LAB ASSIGNMENT III

1.

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

class Time
{
   int hour;
   int minute;
   int second;

public:
   Time()
   {
      hour = 0;
      minute = 0;
      second = 0;
   }

   Time(int h, int m, int s)
   {
      hour = h;
      minute = m;
      second = s;
   }

   void display()
   {
      cout << hour << ':' << minute << ':' << second << endl;
   }

   void add(Time t1, Time t2)
   {
      cout << t1.hour + t2.hour << ':' << t1.minute + t2.minute << ':' << t1.second + t2.second << endl;
   }
};

int main()
{
   Time t1(2, 2, 2), t2(3, 5, 10);
   t1.display();
   t1.add(t1, t2);
};
```

2.

```
#include <iostream>
#include <string.h>
using namespace std;

class String
{

public:
   char str[50];

   String()
   {
      strcpy(str, " ");
   };

   String(char str1[])
   {
      strcpy(str, str1);
   };

   void getStr()
   {
      cout << "Enter String" << endl;
      cin.getline(str, 50);
   }

   String operator+(String &obj)
   {
      String temp;
      strcpy(temp.str, str);
      strcat(temp.str, obj.str);
      return temp;
   };

   String operator==(String &obj)
   {

      if (strcmp(str, obj.str) == 0)
      {
         cout << "String are same";
      }
      else
      {
         cout << "String are different";
      }
   };

   void display()
```

```
    {
        cout << str << endl;
    }
};
int main()
{
    String s1;
    String s2;
    s1.getStr();
    s2.getStr();
    s1.display();
    s2.display();
    String s3;
    s3 = s1 + s2;
    s3.display();
    s1 == s2;
    return 0;
}
```

3.

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

class Beverage
{
public:
    int costofWater;
    int costofSugar;
    float totalcost;

    Beverage()
    {
        costofWater = 10;
        costofSugar = 10;
        totalcost = 0;
    }

    virtual void computeCost() = 0;
};

class Tea : public Beverage
{

    int costofTeaLeaves;

public:
    Tea()
```

```
    {
        costofTeaLeaves = 20;
    };

    void computeCost()
    {
        totalcost = costofWater + costofSugar + costofTeaLeaves;
    }

    void display()
    {
        cout << "Cost of Tea is " << totalcost << endl;
    };
};

class coffee : public Beverage
{

    int costofCoffeePowder;

public:
    coffee()
    {
        costofCoffeePowder = 40;
    };

    void computeCost()
    {
        totalcost = costofWater + costofSugar + costofCoffeePowder;
    }
    void display()
    {
        cout << "Cost of Coffee is " << totalcost << endl;
    };
};

int main()
{
    Tea t1;
    coffee c1;
    t1.computeCost();
    t1.display();
    c1.computeCost();
    c1.display();
}
```

4.

```
#include <iostream>
```

```
using namespace std;
class cheesePizza;

class Pizza
{

public:
   int price;

   void orderPizza()
   {
      cout << "Welcome to dominos Pizza. ";
      cout << "Enter your Choice " << endl;
      cout << "1. Cheese Pizza " << endl;
      cout << "2. Pepperoni Pizza " << endl;
      cout << "3. Clam Pizza " << endl;
   }
};
class cheesePizza : public Pizza
{
public:
   int pricechesse;
   cheesePizza()
   {
   }
   cheesePizza(int a)
   {
      pricechesse = a;
   }

   void orderPizzacheese()
   {
      cout << "You have ordered Cheese pizza.  "
           << "The Price Rs " << pricechesse << endl;
   }
};

class pepperoniPizza : public Pizza
{

public:
   int pricepepperoni;
   pepperoniPizza() {}
   pepperoniPizza(int a)
   {
      pricepepperoni = a;
   }

   void orderPizzapepperoni()
```

```
    {
        cout << "You have ordered Pepperoni pizza.  "
            << "The Price Rs " << pricepepperoni << endl;
    };
};

class clamPizza : public Pizza
{

public:
    int priceclam;
    clamPizza() {}
    clamPizza(int a)
    {
        priceclam = a;
    }

    void orderPizzaclam()
    {
        cout << "You have ordered Clam pizza.  "
            << "The Price Rs " << priceclam << endl;
    }
};
int main()
{
    Pizza p;
    p.orderPizza();
    int n;
    cout << "Enter your Choice " << endl;
    cin >> n;

    if (n == 1)
    {
        Pizza *p1 = new cheesePizza(200);
        static_cast<cheesePizza *>(p1)->orderPizzacheese();
    }
    else if (n == 2)
    {
        Pizza *p1 = new pepperoniPizza(400);
        static_cast<pepperoniPizza *>(p1)->orderPizzapepperoni();
    }
    else if (n == 3)
    {
        Pizza *p1 = new clamPizza(600);
        static_cast<clamPizza *>(p1)->orderPizzaclam();
    }

    else
    {
```

```
        cout << "We have only three type of Pizza so please enter the number from 1 to 3." << endl;
    }
}
```

5.

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

int main()
{
    int factorial = 1;
    cout << "Welcome to the factorial Calculation Program   " << endl;
    int number;

    cout << "Enter the Number you Want to do Factorial " << endl;
    cin >> number;

    try
    {

        if (number < 0)
            throw number;
        else
        {
            for (int i = 1; i < number + 1; i++)
            {
                factorial = factorial * i;
            }
            cout << "Factorial of the " << number << " is " << factorial << endl;
        }
    }
    catch (int number)
    {
        cout << "Exception Caught " << endl;
    }
}
```

6.

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

class Video
{
    string titles;
    int views, likes, dislikes;
```

```
public:
    Video()
    {
        titles = "";
        views = 0;
        likes = 0;
        dislikes = 0;
    }
    Video(string title, int view, int like, int dislike)
    {
        titles = title;
        views = view;
        likes = like;
        dislikes = dislike;
    }
    void display()
    {
        cout << "Title = " << titles << endl;
        cout << "Views = " << views << endl;
        cout << "Likes = " << likes << endl;
        cout << "Dislikes = " << dislikes << endl;
    }

    friend void operator>(Video x, Video y);
};

void operator>(Video i, Video j)
{
    if (i.views > j.views && i.likes > j.likes && j.dislikes > i.dislikes)
    {

        cout << "First Video is Most loved than Second One" << endl;
    }
    else
    {

        cout << "Second video is more loved" << endl;
    }
}

int main()
{
    Video v1("Blender Animation Tutorial", 1236, 5678, 4);
    Video v2("Blender VFX Tutorial", 235, 5658, 5);
    v1.display();
    v2.display();

    v1 > v2;
```

```
}
```

7.

