

LAB ASSIGNMENT II

1.

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

class Employee
{
public:
    int phone;

};

class administrative : virtual public Employee
{
public:
    int administrativeID;

};

class academic : virtual public Employee
{
public:
    int academicId;

};

class HOD : public administrative, public academic
{
public:
    int HodPhone;

};

int main()
{
    HOD obj;
    obj.phone= 12345; //phone is assing to base class
    obj.phone=6789;//Again assigning
    obj.administrativeID=12;
    obj.academicId=34;
    obj.HodPhone=1234567890;

    cout<<" Phone "<<obj.phone <<endl;

    cout<<" AdministartiveID "<<obj.administrativeID <<endl;
```

```

cout<<" ACademic "<<obj.academicId <<endl;

cout<<"HoD phone"<<obj.HodPhone <<endl;

}

```

2.

```

#include<iostream>
using namespace std;

class Shape{

    public:
    virtual void getArea()=0;
};

class Triangle: public Shape{

    int b,h;
    public:
    void getdata(){
        cout<<"Enter the breadth and height of Triangle: "<< endl;
        cin>> b>>h;
    }
    void getArea(){

        cout<<"Area of Triangle is "<< (b*h)/2 << endl;
    }
};

class Rectangle: public Shape{

    int l,b;
    public:
    void getdata(){
        cout<<"Enter the lenght and breadth of Rectangle : "<< endl;
        cin>> l>>b;
    }
    void getArea(){
        cout<<"Area of Rectangle is "<<l*b<< endl;
    }
};

class Circle: public Shape{

    float r;

```

```

public:
void getdata(){
    cout<<"Enter the radius of circle "<< endl;
    cin>> r;
}
void getArea(){
    cout<<"Area of Circle is "<<(22*(r*r))/7<< endl;
}
};

int main(){
    Triangle obj1;
    Rectangle obj2;
    Circle obj3;
    obj1.getdata();
    obj2.getdata();
    obj3.getdata();
    obj1.getArea();
    obj2.getArea();
    obj3.getArea();

}

```

3.

```

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

```

```

class Circle
{

```

```

public:
    float pi = 22 / 7;
    float radius;
    float area;
    void getRadius()
    {
        cout << "Enter the radius : " << endl;
        cin >> radius;
    };

```

```

    void Area()
    {
        area = pi * (radius * radius);
    }
    void display()

```

```

{
    cout << "Area of figures " << area << endl;
}
};

class Cylinder : public Circle
{
public:
    float height;

    void getHeight()
    {
        cout << "Enter the Height of Cylinder : " << endl;
        cin >> height;
    };
    void Area()
    {
        area = 2 * pi * radius * radius + 2 * pi * radius * height;
    };
};

int main()
{
    Circle obj1;
    Cylinder obj2;
    obj1.getRadius();
    obj1.Area();
    obj1.display();
    obj2.getRadius();
    obj2.getHeight();
    obj2.Area();
    obj2.display();
}

```

4.

```

#include <iostream>
using namespace std;

template <class T>

T average()
{
    int size;
    cout << "Enter size" << endl;

```

```

cin >> size;
T arr[size];
T total = 0;
T average;

cout << "Enter the array element ";
for (int i = 0; i < size; i++)
{
    cin >> arr[i];
};

for (int i = 0; i < size; i++)
{
    total += arr[i];
    cout << "Total " << total << endl;
}

average = total / size;

cout << "Average = " << average << endl;
};

int main()
{

    average<int>();
    average<long>();
    average<double>();
    average<char>();
}

```

5.

```

#include <iostream>
using namespace std;

class Person
{

    char name[15];
    int phone;

public:
    void getName()
    {
        cout << "Enter your Name Here " << endl;
        cin >> name;
    }
}

```

```

};
void getPhone()
{
    cout << "Enter Your Phone Number " << endl;
    cin >> phone;
};

void display()
{
    cout << " Your name is " << name << endl;
    cout << "Your Phone Number is " << phone << endl;
}
};

class Student : virtual public Person
{
public:
    int studentId;
    void getsId()
    {
        cout << "Enter Your Student Id Number " << endl;
        cin >> studentId;
        cout << "Your Student Id is" << studentId << endl;
    }
};

class Employee : virtual public Person
{
public:
    int employeeId;
    void geteId()
    {
        cout << "Enter Your employee Id Number " << endl;
        cin >> employeeId;
        cout << "Your employee Id is" << employeeId << endl;
    }
};

class Manager : public Student, public Employee
{
};

int main()
{
    Manager m;
    m.getName();
    m.getPhone();
    m.display();
};

```

6.

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

class Pizza
{

public:
    virtual void get_price() = 0;
};

class Mushroom : public Pizza
{

public:
    void get_price()
    {

        cout << " The Price of Mushroom Pizza is "
            << "Rs 200" << endl;
    };
};

class Ham : public Pizza
{

public:
    void get_price()
    {
        cout << "The Price of Ham Pizza is "
            << " Rs 150 " << endl;
    };
};

class Chesse : public Pizza
{
public:
    void get_price()
    {
        cout << "The Price of Chesse Pizza is "
            << "Rs 100 " << endl;
    };
};

int main()
{
```

```
cout << "The Menu of the Pizza and its Variety " << endl;
```

```
Chesse c1;  
Ham h1;  
Mushroom m1;  
m1.get_price();  
h1.get_price();  
c1.get_price();  
}
```

7.

