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G H RAISONI INSTITUTE OF ENGINEERING AND TECHNOLOGY , PUNE

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Subject: OOP (Assignments)

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Sem: 3rd

Sgt

Assignment - 1

Aim: To find the roots of quadratic equation using nested if else structure.

Input:

Enter the coefficient of quadratic equation
 $ax^2 + bx + c = 0$

1

2

3

Output:

Roots are imaginary

Theory:

This program accepts coefficients of a quadratic equation from the user and displays the roots.

For a quadratic equation $ax^2 + bx + c = 0$, its given by formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The term $b^2 - 4ac$ is known as discriminant.

- i) if $b^2 - 4ac > 0$, the roots are real and different.
- ii) if $b^2 - 4ac = 0$, the roots are real and equal.
- iii) if $b^2 - 4ac < 0$, the roots are complex & different.

Spiral



Experiment 1.cpp

```
1 #include <iostream>
2 #include <math.h>
3 using namespace std;
4 int main()
5 {
6     int a,b,c;
7     cout<<"Enter the coefficient of quadratic equation ax^2+bx+c=0"<<endl;
8     cin>>a>>b>>c;
9     int d;
10    float r1,r2;
11    d=(b*b)-(4*a*c);
12    int e=2*a;
13    if(d>0)
14    {
15        cout<<"Roots r1 & r2 are real and unequal"<<endl;
16        r1=(-b+sqrt(d))/e;
17        r2=(-b-sqrt(d))/e;
18        cout<<"r1="<<r1<<endl;
19        cout<<"r2="<<r2<<endl;
20    }
21    else if(d==0)
22    {
23        cout<<"Roots are real and equal"<<endl;
24        r1=-b/e;
25        r2=-b/e;
26        cout<<"r1=r2="<<r1<<endl;
27    }
28    else{
29        cout<<"Roots are imaginary";
30    }
31    return 0;
32 }
```



Type here to search

Enter the coefficient of quadratic equation ax^2+bx+c=0

1
2
3

Roots are imaginary

Process exited after 36.64 seconds with return value 0

Press any key to continue . . .



Conclusion:

we have studied how to find roots
of quadratic equations using nested if else
structure in C++ programming.

guru

Assignment -2

Aim: Menu driven program to calculate area of circle, rectangle and triangle by using switch case structure.

Input and Output:

Enter length l, breadth/base b, height h, and radius r

2

4

6

8

1. area of circle

2. area of rectangle

3. area of triangle

enter choice

2

area of rectangle = 8

Theory:

logic to calculate Area of circle, Rectangle and triangle

Below are the formulas to find areas of Circle Rectangle and triangle and we are going implement it in our program.

Area of circle: πr^2

Area of rectangle: $a \times b$

Area of triangle: $\sqrt{s(s-a)(s-b)(s-c)}$

SPM

where, $s = (a+b+c)/2$



Experiment 2.cpp

```
1 #include <iostream>
2 using namespace std;
3 int main()
4 {
5     int l,b,h,r;
6     cout<<"Enter length l , bredth/base b, height h, and radius r" << endl;
7     cin>>l>>b>>h>>r;
8     cout<<" 1.area of circle " << endl;
9     cout<<" 2.area of rectangle " << endl;
10    cout<<" 3.area of triangle " << endl;
11    cout<<" enter choice " << endl;
12    int choice;
13    cin>>choice;
14    switch (choice)
15    {
16        case 1:
17            cout<<"area of circle=" << 3.14*r*r;
18            break;
19        case 2:
20            cout<<"area of rectangle=" << l*b;
21            break;
22        case 3:
23            cout<<"area of triangle=" << 0.5*b*h;
24            break;
25        default:
26            cout<<"Wrong choice";
27            break;
28    }
29    return 0;
30 }
```

Line: 1 Col: 1 Sel: 0 Lines: 30 Length: 590 Insert Done parsing in 0.5

```
Enter length l , bredth/base b, height h, and radius r
2
4
6
8
1.area of circle
2.area of rectangle
3.area of triangle
enter choice
2
area of rectangle=8
```

```
Process exited after 23.31 seconds with return value 0
Press any key to continue . . .
```



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23-03-2021

Conclusion :

We have studied formulas of Area of circle , area of rectangle and triangle also studied how to implement it ~~with~~ with the help of switch case structure in C++ programming .

Shubh

Assignment - 3

Aim: To arrange the value in ascending order

Input:

Enter the array size:

4

2

1

9

3

Output:

sorted array:

1

2

3

4

Theory:

- For sorting value in ascending order we use nested if-else statement or sort() function where we pass two arguments.

- In this program for sorting given array we have used sort() function where we pass two arguments

- In this program for sorting given array we have used sort() function by including standard library of C++ ie #include <bits/stdc++.h>

- and then, in sort() function we have passed array to sort given array.