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

class User
{
public:
   string names;
   string passwords;

   User()
   {
      names = "";
      passwords = "";
   }

   virtual void authenticate() = 0;
};

class admin : public User
{
   int phone;

public:
   admin()
   {
      names = "";
      passwords = "";
   }
   admin(string username, string password)
   {
      names = username;
      passwords = password;
   }
   void phonenumber()
   {
      cout << "Enter the phone number of Admistration" << endl;
      cin >> phone;
      cout << "Phone Number of Admistration " << phone << endl;
   }

   void authenticate()
   {
      string name;
      string password;
```

```
        cout << "Enter the Username"
             << "/n"
             << "and Password " << endl;
        cin >> name;
        cin >> password;

        if (names == name && passwords == password)
        {
           cout << "Welcome to admin Pannel" << endl;
        }
        else
        {
           cout << "You entered wrong username or password aren't you a admin user " << endl;
        }
    }
};

class normal : public User
{
public:
    normal()
    {
        names = "";
        passwords = "";
    }
    void authenticate()

    {

        cout << "Enter the Username"
             << "/n"
             << "and Password " << endl;
        cin >> names;
        cin >> passwords;

        cout << "Welcome to Normal User Pannel" << endl;
    }
};

int main()
{
    cout << "Welcome to you " << endl;
    cout << "1. Admin "
         << "\n"
         << "2. Normal" << endl;
    int n;
    cin >> n;
    if (n == 1)
    {
```

```
        User *p = new admin("123", "123");
        p->authenticate();
    }

    else if (n == 2)
    {
        User *p = new normal();
        p->authenticate();
    }
    else
    {
        cout << "We have only two user at a time" << endl;
    }
}
```

8.

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

template <class T1, class T2>
int Max(T1 x, T2 y)
{

    return (x > y) ? x : y;
}

int main()
{
    cout << "The Maximum in integer are " << Max<int>(6, 9) << endl;
    cout << "The Maximum in Character is " << Max<char>('a', 'b') << endl;
}
```

9.

```
#include <iostream>
using namespace std;
class Shape
{

public:
    int side1;
    int area;
    Shape()
    {
        side1 = 0;
    }
```

```
    Shape(int breadth)
    {
        side1 = breadth;
    }

    virtual int findArea() = 0;
};

class rectangle : public Shape
{
public:
    int side2;
    rectangle()
    {
        side1 = 0;
    }
    rectangle(int breadth) : Shape(breadth)
    {
        side1 = breadth;
    }

    void getData()
    {
        cout << "Enter the length of Rectangle " << endl;
        cin >> side2;
    }
    int findArea()
    {
        area = side1 * side2;
        cout << "Area of Rectangle " << area << endl;
        return area;
    }
};
class circle : public Shape
{
public:
    circle()
    {
        side1 = 0;
    };
    circle(int diameter) : Shape(diameter)
    {
        side1 = diameter;
    }

    int findArea()
    {
        side1 = side1 / 2;
```

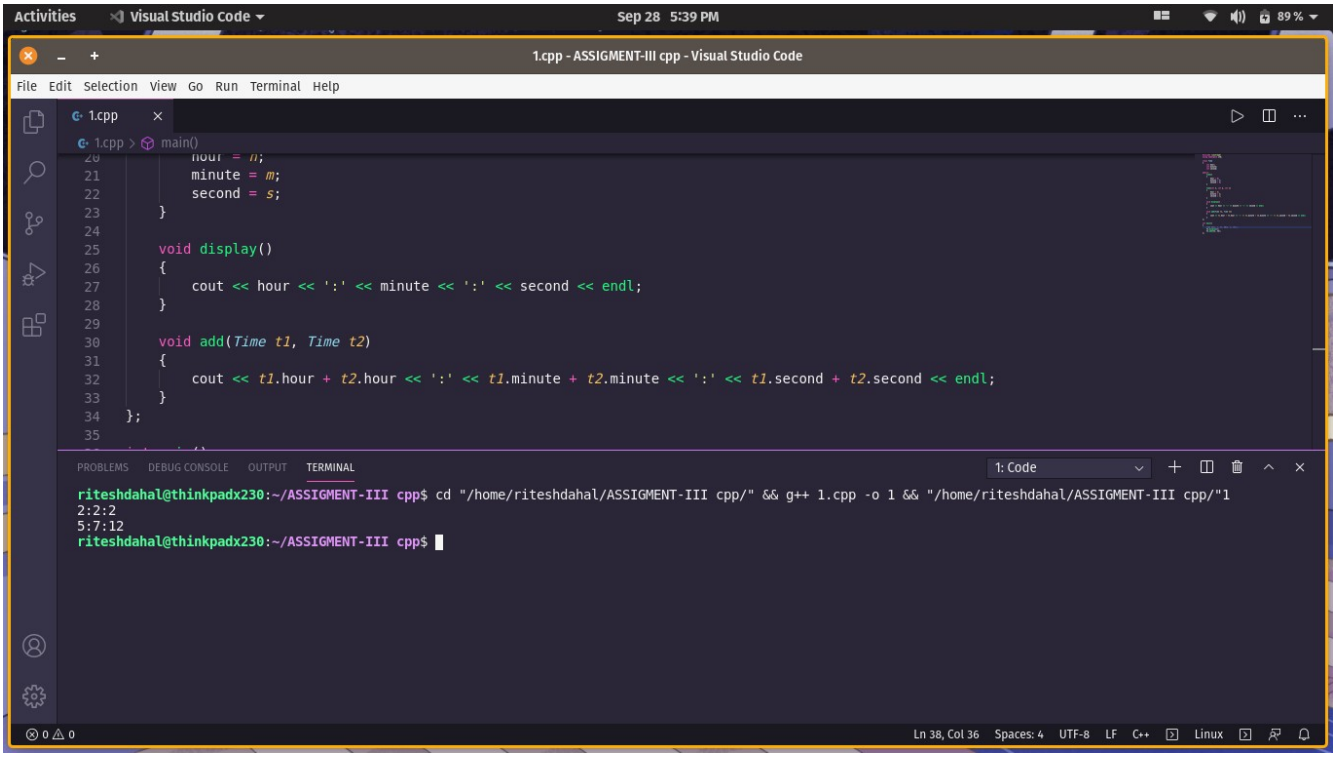
```
        area = (side1 * side1) * 11 / 7;
        cout << "Area of Half Circle " << area << endl;
        return area;
    }
};

int main()
{
    int breadth;
    cout << "Enter the side 1 of Rectangle and for diameter of circle" << endl;
    cin >> breadth;
    rectangle r1(breadth);
    circle c1(breadth);
    r1.getData();
    int finalArea;
    finalArea = r1.findArea() + c1.findArea();
    cout << "Area of BasketBall Court is  " << finalArea << endl;
}
```

