1. Program to depict inline function (without class) for calculating area of a circle.

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

const float Pi=3.14;

inline float areaOfCircle(float radius)
{
        return Pi*radius*radius;
}

int main()
{
        float radius;
        cout<<"Enter the radius of a circle : ";
        cin>>radius;
        cout<<"The area of the circle is : "<<areaOfCircle(radius)<<" sq units"<<endl;
        return 0;
}
```
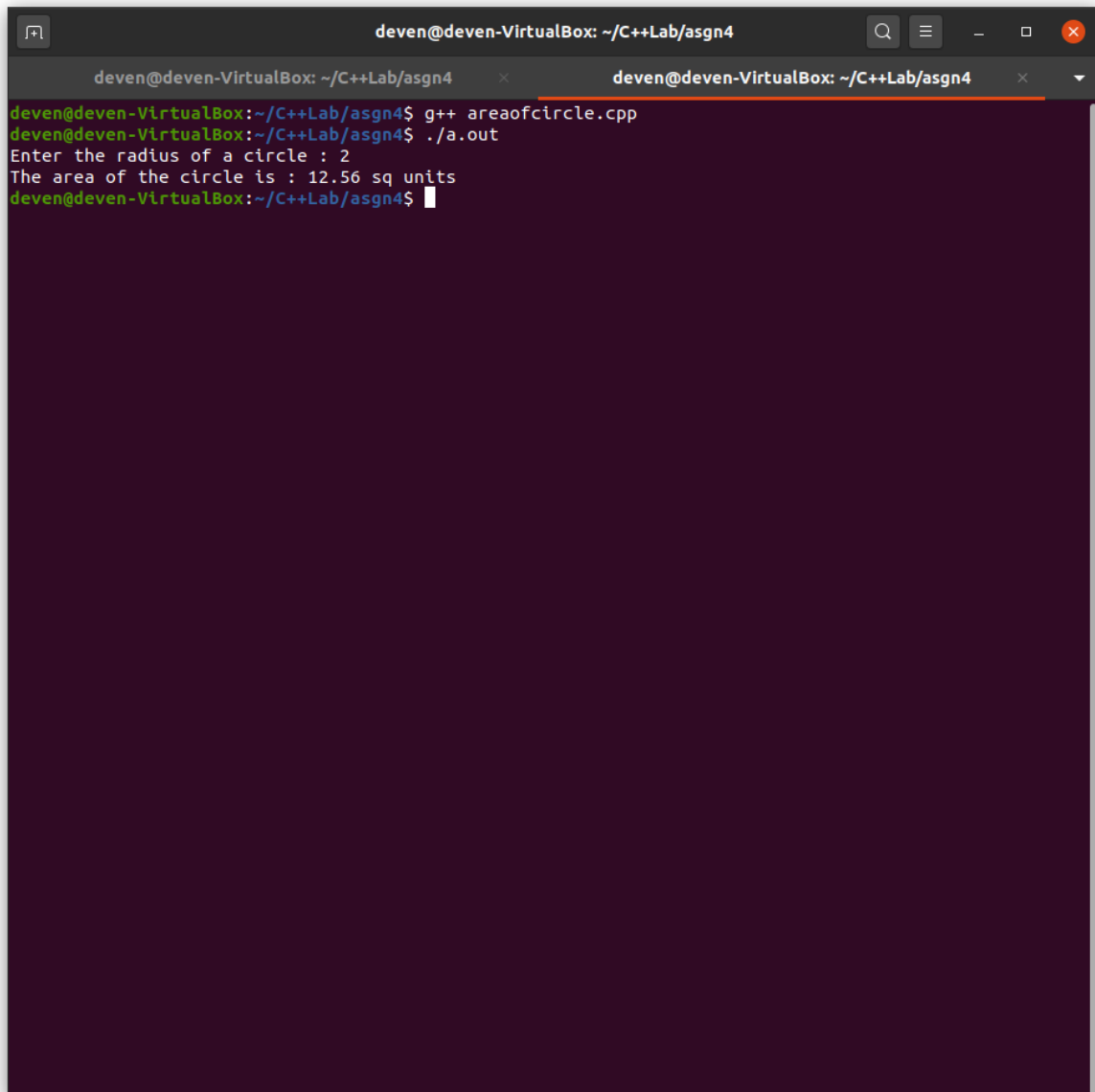
```
deven@deven-VirtualBox:~/C++Lab/asgn4$ g++ areaofcircle.cpp
deven@deven-VirtualBox:~/C++Lab/asgn4$ ./a.out
Enter the radius of a circle : 2
The area of the circle is : 12.56 sq units
deven@deven-VirtualBox:~/C++Lab/asgn4$
```

2. Program to depict inline function for a class named MathWorks to add, sub, mul, div on two numbers.