8pm



Experiment 3.cpp

```
1 #include<bits/stdc++.h>
2 #include<iostream>
3 using namespace std;
4 int main()
5 {
6     int n;
7     int arr[n];
8     cout<<"Enter the array size"<<endl;
9     cin>>n;
10    for(int i=0; i<n; i++)
11    {
12        cin>>arr[i];
13    }
14    sort(arr, arr+n);
15    cout<<"Sorted array"<<endl;
16    for(int i=0; i<n; i++)
17    {
18        cout<<arr[i];
19    }
20    return 0;
21 }
```

Line: 1 Col: 1 Sel: 0 Lines: 21 Length: 314 Insert Done parsing in 0.5



Enter the array size

```
4
2
1
4
3
```

Sorted array

1234

Process exited after 19.56 seconds with return value 0
Press any key to continue . . .



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23-03-2021

Conclusion:

We have studied how to arrange array values in ascending order using sort() function in C++ programming.

Sid

Assignment - 4

Aim: Create a Database Using array of structure and perform following Operations on it:

- i. Create Database
- ii. Display Database
- iii. Add record
- iv. Search record
- v. Modify record
- vi. Delete

Input :

Enter position to be searched.

Creating database
display Database

g1
g6
g4
g7
g2
g9
100
g3
g5
g8

Modifying array as
Sorting

g1
g2
g3
g4
g5
g6
g7
g8
g9
100

Enter position to be searched

2

Your Element : g2

8/21

Delete delete Record
Enter the element to be deleted
92

updated array will be:

91 93 94 95 96 97 98 99 100

insert record to be added in array

Enter element to insert: 2

92

91

93

94

95

96

97

98

99

100

Theory :

- In this program we have created database using array structure, then we sorted given array database to make operation perform well.

- Firstly we have implemented search operation then display, add, modify and delete using standard library.

Sudhakar

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(globals)

```

Experiment 4.cpp

1 #include <iostream>
2 #include <bits/stdc++.h>
3 using namespace std;
4 int main()
5 {
6     int ser,num;
7     int rec;
8     int x;
9     int pos=0;
10    cout<<"Creating database"<<endl;
11    int arr[50]={91,96,94,97,92,99,100,93,95,98};
12    cout<<"display Database"<<endl;
13    for(int i=0; i<10; i++)
14    {
15        cout<<'t'<<arr[i]<<endl;
16    }
17    cout<<"-----";
18    cout<<"modifying array as sorting"<<endl;
19    sort(arr,arr+10);
20    for(int i=0; i<10; i++)
21    {
22        cout<<'t'<<arr[i]<<endl;
23    }
24    cout<<"-----";
25    cout<<"Enter the position to be searched"<<endl;
26    cin>>ser;
27    if(ser>10)
28    {
29        cout<<"invalid position"<<endl;
30    }
31    else
32    {
33        cout<<"your Element:"<<arr[ser-1]<<endl;
34    }
35    cout<<"-----";
36    cout<<"delete record"<<endl;
37    cout<<"Enter the element to be deleted"<<endl;
    cin>>num;
}

```

Line: 34 Col: 91 Sel: 0 Lines: 66 Length: 1777 Insert Done parsing in 0.5



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```

Creating database
display Database
91
96
94
97
92
99
100
93
95
98
-----
modifying array as sorting
91
92
93
94
95
96
97
98
99
100
-----
Enter the position to be searched
2
your Element:92
-----
delete record
Enter the element to be deleted
92
Updated array will be:
91   93   94   95   96   97   98   99   100
-----
insert record to be added in array
Enter element to insert:2
91

```

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(globals)

```
Experiment 4.cpp
30     else
31     {
32         cout<<"your Element:"<<arr[ser-1]<<endl;
33     }
34     cout<<"-----"
35     cout<<"delete record"<<endl;
36     cout<<"Enter the element to be deleted"<<endl;
37     cin>>num;
38     cout<<"Updated array will be: "<<endl;
39     for(int i=0; i<10; i++)
40     {
41         if(arr[i]!=num)
42         {
43             cout<<'t'<<arr[i];
44         }
45     }
46     cout<<"<<endl;
47     cout<<"-----"
48     cout<<"insert record to be added in array"<<endl;
49     cout<<"\nEnter element to insert:";
50     cin>>x;
51     for(int i=0;i<11;++i)
52     if(arr[i]<=x&&x<arr[i+1])
53     {
54         pos=i+1;
55         break;
56     }
57     for(int i=11;i>pos;--i)
58     arr[i]=arr[i-1];
59     arr[pos]=x;
60     for(int i=0; i<11; i++)
61     {
62         cout<<'t'<<arr[i]<<endl;
63     }
64     cout<<"-----"
65     return 0;
66 }
```

Line: 34 Col: 91 Sel: 0 Lines: 66 Length: 1777 Insert Done parsing in 0.5



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91 93 94 95 96 97 98 99 100

insert record to be added in array

Enter element to insert:2

2
91
92
93
94
95
96
97
98
99
100

Process exited after 154.5 seconds with return value 0

Press any key to continue . . .

Conclusion :

we have studied to create database using array of structures and perform some basic operations on it.

Spur

Assignment - 5

Aim: Create a class named weather report that hold a daily weather report with data members day-of-month, high-temp, amount-rain and amount-snow use different types of constructors to initialize the objects. Also include a function that prompts the user and set value for each field so that you can override the default values. write a menu to enter data and generate monthly report that display average of each attribute.

Input:

Enter the year...: 2021

Enter the month...-

9

2021 is not a leap year

The month has 31 days...

1. Enter the data records:
2. Display the weather reports.
3. Exist

Enter your choice:

Theory:

To develop this program create the database that holds all the information of daily as well as month wise data of weather.

✓ S. Patel

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(globals)