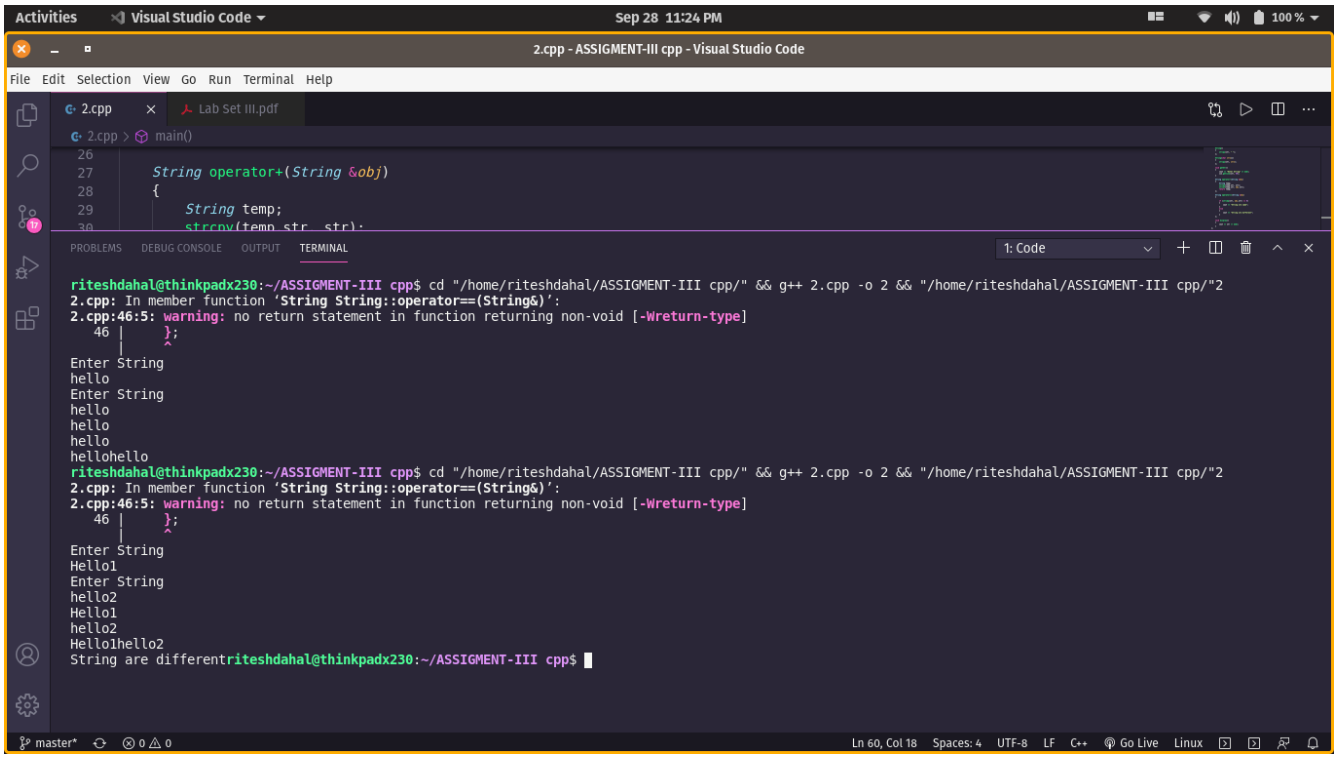
10.

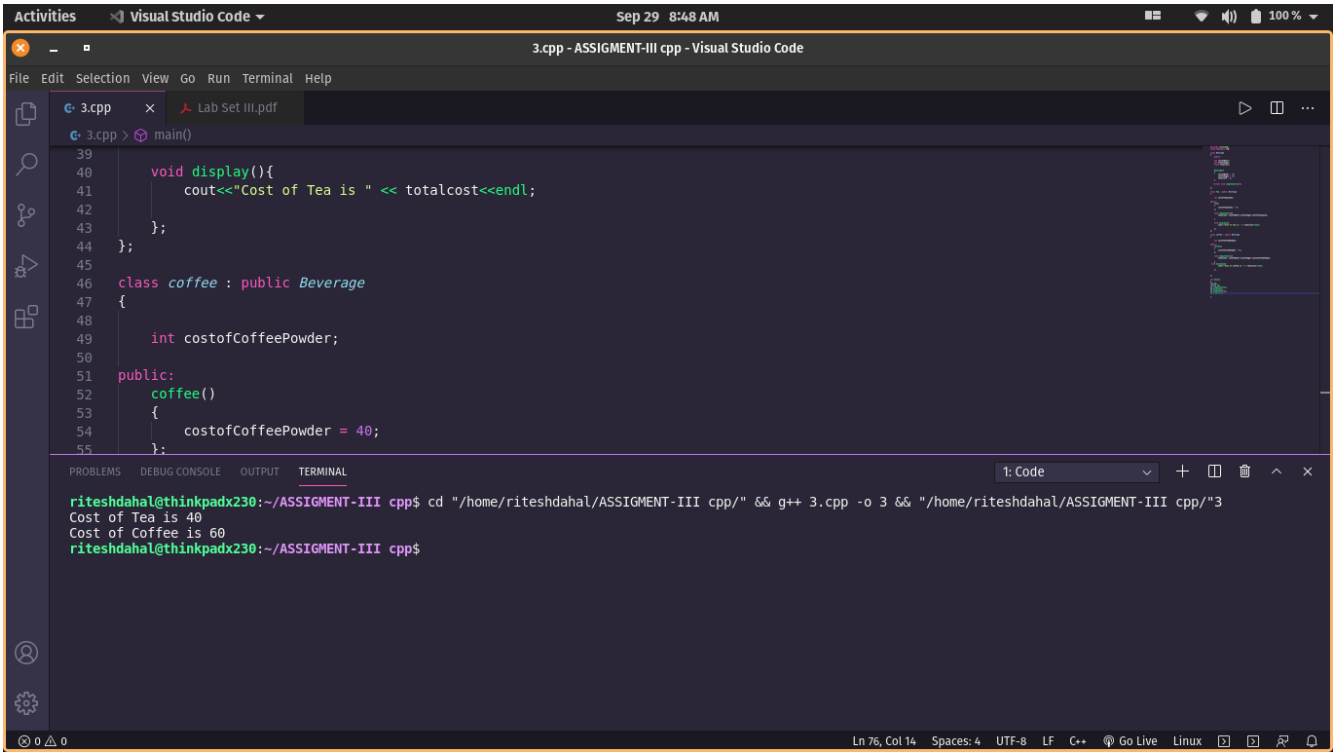
```
#include <iostream>
using namespace std;

class Appliance
{

public:
    int number;
    Appliance()
    {
        number = 0;
    }
    Appliance(int n)
    {
        number = n;
    }

    void on()
    {

        cout << "Appliance turned On " << endl;
    }

    void off()
    {
        cout << "Appliance turned Off " << endl;
    }
```