```cpp
#include <iostream>

using namespace std;


class MathWorks

{

    private:

            int x, y;
```

```cpp
    public:
        MathWorks(int x=0,int y=0):x(x),y(y){}
        void read()
        {
            cout<<"Enter two integers :";
            cin>>x>>y;
        }
        int     add()
        {
            return x+y;
        }
        int sub()
        {
            return x-y;
        }
        int mul()
        {
            return x*y;
        }
        int div()
        {
            return static_cast<float>(x)/y;
        }
        void disp()
        {
            cout<<"The two integers are : "<<x<<" "<<y<<endl;
        }
};

int main()
{
```
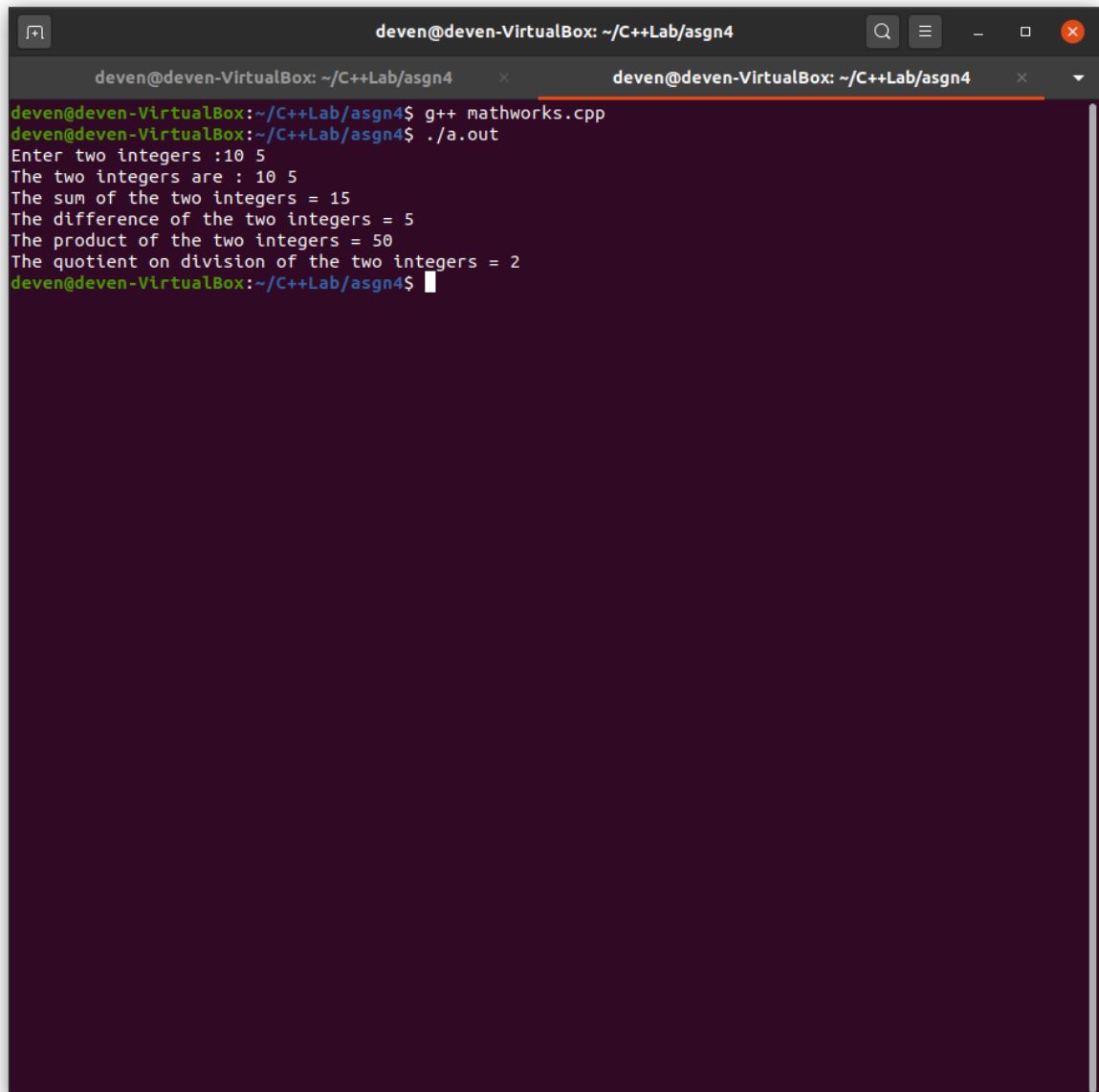
```cpp
    //MathWorks m(10,5);