```

1 #include<iomanip>
2 #include<iostream>
3 using namespace std;
4 class weather
5 {
6 public:
7     int s_no[31],days[31];
8     float temp_h[31],temp_l[31];
9     float amt_rain[31],amt_snow[31];
10    int no_of_days;
11    weather()
12    {
13        int yy,mm;
14        cout<<"\nEnter the year..: ";
15        cin>>yy;
16        cout<<"\nEnter the month..:<<endl;
17        cin>>mm;
18        no_of_days=leap(yy,mm);
19        for(int i=0;i<no_of_days;i++)
20        {
21            s_no[i]=i+1;
22            days[i]=99;
23            temp_h[i]=999;
24            temp_l[i]=-999;
25            amt_rain[i]=0;
26            amt_snow[i]=0;
27        }
28    }
29    void data();
30    void display();
31    int leap(int,int);
32 };
33 void weather::data()
34 {
35     int day;
36     char ch;
37     do

```

Enter the year..: 2021

Enter the month..

4
2021 is not a leap year
The month has 31 days...

1.Enter the data records;
2.Display the weather report
3.Exit

Enter your choice: 1

Enter the day of the month:16

Enter the high temperature(in degrees):35

Enter the low temperature(in degrees):28

Enter the amount of snow(mm):2

Enter the amount of rain(cm):2

THE ENTRY IS UPDATED SUCCESSFULLY...

Do You Want to enter more records??(y/n)n

1.Enter the data records;
2.Display the weather report
3.Exit

Enter your choice: 2

serial_no	Day	amt_rain	amt_snow	high_temp	low_temp
1	99	0	0	999	-999
2	99	0	0	999	-999
3	99	0	0	999	-999
4	99	0	0	999	-999
5	99	0	0	999	-999
6	99	0	0	999	-999
7	99	0	0	999	-999
8	99	0	0	999	-999
9	99	0	0	999	-999
10	99	0	0	999	-999
11	99	0	0	999	-999



Type here to search



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```

36     char ch;
37     do
38     {
39         cout<<"\nEnter the day of the month:";
40         cin>>day;
41         if(day>0&&day<=no_of_days)
42         {
43             days[day-1]=day;
44             cout<<"\nEnter the high temperature(in degrees):";
45             cin>>temp_h[day-1];
46             cout<<"\nEnter the low temperature(in degrees):";
47             cin>>temp_l[day-1];
48             cout<<"\nEnter the amount of snow(mm):";
49             cin>>amt_snow[day-1];
50             cout<<"\nEnter the amount of rain(cm):";
51             cin>>amt_rain[day-1];
52             cout<<"\nTHE ENTRY IS UPDATED SUCCESSFULLY..."<<endl;
53         }
54     else
55         cout<<"\nEnter a valid day!!";
56         cout<<"\nDo You Want to enter more records??(y/n)";
57         cin>>ch;
58     }
59     while(ch=='y' || ch=='Y');
60 }
61 int weather::leap(int yy,int mm)
62 {
63     if((yy%4==0) && !(yy%100==0)) || (yy%400 == 0))
64     {
65         cout<<yy<<"t is a leap year!!"<<endl;
66     }
67     return(31);
68 }
69 else if(mm==4 || mm==6 || mm==9 || mm==11)
70 {
71     cout<<"The month has 31 days...";
72     return(30);