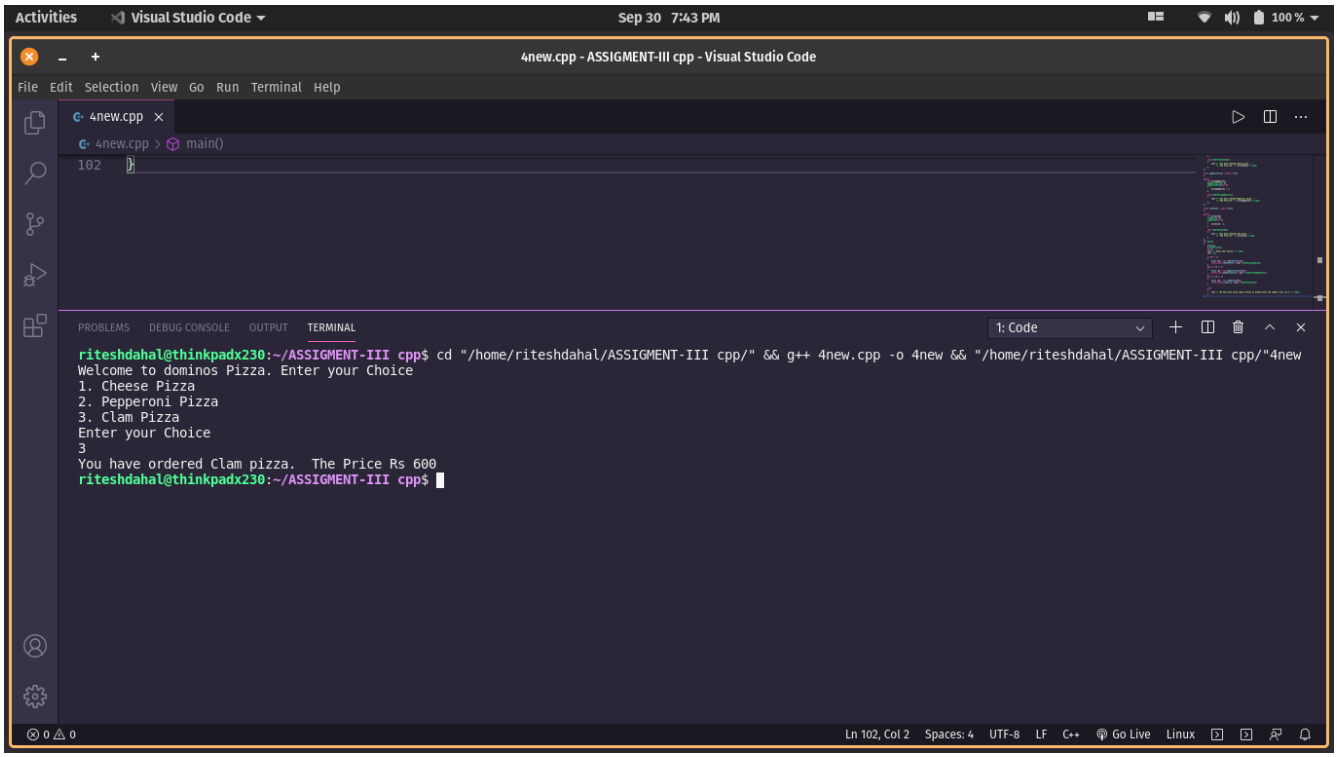
```
};

class Printer : public virtual Appliance
{
public:
   Printer()
   {
      number = 0;
   }
   Printer(int n) : Appliance(n)
   {
      number = n;
   }

   void print()
   {
      for (int i = 0; i < number; i++)
      {
         cout << "Printer is Printing " << endl;
      }
   }
};

class Scanner : public virtual Appliance
{
public:
   Scanner()
   {
      number = 0;
   }
   Scanner(int n) : Appliance(n)
   {
      number = n;
   }

   void scan()
   {
      for (int i = 0; i < number; i++)
      {
         cout << "Scanner is Scanning " << endl;
      }
   }
};

class comboDevice : public Printer, public Scanner
{
public:
   comboDevice()
   {
```