    MathWorks m;

    m.read();

    m.disp();

    cout<<"The sum of the two integers = "<<m.add()<<endl;

    cout<<"The difference of the two integers = "<<m.sub()<<endl;

    cout<<"The product of the two integers = "<<m.mul()<<endl;

    cout<<"The quotient on division of the two integers = "<<m.div()<<endl;

    return 0;

}
```

```
deven@deven-VirtualBox:~/C++Lab/asgn4$ g++ mathworks.cpp
deven@deven-VirtualBox:~/C++Lab/asgn4$ ./a.out
Enter two integers :10 5
The two integers are : 10 5
The sum of the two integers = 15
The difference of the two integers = 5
The product of the two integers = 50
The quotient on division of the two integers = 2
deven@deven-VirtualBox:~/C++Lab/asgn4$
```

3. Program to depict default arguments (without class) to calculate volume of a cylinder. Consider all types of functions to show characteristics of trailing arguments.

```cpp
#include <iostream>

using namespace std;


const float Pi=3.14;


inline float volume(float radius=1, float height=1)

{

        cout<<"The volume of the cylinder with radius = "<<radius<<" and height = "<<height<<" is : ";
```
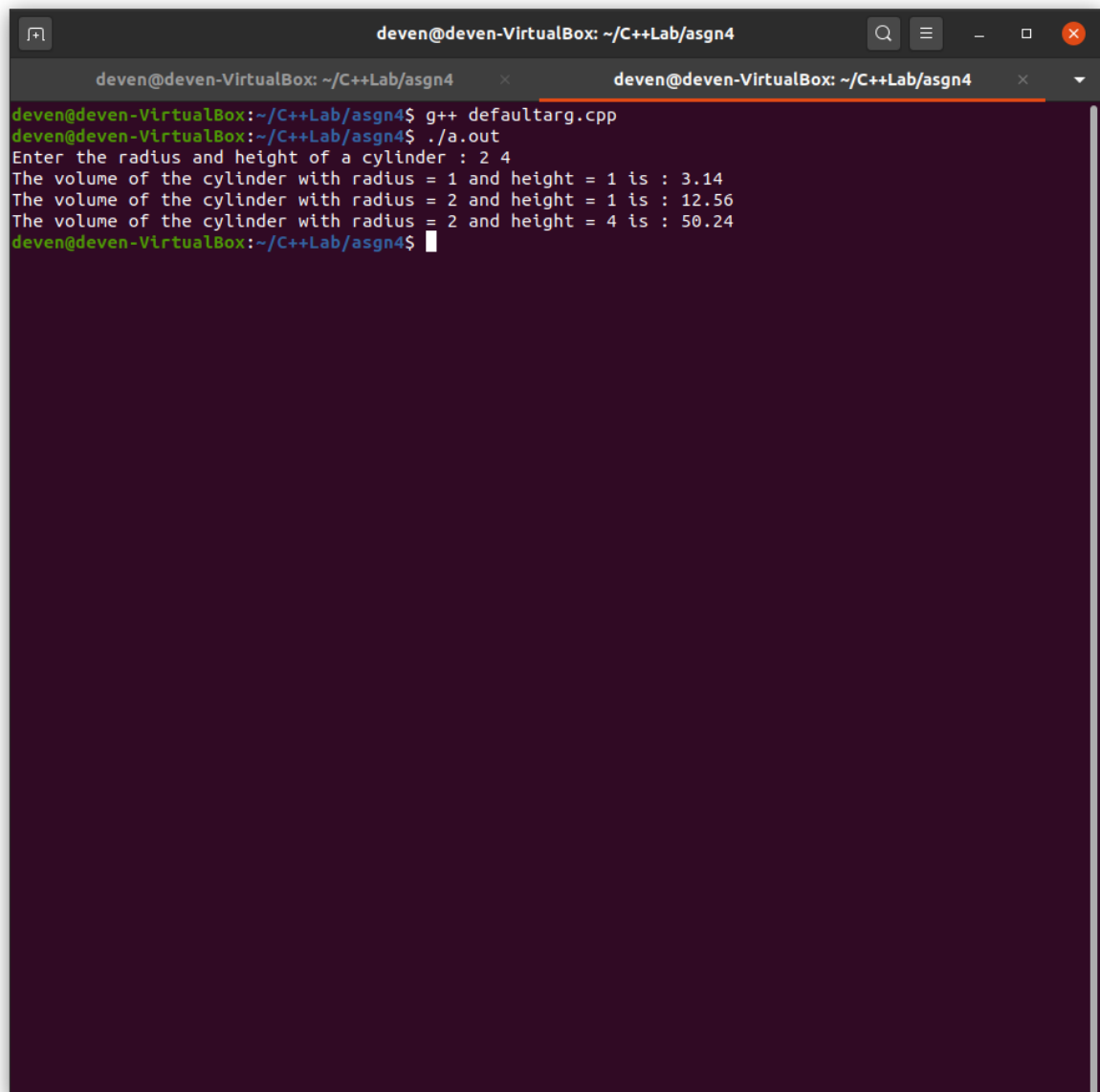
```cpp
        return Pi*radius*radius*height;
}