```

Line: 1 Col: 1 Sel: 0 Lines: 156 Length: 3178 Insert Done parsing in 0.6

1.Enter the data records:
 2.Display the weather report
 3.Exit

Enter your choice: 2

serial_no	Day	amt_rain	amt_snow	high_temp	low_temp
1	99	0	0	999	-999
2	99	0	0	999	-999
3	99	0	0	999	-999
4	99	0	0	999	-999
5	99	0	0	999	-999
6	99	0	0	999	-999
7	99	0	0	999	-999
8	99	0	0	999	-999
9	99	0	0	999	-999
10	99	0	0	999	-999
11	99	0	0	999	-999
12	99	0	0	999	-999
13	99	0	0	999	-999
14	99	0	0	999	-999
15	99	0	0	999	-999
16	16	2	2	35	28
17	99	0	0	999	-999
18	99	0	0	999	-999
19	99	0	0	999	-999
20	99	0	0	999	-999
21	99	0	0	999	-999
22	99	0	0	999	-999
23	99	0	0	999	-999
24	99	0	0	999	-999
25	99	0	0	999	-999
26	99	0	0	999	-999
27	99	0	0	999	-999
28	99	0	0	999	-999
29	99	0	0	999	-999
30	99	0	0	999	-999

AVERAGE 96.2333 0.06666667 0.06666667 966.867 -964.767

1.Enter the data records:
 2.Display the weather report
 3.Exit

Enter your choice: -



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23-03-2021

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(globals)

```

72     return(30);
73 }
74 else
75 {
76     cout<<"The month has 29 days...">>
77     return 29;
78 }
79 }
80 else
81 {
82     cout<<yy<<"\t is not a leap year"<<endl;
83     if(mm==1||mm==3||mm==5||mm==7||mm==8||mm==10||mm==12)
84 {
85     cout<<"The month has 31 days...">>
86     return(31);
87 }
88 else if(mm==4||mm==6||mm==9||mm==11)
89 {
90     cout<<"The month has 31 days...">>
91     return(30);
92 }
93 else
94 {
95     cout<<"The month has 28 days...">>
96     return(28);
97 }
98 }
99 }

100 void weather::display()
101 {
102     double avg_h=0.0,avg_l=0.0,avg_snow=0.0,avg_rain=0.0,avg_days=0.0;
103     for(int i=0;i<no_of_days;i++)
104 {
105         avg_h=avg_h+temp_h[i];
106         avg_l=avg_l+temp_l[i];
107         avg_snow=avg_snow+amt_snow[i];
108         avg_rain=avg_rain+amt_rain[i];

```

Line: 1 Col: 1 Sel: 0 Lines: 156 Length: 3178 Insert Done parsing in 0.6

1.Enter the data records:
 2.Display the weather report
 3.Exit

Enter your choice: 2

serial_no	Day	amt_rain	amt_snow	high_temp	low_temp
1	99	0	0	999	-999
2	99	0	0	999	-999
3	99	0	0	999	-999
4	99	0	0	999	-999
5	99	0	0	999	-999
6	99	0	0	999	-999
7	99	0	0	999	-999
8	99	0	0	999	-999
9	99	0	0	999	-999
10	99	0	0	999	-999
11	99	0	0	999	-999
12	99	0	0	999	-999
13	99	0	0	999	-999
14	99	0	0	999	-999
15	99	0	0	999	-999
16	16	2	2	35	28
17	99	0	0	999	-999
18	99	0	0	999	-999
19	99	0	0	999	-999
20	99	0	0	999	-999
21	99	0	0	999	-999
22	99	0	0	999	-999
23	99	0	0	999	-999
24	99	0	0	999	-999
25	99	0	0	999	-999
26	99	0	0	999	-999
27	99	0	0	999	-999
28	99	0	0	999	-999
29	99	0	0	999	-999
30	99	0	0	999	-999

AVERAGE 96.2333 0.06666667 0.06666667 966.867 -964.767

1.Enter the data records:
 2.Display the weather report
 3.Exit
 Enter your choice:

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(globals)

```

120 cout<<setw(10)<<"high_temp";
121 cout<<setw(10)<<"low_temp"<<endl;
122 for(int i=0;i<no_of_days;i++)
123 {
124     cout<<setw(10)<<s_no[i];
125     cout<<setw(10)<<days[i];
126     cout<<setw(10)<<amt_rain[i];
127     cout<<setw(10)<<amt_snow[i];
128     cout<<setw(10)<<temp_h[i];
129     cout<<setw(10)<<temp_l[i]<<endl;
130 }
131 cout<<setw(10)<<"AVERAGE"<<"\t"<<avg_days<<"\t"<<avg_rain<<"\t"<<avg_snow<<"\t"<
132 "\t"<<avg_l;
133 }
134 int main()
135 {
136     int ch;
137     weather w;
138     do
139     {
140         cout<<"\n1.Enter the data records:"<<endl;
141         cout<<"2.Display the weather report"<<endl;
142         cout<<"3.Exit"<<endl;
143         cout<<"Enter your choice: ";
144         cin>>ch;
145         switch(ch)
146         {
147             case 1:w.data();
148             break;
149             case 2:w.display();
150             break;
151             case 3:break;
152         }
153     }while(ch!=3);
154     return 0;
155 }