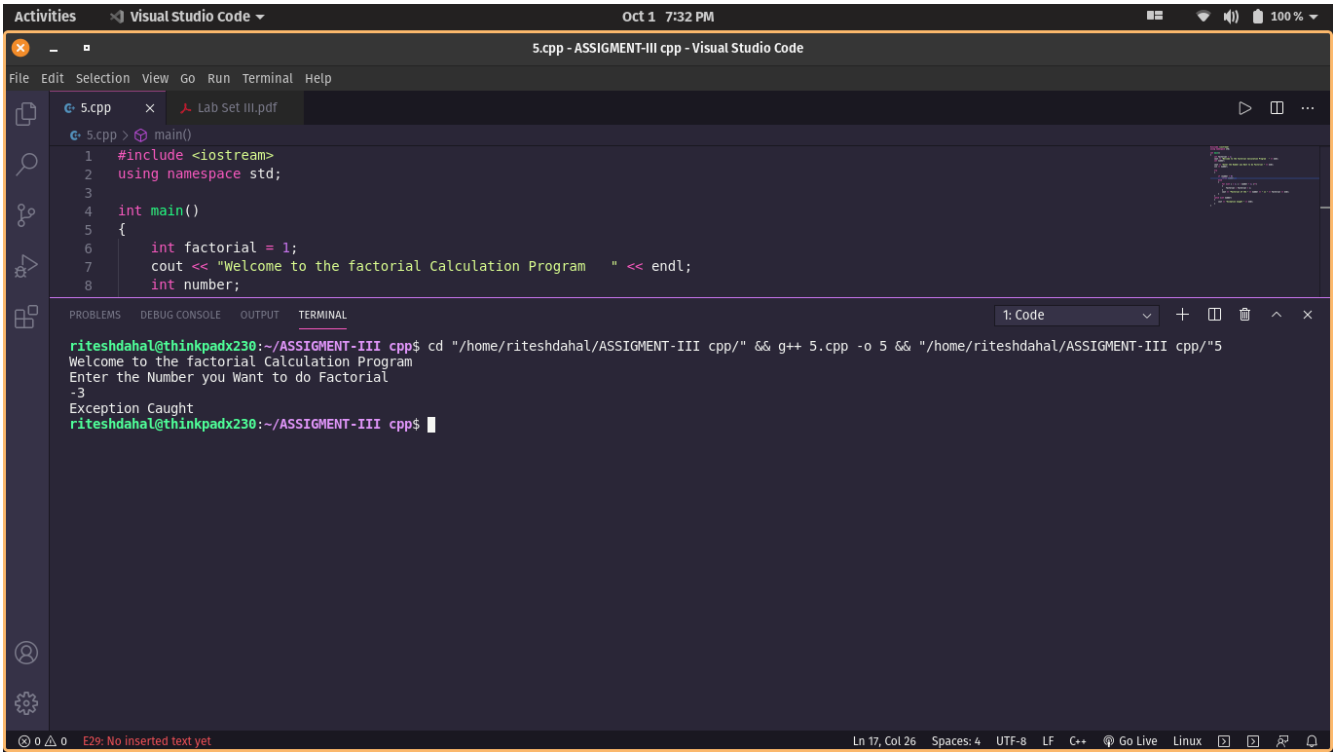
```
        number = 0;
    }

    comboDevice(int n) : Appliance(n)
    {
        number = n;
    }
};

int main()
{
    int n;
    cout << "How many times You want to print and scan " << endl;
    cin >> n;
    comboDevice c(n);
    c.on();
    c.print();
    c.scan();
    c.off();
}
```

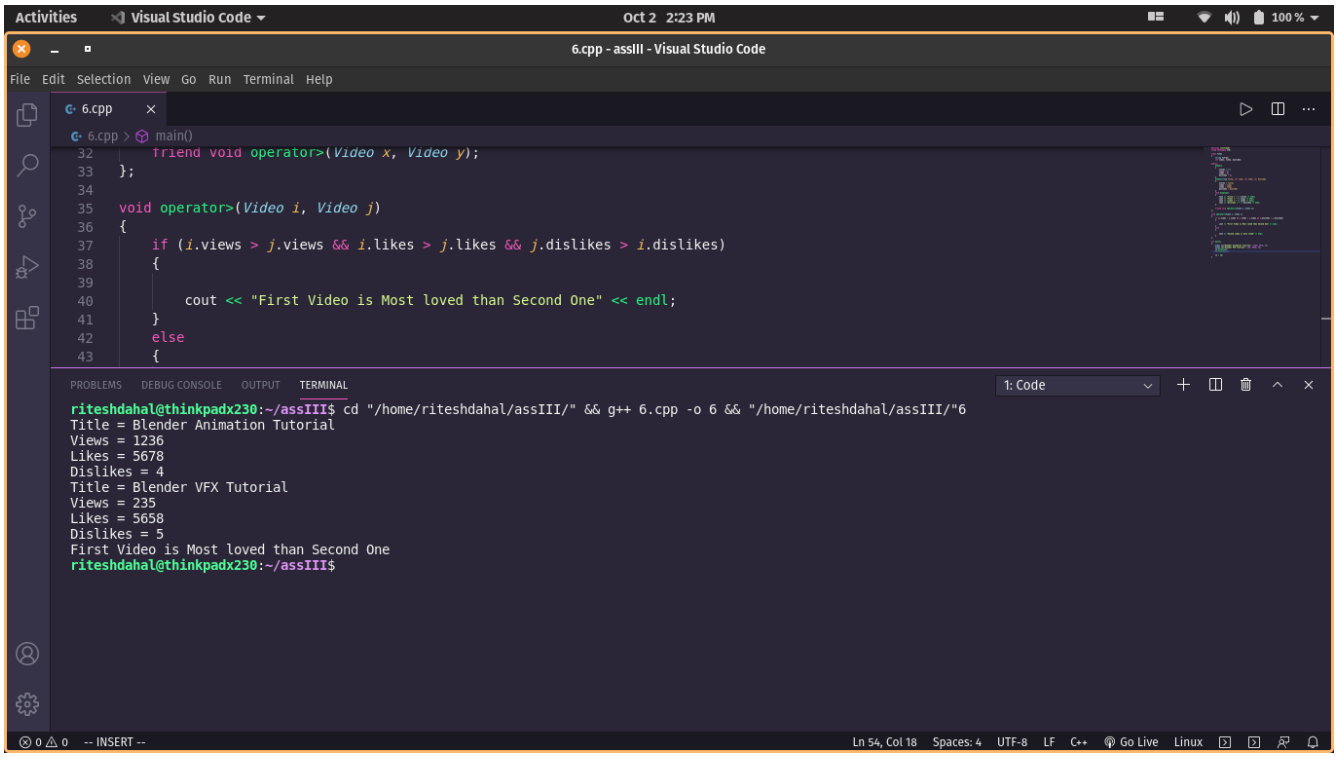

Activities
Visual Studio Code
Sep 28 5:39 PM
1.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
1.cpp
1.cpp > main()
minute = m;
second = s;
}
void display()
{
cout << hour << ':' << minute << ':' << second << endl;
}
void add(Time t1, Time t2)
{
cout << t1.hour + t2.hour << ':' << t1.minute + t2.minute << ':' << t1.second + t2.second << endl;
}
};
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 1.cpp -o 1 && "/home/riteshdahal/ASSIGMENT-III cpp/"1
2:2:2
5:7:12
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
Ln 38, Col 36 Spaces: 4 UTF-8 LF C++ Linux