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

```
int main(){
```

```
    int a , b;  
    cout<<"Enter two Number a and b "<<endl;  
    cin>>a;  
    cin>>b;
```

```
    try{
```

```
        if(b==0)  
            throw b;
```

```
        else{  
            cout<<"The Division between a and b is "<<a/b<<endl;  
        }
```

```
    }
```

```
    catch(int b){  
        cout<<"You can't divide with Zero "<<b<<endl;  
    }
```

```
}
```

8.

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

```
template <class T>
```



```

T ArrSort()
{

    T arr[10];
    T temp;

    for (int m = 0; m < 10; m++)
    {
        cout << "arr[" << m << "]=";
        cin >> arr[m];
    }
    for (int m = 0; m < 10; m++) //Sorting logic
    {
        for (int n = m + 1; n < 10; n++)
        {
            if (arr[m] > arr[n])
            {
                temp = arr[m];
                arr[m] = arr[n];
                arr[n] = temp;
            }
        }
    }

    for (int m = 0; m < 10; m++) //Displaying logic
    {
        cout << arr[m] << "\n";
    }
};

int main()
{
    ArrSort<int>();
    ArrSort<float>();
};

```

Activities Visual Studio Code Sep 25 8:32 AM

1.cpp - ASSIGNMENT-II c++ - Visual Studio Code

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Lab > 1.cpp > main()

```
30 };
31
32 int main()
33 {
34     HOD obj;
35     obj.phone= 12345; //phone is assing to base class
36     obj.phone=6789;//Again assigning
37     obj.administrativeID=12;
38     obj.academicId=34;
39     obj.HodPhone=1234567890;
40
41     cout<<" Phone "<<obj.phone <<endl;
42
43     cout<<" AdministartiveID "<<obj.administrativeID <<endl;
44
45 }
```

PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL 1: Code

```
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab/ $ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 1.cpp -o 1 && "/home/riteshdahal/ASSIGNMENT-II c++/Lab/"1
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab/ $ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 1.cpp -o 1 && "/home/riteshdahal/ASSIGNMENT-II c++/Lab/"1
Phone 6789
Phone 12
Phone 34
Hod phone1234567890
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab/ $
```

Ln 51, Col 1 Spaces: 4 UTF-8 LF C++ Linux

Activities Visual Studio Code Sep 25 9:06 AM

2.cpp - ASSIGNMENT-II c++ - Visual Studio Code

File Edit Selection View Go Run Terminal Help

Lab > 2.cpp > Circle > getdata()

```
46 }
47 };
48
49 int main(){
50     Triangle obj1;
51     Rectangle obj2;
52     Circle obj3;
53     obj1.getdata();
54     obj2.getdata();
55     obj3.getdata();
56     obj1.getArea();
57     obj2.getArea();
58 }
```

PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL 2: Code

```
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab/ $ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 2.cpp -o 2 && "/home/riteshdahal/ASSIGNMENT-II c++/Lab/"2
Enter the breadth and height of Triangle:
2
3
Enter the lenght and breadth of Rectangle :
5
2
Enter the radius of circle
5
Area of Triangle is 3
Area of Rectangle is 10
Area of Circle is 78.5714
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab/ $
```

Ln 41, Col 3 Spaces: 4 UTF-8 LF C++ Go Live Linux

Activities Visual Studio Code Sep 27 12:03 PM

3.cpp - ASSIGNMENT-II c++ - Visual Studio Code

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EXPLORER

OPEN EDITORS

ASSIGNMENT-II c++

.vscode

settings.json

Lab

1

1.cpp

1.png

2

2.cpp

2.png

3

3.cpp

4.cpp

5.cpp

6.cpp

7.cpp

8.cpp

Theory

Questions Assignme...