```

Line: 1 Col: 1 Sel: 0 Lines: 156 Length: 3178 Insert Done parsing in 0.6

C:\Users\Shree\Desktop\New folder\Experiment 5.exe

- 1.Enter the data records:
- 2.Display the weather report
- 3.Exit

Enter your choice: 2

serial_no	Day	amt_rain	amt_snow	high_temp	low_temp
1	99	0	0	999	-999
2	99	0	0	999	-999
3	99	0	0	999	-999
4	99	0	0	999	-999
5	99	0	0	999	-999
6	99	0	0	999	-999
7	99	0	0	999	-999
8	99	0	0	999	-999
9	99	0	0	999	-999
10	99	0	0	999	-999
11	99	0	0	999	-999
12	99	0	0	999	-999
13	99	0	0	999	-999
14	99	0	0	999	-999
15	99	0	0	999	-999
16	16	2	2	35	28
17	99	0	0	999	-999
18	99	0	0	999	-999
19	99	0	0	999	-999
20	99	0	0	999	-999
21	99	0	0	999	-999
22	99	0	0	999	-999
23	99	0	0	999	-999
24	99	0	0	999	-999
25	99	0	0	999	-999
26	99	0	0	999	-999
27	99	0	0	999	-999
28	99	0	0	999	-999
29	99	0	0	999	-999
30	99	0	0	999	-999

AVERAGE 96.2333 0.06666667 0.06666667 966.867 -964.767

- 1.Enter the data records:
- 2.Display the weather report
- 3.Exit

Enter your choice: -



Type here to search

Conclusion:

we have studied the concept of Constructors and with the help of that we have implemented program that can hold weather report data.

SRI

Assignment - 6

Aim:- Write a C++ program which will have a class called Book with suitable Member functions

Input:

* * * * Book store * * * *

1. Insert Details of Book
2. Display
3. Search
4. Exit

Enter your choice: 1

How many book data you want to enter?

Enter the name of Book: XYZ

Enter the name of Author: ABC

Enter the name of Publisher: PQR

Enter the price of Book: 500

Enter stock of book: 1

Theory:

This program creates a class with Name Book with some data members like Book name, Book price, author, publisher, stock etc and member function like insert-detail, display, search and exit.

Signed

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

```

Experiment 6.cpp

1 #include<iostream>
2 #include<string.h>
3 #include<stdlib.h>
4 using namespace std;
5 class book
6 {
7     char author[20];
8     char title[20];
9     char publisher[20];
10    double price;
11    int stock;
12 public:
13     book();
14     void insertdata();
15     void display();
16     int search(char[],char[]);
17     void nocopies(int);
18 };
19 book::book()
20 {
21     char *author=new char[50];
22     char *title=new char[50];
23     char *publisher=new char[50];
24     price=0;
25     stock=0;
26 }
27 void book::insertdata()
28 {
29     cout<<"\n Enter the name of Book:";
30     cin>>title;
31     cout<<"\n Enter The Name Of Author:";
32     cin>>author;
33     cout<<"\n Enter The name of Publisher:";
34     cin>>publisher;
35     cout<<"\n Enter the Price of book:";
36     cin>>price;
37     cout<<"\n Enter Stock of book:";
```

Line: 1 Col: 1 Sel: 0 Lines: 135 Length: 2490 Insert Done parsing in 0.5



Type here to search

*****Book Store*****
1.Insert Details of book
2.Display
3.search
4.exit
Enter Your Choice:1

How many books data u want to enter1

Enter the name of Book:XYZ

Enter The Name Of Author:ABC

Enter The name of Publisher:PQR

Enter the Price of book:500

Enter Stock of book:1

*****Book Store*****
1.Insert Details of book
2.Display
3.search
4.exit
Enter Your Choice:2

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

*****Book Store*****
1.Insert Details of book
2.Display
3.search
4.exit
Enter Your Choice:3

Enter title of required bookXYZ

Enter author of required bookABC

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

```

37 cout<<"\n Enter Stock of book:";
38 cin>>stock;
39 }
40 void book::display()
41 {
42 cout<<"\n "<<title<<"\t\t "<<author<<"\t\t "<<publisher<<" \t\t\t "<<price<<"\t
43 }
44 int book::search(char t[],char a[])
45 {
46 if(strcmp(title,t)&&(strcmp(author,a)))
47 {
48 return 0;
49 }
50 else
51 {
52 return 1;
53 }
54 }
55 void book::nocopies(int num)
56 {
57 if(stock>=num)
58 {
59 cout<<"\n Title is available";
60 cout<<"\n Cost of "<<num<<"Books is Rs."<<(price*num);
61 }
62 else
63 {
64 cout<<"\n Required copies not in stock";
65 }
66 }
67 int main()
68 {
69 int ch,n,i,flag=0,copies,key=0;
70 book b[100];
71 char bname[50];
72 char key_title[50],key_author[50];
73 do