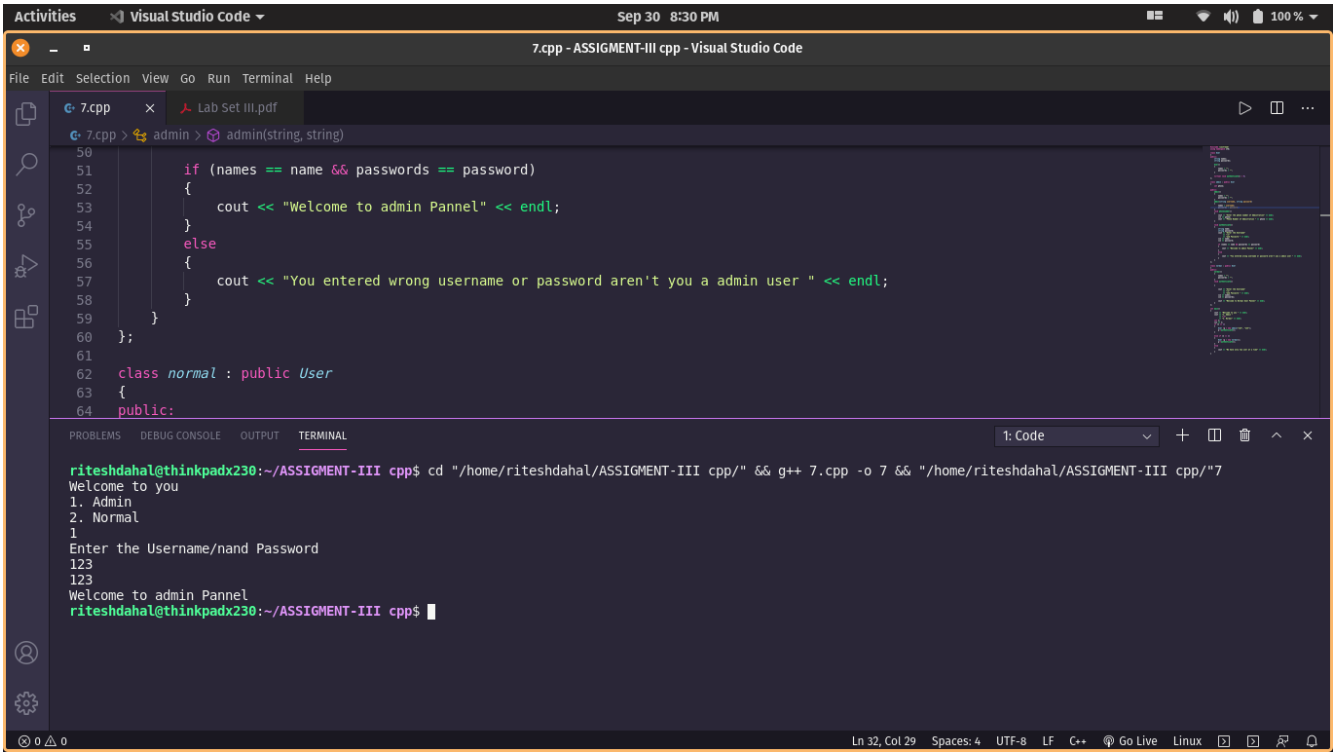

Activities
Visual Studio Code
Sep 28 11:24 PM
2.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
2.cpp
Lab Set III.pdf
2.cpp > main()
String operator+(String &obj)
{
String temp;
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 2.cpp -o 2 && "/home/riteshdahal/ASSIGMENT-III cpp/"2
2.cpp: In member function 'String String::operator==(String&)':
2.cpp:46:5: warning: no return statement in function returning non-void [-Wreturn-type]
46 | };
Enter String
hello
Enter String
hello
hello
hello
hellohello
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 2.cpp -o 2 && "/home/riteshdahal/ASSIGMENT-III cpp/"2
2.cpp: In member function 'String String::operator==(String&)':
2.cpp:46:5: warning: no return statement in function returning non-void [-Wreturn-type]
46 | };
Enter String
Hello1
Enter String
hello2
Hello1
hello2
Hello1hello2
String are differentriteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
master*
Ln 60, Col 18 Spaces: 4 UTF-8 LF C++ Go Live Linux

