[i].reg;
```

```
cout<<"Enter "<<arr[i].name<<"s Semester: ";
cin>>arr[i].semester;
}
cout<<"\n\nSearch a student by his Reg No: ";
cin>>reg;
for(int i = 0; i < 5; i++) {
if(arr[i].reg == reg) { found = true;
reg = i; break;
}
}
if(found) {
cout<<"\n\nStudent Name: "<<arr[reg].name<<endl;
cout<<"Student Reg No: "<<arr[reg].reg<<endl;
cout<<"Student Semester: "<<arr[reg].semester;

}
else {
cout<<"No record found against this reg no.";

return 0; } }
```

Output:



The screenshot shows a terminal window with the title "C:\Users\Pc\Documents\CPP Lab pactice\data_struct_student_data.exe". The program prompts the user to enter student names and their corresponding registration numbers and semesters. The data entered is as follows:

Student Name	Reg No	Semester
Ali	1	2
Sayed	3	4
Saud	5	6
Shuja	7	8
Abid	9	2

After entering the data, the program prompts the user to search for a student by their registration number. The user enters "5", and the program displays the following information:

Student Name: Saud
Student Reg No: 5
Student Semester: 6

The program then exits with the message: "Process exited after 72.6 seconds with return value 0" and "Press any key to continue . . .".