```

Line: 1 Col: 1 Sel: 0 Lines: 135 Length: 2490 Insert Done parsing in 0.5

Enter Stock of book:1

*****Book Store*****

1.Insert Details of book
2.Display
3.search
4.exit

Enter Your Choice:2

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

*****Book Store*****

1.Insert Details of book
2.Display
3.search
4.exit

Enter Your Choice:3

Enter title of required bookXYZ

Enter author of required bookABC

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

Book is available

Please enter the required number of copies of the book



Type here to search

06:27 PM
23-03-2021

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

```

73 do
74 {
75 cout<<"\n*****Book Store*****";
76 cout<<"\n 1.Insert Details of book \n 2.Display \n 3.search \n 4.exit";
77 cout<<"\nEnter Your Choice:";
78 cin>>ch;
79 switch(ch)
80 {
81 case 1:
82 cout<<"\n How many books data u want to enter";
83 cin>>n;
84 for(i=0;i<n;i++)
85 {
86 b[i].insertdata();
87 }
88 break;
89 case 2:
90 cout<<"\n<<"TITLE"<<"\t \t"<<"AUTHOR"<<"\t\t"<<"PUBLISHER"<<"\t\t"<<"PRICE"<<
91 for(i=0;i<n;i++)
92 {
93 cout<<"\n";
94 b[i].display();
95 }
96 break;
97 case 3:
98 cout<<"\n Enter title of required book";
99 cin>>key_title;
100 cout<<"\n Enter author of required book";
101 cin>>key_author;
102 for(i=0;i<n;i++)
103 {
104 if(b[i].search(key_title,key_author))
105 {
106 flag=1;
107 cout<<"\n<<"TITLE"<<"\t \t "<<"AUTHOR"<<"\t\t"<<"PUBLISHER"<<"\t\t"<<"PRICE"<<
108 b[i].display();
109 //break;
}

```

Line: 1 Col: 1 Sel: 0 Lines: 135 Length: 2490 Insert Done parsing in 0.5



Type here to search



Enter Stock of book:1

*****Book Store*****

1.Insert Details of book
2.Display
3.search
4.exit

Enter Your Choice:2

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

*****Book Store*****

1.Insert Details of book
2.Display
3.search
4.exit

Enter Your Choice:3

Enter title of required bookXYZ

Enter author of required bookABC

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

Book is available

Please enter the required number of copies of the book

06:27 PM
23-03-2021

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

```

99    cin>>key_title;
100   cout<<"\n Enter author of required book";
101   cin>>key_author;
102   for(i=0;i<n;i++)
103   {
104       if(b[i].search(key_title,key_author))
105       {
106           flag=1;
107           cout<<"\n "<<"TITLE" <<"\t \t " <<"AUTHOR" <<"\t\t" <<"PUBLISHER" <<"\t\t" <<"PRICE" <<
108           b[i].display();
109           //break;
110           key=i;
111       }
112   }
113   if(flag==1)
114   cout<<"\n Book is available";
115   else
116   {
117       cout<<"\n book is Not available";
118       break;
119   }
120   if(flag==1)
121   {
122       cout<<"\n Please enter the required number of copies of the book";
123       cin>>copies;
124       b[key].nocopies(copies);
125   }
126   break;
127   case 4: exit(EXIT_SUCCESS);
128   break;
129   default :
130       cout<<"\n Wrong Choice";
131       break;
132   }
133   }while(ch!=5);
134   return 0;
135 }
```

Line: 1 Col: 1 Sel: 0 Lines: 135 Length: 2490 Insert Done parsing in 0.5

Enter Stock of book:1

*****Book Store*****

1.Insert Details of book
2.Display
3.search
4.exit

Enter Your Choice:2

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

*****Book Store*****

1.Insert Details of book
2.Display
3.search
4.exit

Enter Your Choice:3

Enter title of required bookXYZ

Enter author of required bookABC

TITLE	AUTHOR	PUBLISHER	PRICE	STOCK
XYZ	ABC	PQR	500	1

Book is available

Please enter the required number of copies of the book

Conclusion:

We have studied to implement programming logic behind library management where we did / implemented some functionalities that can / will help librarian to manage book records / data

8/10

Assignment - 7

Aims: Design a class 'complex' with data members for real and imaginary part. provide default and parameterized constructors. write a program to perform arithmetic operations of two complex numbers using operator overloading

- Addition and Subtraction using friend function
- Multiplication and division using member function.

Input/Output:

Enter first complex number:

Enter real and imaginary parts respectively:
2 6

Enter second complex number

Enter real and imaginary part respectively:
3 6

Output complex number: -1 + 0i

Theory:

In this program, we created class complex to do arithmetic operations of two complex numbers using operator overloading.