3.cpp

```
30
31 public:
32     float height;
33
34     void getHeight()
35     {
36         cout << "Enter the Height of Cylinder : " << endl;
37         cin >> height;
38     };
39     void Area()
40     {
41         area = 2 * pi * radius * radius + 2 * pi * radius * height;
42     }
43 }
```

PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL

1: Code

```
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 3.cpp -o 3 && "/home/riteshdahal/ASSI
GMENT-II c++/Lab/"3
Enter the radius :
2
Area of figures 12
Enter the radius :
2
Enter the Height of Cylinder :
2
Area of figures 48
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$
```

Ln 45, Col 11 Spaces: 4 UTF-8 LF C++ Go Live Linux

Activities Visual Studio Code Sep 28 5:34 PM

4.cpp - ASSIGNMENT-II c++ - Visual Studio Code

File Edit Selection View Go Run Terminal Help

4.cpp

Questions Assignment II.pdf

Lab > 4.cpp > average<T>()

```
28 cout << "Enter the array element ";
29 for (int i = 0; i < size; i++)
30 {
31     cin >> arr[i];
32 };
33
34 for (int i = 0; i < size; i++)
35 {
36     total+=arr[i];
37     cout << "Total " << total << endl;
38 }
39
40 average = total / size;
41
42 cout << "Average = " << average << endl;
43 };
44
45 int main()
46 {
```

PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL

2: Code

```
4.cpp:43:1: warning: no return statement in function returning non-void [-Wreturn-type]
43 | };
   | ^
Enter size
3
Enter the array element 1
2
3
Total 1
Total 3
Total 6
Average = 2
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$
```

Ln 50, Col 5 Spaces: 4 UTF-8 LF C++ Go Live Linux

Activities Visual Studio Code Sep 28 12:04 PM

5.cpp - ASSIGNMENT-II c++ - Visual Studio Code

File Edit Selection View Go Run Terminal Help

5.cpp x Questions Assignment II.pdf

```
Lab > 5.cpp > ...
54 {
55 };
56
57 int main()
58 {
59     Manager m;
60     m.getName();
61     m.getPhone();
62     m.display();
63 };
64
```

PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL 2: Code

```
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 5.cpp -o 5 && "/home/riteshdahal/ASSIGNMENT-II c++/Lab/"5
Enter your Name Here
riteshdahal
Enter Your Phone Number
984473728
Your name is riteshdahal
Your Phone Number is 984473728
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$
```

Ln 64, Col 1 Spaces: 4 UTF-8 LF C++ Go Live Linux

Activities Visual Studio Code Sep 28 12:16 PM

6.cpp - ASSIGNMENT-II c++ - Visual Studio Code

File Edit Selection View Go Run Terminal Help

6.cpp x Questions Assignment II.pdf

```
Lab > 6.cpp > Mushroom > get_price()
39 cout << "The Price of Cheese Pizza is
40 << "Rs 100 " << endl;
41 };
42 };
43
44 int main()
```

PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL 2: Code

```
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 6.cpp -o 6 && "/home/riteshdahal/ASSIGNMENT-II c++/Lab/"6
The Menu of the Pizza and its Variety
The Price of Mushroom Pizza is Rs 200
The Price of Ham Pizza is Rs 150
The Price of Cheese Pizza is Rs 100
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$
```

Ln 15, Col 21 Spaces: 4 UTF-8 LF C++ Go Live Linux

Activities Visual Studio Code Oct 1 7:38 PM

7.cpp - ASSIGNMENT-II c++ - Visual Studio Code

File Edit Selection View Go Run Terminal Help

7.cpp x Questions Assignment II.pdf

Lab > C: 7.cpp > main()

```
1 #include<iostream>
2 using namespace std;
3
4 int main(){
5
6     int a , b;
7     cout<<"Enter two Number a and b "<<endl;
8     cin>>a;
9     cin>>b;
10
```

PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL 1: Code

```
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++$ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 7.cpp -o 7 && "/home/riteshdahal/ASSIGNMENT-II c++/Lab/"7
Enter two Number a and b
12
0
You can't divide with Zero 0
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$ cd "/home/riteshdahal/ASSIGNMENT-II c++/Lab/" && g++ 7.cpp -o 7 && "/home/riteshdahal/ASSIGNMENT-II c++/Lab/"7
Enter two Number a and b
12
3
The Division between a and b is 4
riteshdahal@thinkpadx230:~/ASSIGNMENT-II c++/Lab$
```

Ln 23, Col 58 Spaces: 4 UTF-8 LF C++ Go Live Linux

Activities Visual Studio Code Sep 28 1:07 PM

8.cpp - ASSIGNMENT-II c++ - Visual Studio Code

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PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL 2: Code

```
8.cpp:39:20: error: required from here
8.cpp:34:1: warning: no return statement in function returning non-void [-Wreturn-type]
arr[0]=1
arr[1]=9
arr[2]=8
arr[3]=7
arr[4]=6
arr[5]=5
arr[6]=4
arr[7]=3
arr[8]=2
arr[9]=1
1
1
2
3
4
5
6
7
8
9
arr[0]=3.0
arr[1]=9.0
arr[2]=8.9
arr[3]=7.9
arr[4]=9.9
arr[5]=9.6
arr[6]=9.7
arr[7]=5.3
arr[8]=5.1
arr[9]=6.4
3
5.1
5.3
6.4
7.9
8.9
```

Ln 40, Col 3 Spaces: 4 UTF-8 LF C++ Go Live Linux