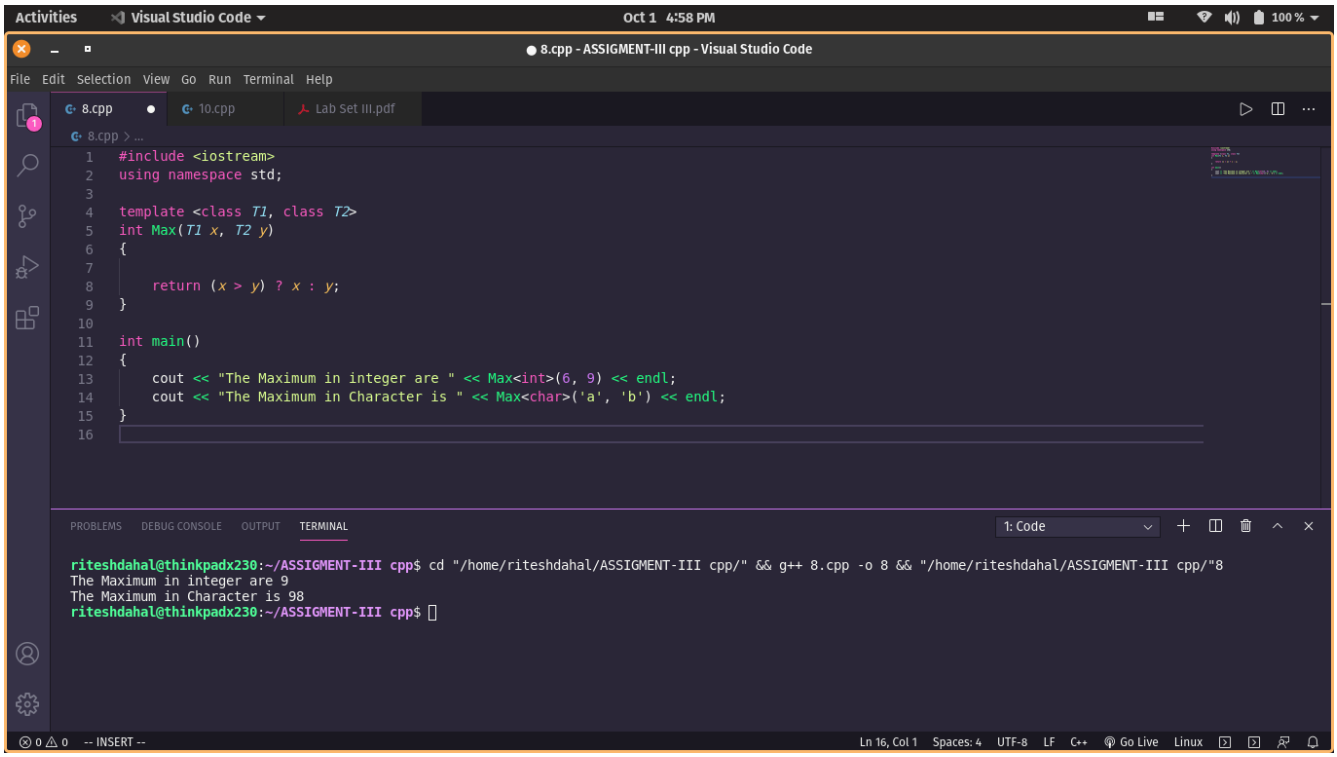

Activities
Visual Studio Code
Sep 29 8:48 AM
100 %
3.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
3.cpp
Lab Set III.pdf
3.cpp > main()
39
40 void display(){
41 cout<<"Cost of Tea is " << totalcost<<endl;
42
43 };
44 };
45
46 class coffee : public Beverage
47 {
48
49 int costofCoffeePowder;
50
51 public:
52 coffee()
53 {
54 costofCoffeePowder = 40;
55 };
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 3.cpp -o 3 && "/home/riteshdahal/ASSIGMENT-III cpp/"3
Cost of Tea is 40
Cost of Coffee is 60
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
0 0
Ln 76, Col 14 Spaces: 4 UTF-8 LF C++ Go Live Linux

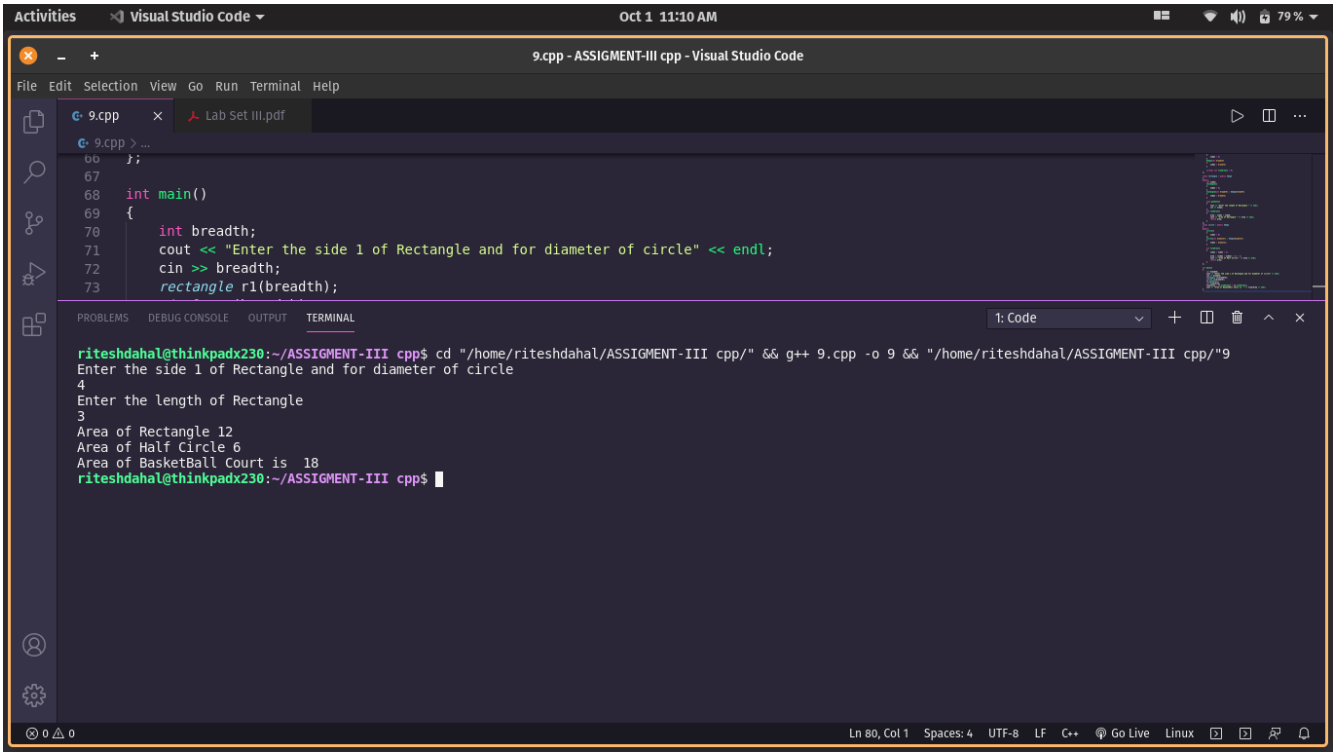

Activities
Visual Studio Code
Sep 30 7:43 PM
100 %
4new.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
4new.cpp
4new.cpp > main()
102 }
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 4new.cpp -o 4new && "/home/riteshdahal/ASSIGMENT-III cpp/"4new
Welcome to dominos Pizza. Enter your Choice
1. Cheese Pizza
2. Pepperoni Pizza
3. Clam Pizza
Enter your Choice
3
You have ordered Clam pizza. The Price Rs 600
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
0 0
Ln 102, Col 2 Spaces: 4 UTF-8 LF C++ Go Live Linux