Sai

C:\Users\Shree\Desktop\New folder\Experiment 7.cpp - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Experiment 7.cpp

```
1 #include <iostream>
2 using namespace std;
3 class Complex
4 {
5     private:
6         float real;
7         float imag;
8     public:
9         Complex(): real(0), imag(0){ }
10        void input()
11    {
12        cout << "Enter real and imaginary parts respectively: ";
13        cin >> real;
14        cin >> imag;
15    }
16    // Operator overloading
17    Complex operator - (Complex c2)
18    {
19        Complex temp;
20        temp.real = real - c2.real;
21        temp.imag = imag - c2.imag;
22        return temp;
23    }
24    void output()
25    {
26        if(imag < 0)
27            cout << "Output Complex number: " << real << imag << "i";
28        else
29            cout << "Output Complex number: " << real << "+" << imag << "i";
30    }
31 }
32 int main()
33 {
34     Complex c1, c2, result;
35     cout << "Enter first complex number:\n";
36     c1.input();
37     cout << "Enter second complex number:\n";
38     c2.input();
39 }
```

Line: 1 Col: 1 Sel: 0 Lines: 42 Length: 796 Insert Done parsing in 0.5

C:\Users\Shree\Desktop\New folder\Experiment 7.exe

Enter first complex number:
Enter real and imaginary parts respectively: 2
6
Enter second complex number:
Enter real and imaginary parts respectively: 3
6
Output Complex number: -1+0i

Process exited after 17.89 seconds with return value 0
Press any key to continue . . .

06:29 PM 23-03-2021

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

Experiment 7.cpp

```
5 private:
6 float real;
7 float imag;
8 public:
9 Complex(): real(0), imag(0){ }
10 void input()
11 {
12 cout << "Enter real and imaginary parts respectively: ";
13 cin >> real;
14 cin >> imag;
15 }
16 // Operator overloading
17 Complex operator - (Complex c2)
18 {
19 Complex temp;
20 temp.real = real - c2.real;
21 temp.imag = imag - c2.imag;
22 return temp;
23 }
24 void output()
25 {
26 if(imag < 0)
27 cout << "Output Complex number: " << real << imag << "i";
28 else
29 cout << "Output Complex number: " << real << "+" << imag << "i";
30 }
31 }
32 int main()
33 {
34 Complex c1, c2, result;
35 cout << "Enter first complex number:\n";
36 c1.input();
37 cout << "Enter second complex number:\n";
38 c2.input();
39 result = c1 - c2;
40 result.output();
41 return 0;
42 }
```

Line: 1 Col: 1 Sel: 0 Lines: 42 Length: 796 Insert Done parsing in 0.5

```
Enter first complex number:
Enter real and imaginary parts respectively: 2
6
Enter second complex number:
Enter real and imaginary parts respectively: 3
6
Output Complex number: -1+0i
-----
Process exited after 17.89 seconds with return value 0
Press any key to continue . . .
```



Type here to search

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23-03-2021

Conclusion:

We have studied friend function of C++ programming and also we have implemented it.

SPW

Assignment - 8

Aim: write a menu driven program to carry out the following things:

~~Input~~: Perform:

1. Information of Person
2. Display - Information

- 1) Build a master table
- 2) Display
- 3) Insert a new entry
- 4) Delete entry
- 5) Edit
- 6) Search for record.

~~Input~~:

Menu:

1. Information of person
2. Display Information
3. Exit

Enter your choice:

Enter Information

Enter Name of Person = xyz

Enter date of birth of person = 16/04/1998

Enter blood group of person = b+

Sohy

Enter height and weight of person = 6
59

Enter contact no of person = 8805334252

Enter address of person = Alibag

Enter Insurance Policy No = 5565

Total No. of record : 1

Menu :

1. Info of person
2. Display Information
3. Exit

Enter your choice.

File Edit Search View Project Execute Tools AStyle Window Help



Experiment 8.cpp

```

3  #include<cstring>
4  using namespace std;
5  class person
6  {
7      private:
8          char name[40],dob[15],bdg[15];
9          int h,w;
10     public:
11         static int count;
12         friend class personal;
13         person()
14     {
15         char * name=new char[40];
16         char *dob=new char[80];
17         char *bdg=new char[15];
18         h=w=0;
19     }
20     static void recordcount()
21     {
22         cout<<"\n Total no of records :"<<count;
23     }
24 };
25 class personal
26 {
27     private:
28         char add[70],telephone[15],policy_no[10];
29     public:
30         personal()
31     {
32         strcpy(add,"");
33         strcpy(telephone,"");
34         strcpy(policy_no,"");
35     }
36     void getdata(person *obj);
37     void displaydata(person *obj);
38     friend class person;
39 };