int main()
{
        float radius,height;
        cout<<"Enter the radius and height of a cylinder : ";
        cin>>radius>>height;
        cout<<volume()<<endl;
        cout<<volume(radius)<<endl;
        cout<<volume(radius,height)<<endl;
        return 0;
}
```

```
deven@deven-VirtualBox:~/C++Lab/asgn4$ g++ defaultarg.cpp
deven@deven-VirtualBox:~/C++Lab/asgn4$ ./a.out
Enter the radius and height of a cylinder : 2 4
The volume of the cylinder with radius = 1 and height = 1 is : 3.14
The volume of the cylinder with radius = 2 and height = 1 is : 12.56
The volume of the cylinder with radius = 2 and height = 4 is : 50.24
deven@deven-VirtualBox:~/C++Lab/asgn4$
```

4. Program to depict Compiling of multiple files (without class), with class using .h files for printing multiplication tables of given number 'n'.

//table.h

void printTable(int);

//table.cpp

#include <iostream>

using namespace std;//for cout

void printTable(int n)

```cpp
{
        cout << "Table of " << n << " : " << endl;
        for(int i = 1; i <= 10; ++i)
                cout << n << " x " << i << " = " << n * i << endl;
}

//main.cpp
#include <iostream>
#include "table.h"
using namespace std;