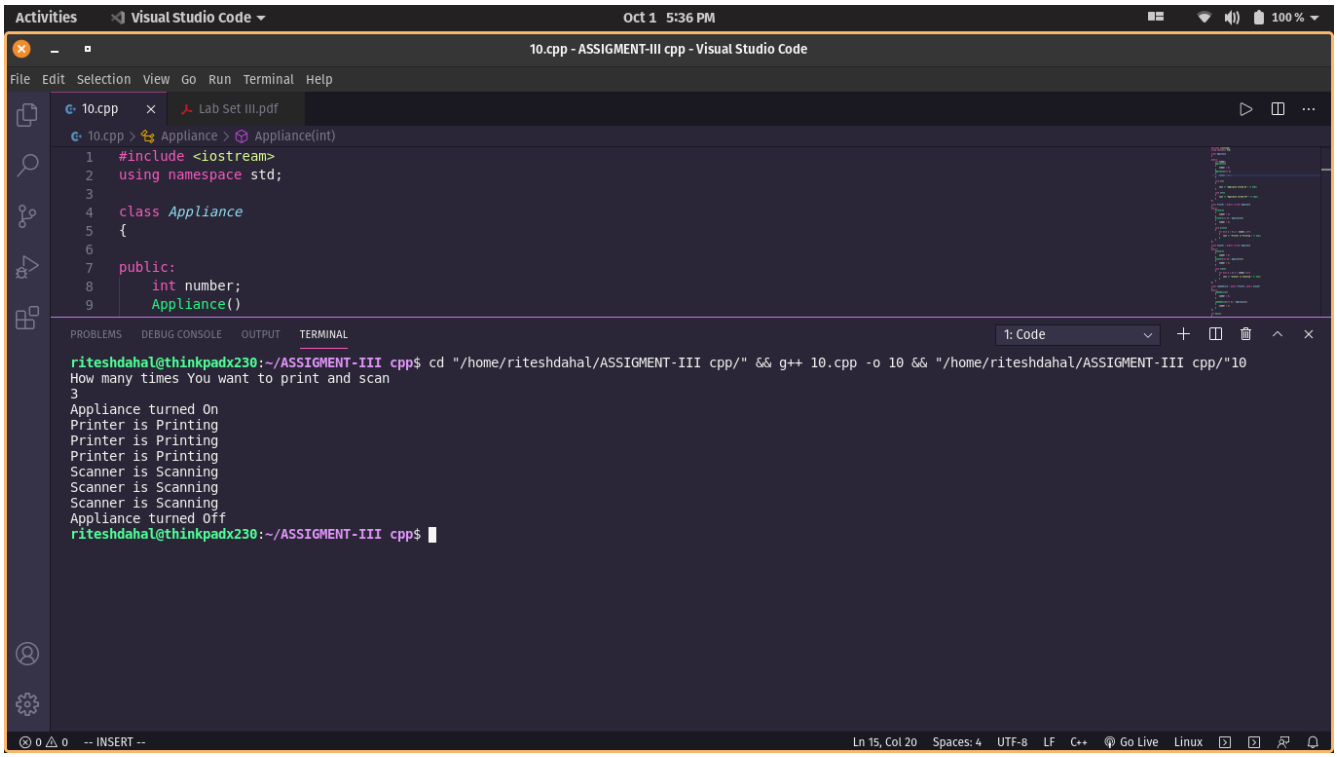

Activities
Visual Studio Code
Oct 1 7:32 PM
100 %
5.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
5.cpp
Lab Set III.pdf
5.cpp > main()
#include <iostream>
using namespace std;
int main()
{
int factorial = 1;
cout << "Welcome to the factorial Calculation Program " << endl;
int number;
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 5.cpp -o 5 && "/home/riteshdahal/ASSIGMENT-III cpp/"5
Welcome to the factorial Calculation Program
Enter the Number you Want to do Factorial
-3
Exception Caught
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
0 0 E29: No inserted text yet
Ln 17, Col 26 Spaces: 4 UTF-8 LF C++ Go Live Linux


Activities
Visual Studio Code
Oct 2 2:23 PM
100 %
6.cpp - assIII - Visual Studio Code
File Edit Selection View Go Run Terminal Help
6.cpp
6.cpp > main()
friend void operator>(Video x, Video y);
};
void operator>(Video i, Video j)
{
if (i.views > j.views && i.likes > j.likes && j.dislikes > i.dislikes)
{
cout << "First Video is Most loved than Second One" << endl;
}
else
{
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/assIII$ cd "/home/riteshdahal/assIII/" && g++ 6.cpp -o 6 && "/home/riteshdahal/assIII/"6
Title = Blender Animation Tutorial
Views = 1236
Likes = 5678
Dislikes = 4
Title = Blender VFX Tutorial
Views = 235
Likes = 5658
Dislikes = 5
First Video is Most loved than Second One
riteshdahal@thinkpadx230:~/assIII$
0 0 -- INSERT --
Ln 54, Col 18 Spaces: 4 UTF-8 LF C++ Go Live Linux


Activities
Visual Studio Code
Sep 30 8:30 PM
7.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
7.cpp
Lab Set III.pdf
7.cpp > admin > admin(string, string)
if (names == name && passwords == password)
{
cout << "Welcome to admin Pannel" << endl;
}
else
{
cout << "You entered wrong username or password aren't you a admin user " << endl;
}
}
};
class normal : public User
{
public:
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 7.cpp -o 7 && "/home/riteshdahal/ASSIGMENT-III cpp/"7
Welcome to you
1. Admin
2. Normal
1
Enter the Username/nand Password
123
123
Welcome to admin Pannel
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
Ln 32, Col 29 Spaces: 4 UTF-8 LF C++ Go Live Linux


Activities
Visual Studio Code
Oct 1 4:58 PM
8.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
8.cpp
10.cpp
Lab Set III.pdf
8.cpp > ...
#include <iostream>
using namespace std;
template <class T1, class T2>
int Max(T1 x, T2 y)
{
return (x > y) ? x : y;
}
int main()
{
cout << "The Maximum in integer are " << Max<int>(6, 9) << endl;
cout << "The Maximum in Character is " << Max<char>('a', 'b') << endl;
}
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 8.cpp -o 8 && "/home/riteshdahal/ASSIGMENT-III cpp/"8
The Maximum in integer are 9
The Maximum in Character is 98
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
-- INSERT --
Ln 16, Col 1 Spaces: 4 UTF-8 LF C++ Go Live Linux


Activities
Visual Studio Code
Oct 1 11:10 AM
9.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
9.cpp
Lab Set III.pdf
9.cpp > ...
66 };
67
68 int main()
69 {
70 int breadth;
71 cout << "Enter the side 1 of Rectangle and for diameter of circle" << endl;
72 cin >> breadth;
73 rectangle r1(breadth);
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 9.cpp -o 9 && "/home/riteshdahal/ASSIGMENT-III cpp/"9
Enter the side 1 of Rectangle and for diameter of circle
4
Enter the length of Rectangle
3
Area of Rectangle 12
Area of Half Circle 6
Area of BasketBall Court is 18
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
Ln 80, Col 1 Spaces: 4 UTF-8 LF C++ Go Live Linux


Activities
Visual Studio Code
Oct 1 5:36 PM
10.cpp - ASSIGMENT-III cpp - Visual Studio Code
File Edit Selection View Go Run Terminal Help
10.cpp
Lab Set III.pdf
10.cpp > Appliance > Appliance(int)
1 #include <iostream>
2 using namespace std;
3
4 class Appliance
5 {
6
7 public:
8 int number;
9 Appliance()
PROBLEMS DEBUG CONSOLE OUTPUT TERMINAL
1: Code
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$ cd "/home/riteshdahal/ASSIGMENT-III cpp/" && g++ 10.cpp -o 10 && "/home/riteshdahal/ASSIGMENT-III cpp/"10
How many times You want to print and scan
3
Appliance turned On
Printer is Printing
Printer is Printing
Printer is Printing
Scanner is Scanning
Scanner is Scanning
Scanner is Scanning
Appliance turned Off
riteshdahal@thinkpadx230:~/ASSIGMENT-III cpp$
-- INSERT --
Ln 15, Col 20 Spaces: 4 UTF-8 LF C++ Go Live Linux