```



Menu

- 1.Information of Person
- 2.Display Information
- 3.Exit

Enter your choice1

Enter The Information

Enter Name of Person=XYZ

Enter date of birth of person=16/04/1998

Enter blood group of person=B+

Enter height and weight of person=6

59

Enter Contact no of person=8805334252

Enter address of person=Alibag

Enter the insurance policy no=5565

Total no of records :1

Menu

- 1.Information of Person
- 2.Display Information
- 3.Exit

Enter your choice_

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

```

Experiment 8.cpp

39 L }
40 int person::count=0;
41 void personal::getdata(person *obj)
42 {
43 cout<<"\n Enter Name of Person=";
44 cin>>obj->name;
45 cout<<"\n Enter date of birth of person=";
46 cin>>obj->dob;
47 cout<<"\n Enter blood group of person=";
48 cin>>obj->bdg;
49 cout<<"\n Enter height and weight of person=";
50 cin>>obj->h>>obj->w;
51 cout<<"\n Enter Contact no of person=";
52 cin>>this->telephone;
53 cout<<"\n Enter address of person=";
54 cin>>this->add;
55 cout<<"\n Enter the insurance policy no=";
56 cin>>this->policy_no;
57 obj->count++;
58 }
59 void personal::displaydata(person *obj)
60 {
61 cout<<obj->name<<"\t"<<obj->dob<<"\t\t"<<obj->bdg<<"\t"<<obj->h<<"\t\t"<<obj->w<<
62 }
63 int main()
64 {
65 personal *p1[30];
66 person *p2[30];
67 int n=0,ch,i;
68 do
69 {
70 cout<<"\n Menu";
71 cout<<"\n 1.Information of Person \n 2.Display Information \n 3.Exit";
72 cout<<"\n Enter your choice";
73 cin>>ch;
74 switch(ch)
75 {

```

Line: 1 Col: 1 Sel: 0 Lines: 99 Length: 2072 Insert Done parsing in 0.5



Type here to search

Menu
 1.Information of Person
 2.Display Information
 3.Exit
 Enter your choice1

Enter The Information

Enter Name of Person=XYZ

Enter date of birth of person=16/04/1998

Enter blood group of person=B+

Enter height and weight of person=6

59

Enter Contact no of person=8805334252

Enter address of person=Alibag

Enter the insurance policy no=5565

Total no of records :1

Menu
 1.Information of Person
 2.Display Information
 3.Exit
 Enter your choice.

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

```

Experiment 8.cpp

63 int main()
64 {
65     personal *p1[30];
66     person *p2[30];
67     int n=0,ch,i;
68     do
69     {
70         cout<<"\n Menu";
71         cout<<"\n 1.Information of Person \n 2.Display Information \n 3.Exit";
72         cout<<"\n Enter your choice";
73         cin>>ch;
74         switch(ch)
75         {
76             case 1:
77                 cout<<"\n Enter The Information";
78                 cout<<"\n";
79                 p1[n]=new personal;
80                 p2[n]=new person;
81                 p1[n]->getdata(p2[n]);
82                 n++;
83                 person::recordcount();
84                 break;
85             case 2:
86                 cout<<"\n";
87                 cout<<"*****\n";
88                 cout<<"NAME "<<"\t" <<"DATE OF BIRTH" "<<"\t" <<"BLOOD GROUP" "<<"\t" <<"HEIGHT" "<<"\t" <<"";
89                 cout<<"\n";
90                 for(i=0;i<n;i++)
91                 {
92                     p1[i]->displaydata(p2[i]);
93                 }
94                 person::recordcount();
95                 break;
96             }
97         }while(ch!=4);
98     return 0;
99 }

```

Line: 1 Col: 1 Sel: 0 Lines: 99 Length: 2072 Insert Done parsing in 0.5

3.Exit
Enter your choice1

Enter The Information

Enter Name of Person=XYZ

Enter date of birth of person=16/04/1998

Enter blood group of person=B+

Enter height and weight of person=6
59

Enter Contact no of person=8805334252

Enter address of person=Alibag

Enter the insurance policy no=5565

Total no of records :1
Menu
1.Information of Person
2.Display Information
3.Exit
Enter your choice2

NAME NO	DATE OF BIRTH ADDRESS	BLOOD GROUP	HEIGHT	WEIGHT	TELEPHONE NO	INSU.POLICY
XYZ 5	16/04/1998 Alibag	B+	6	59	8805334252	556

Total no of records :1
Menu
1.Information of Person
2.Display Information
3.Exit
Enter your choice

Theory :

In this program, we created Menu where insertion, deletion, modification, search etc options are there.

Short

Conclusion:

We have studied inheritance concept in C++ programming and with the help of that we have design program where user can edit, delete, insert, display and modify data.