int main()
{
        int n;
        cout << "Enter a number : ";
        cin >> n;
        printTable(n);
        return 0;
}
```
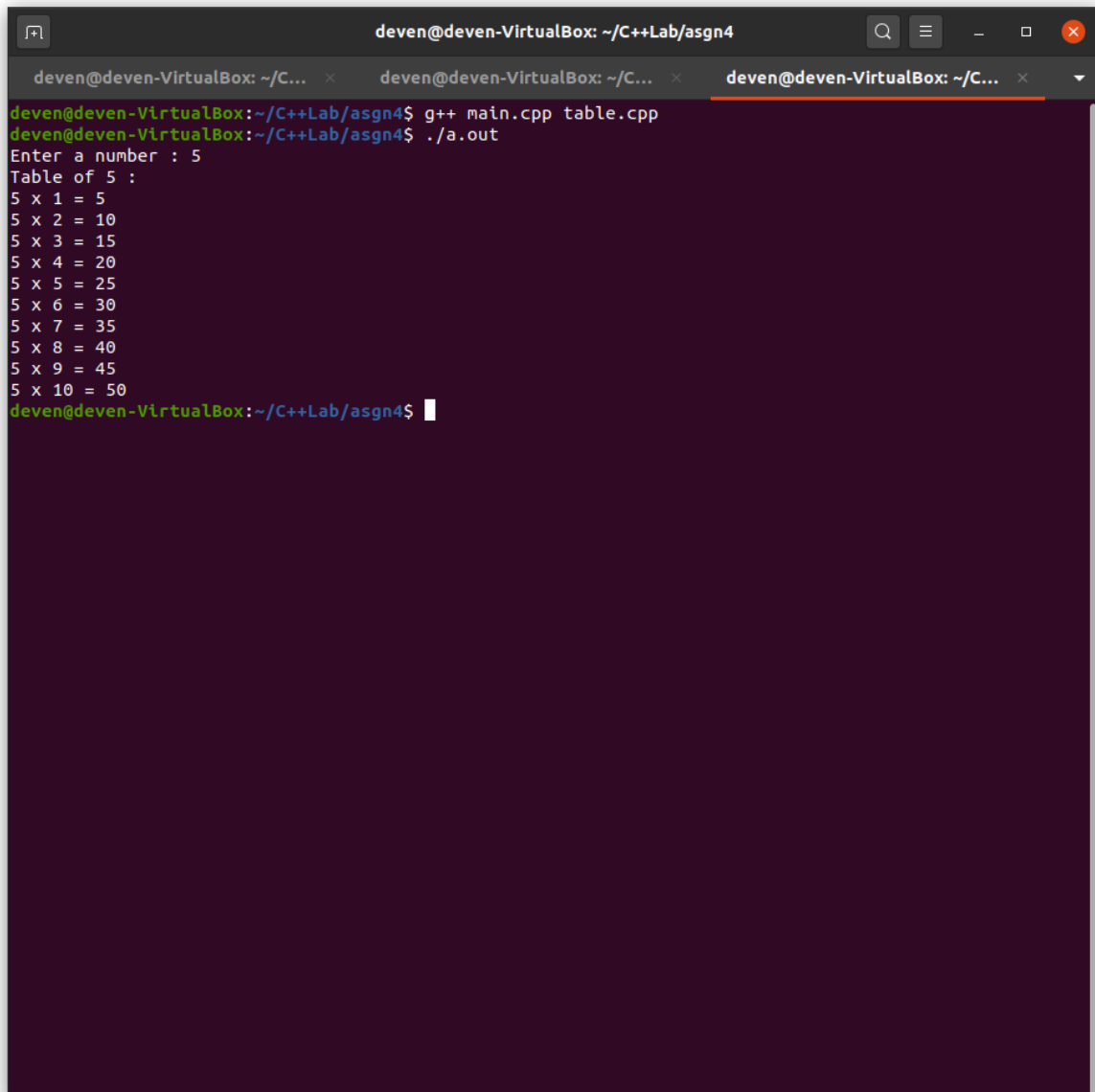
```
deven@deven-VirtualBox:~/C++Lab/asgn4$ g++ main.cpp table.cpp
deven@deven-VirtualBox:~/C++Lab/asgn4$ ./a.out
Enter a number : 5
Table of 5 :
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
deven@deven-VirtualBox:~/C++Lab/asgn4$
```

5. Program to depict command line arguments to compute fibonacci number of nth term.

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

int fibonacci(int n)
{
        if(n == 1)
                return 0;
```

```cpp
        if(n == 2)
                return 1;
        return (fibonacci(n - 2) + fibonacci(n - 1));

}


int main(int argc, char *argv[])

{

        if(argc < 2)

        {

                cout << "Input fail" << endl;

                exit(0);

        }

        int n = atoi(argv[1]);

        if(n <= 0)

        {

                cout << "Wrong Input" << endl;

                exit(0);

        }

        int num = fibonacci(n);

        cout << "The " << n <<"th number of the fibonacci series is : " << num << endl;

        return 0;

}
```

```
deven@deven-VirtualBox:~/C++Lab/asgn4$ g++ fibonacci.cpp
deven@deven-VirtualBox:~/C++Lab/asgn4$ ./a.out 7
The 7th number of the fibonacci series is : 8
deven@deven-VirtualBox:~/C++Lab/asgn4$ ./a.out 9
The 9th number of the fibonacci series is : 21
deven@deven-VirtualBox:~/C++Lab/asgn4$
```