PROGRAM:

```cpp
#include<iostream>
using namespace std;
class Room{
    public:
    double length;
    double breadth;
    double height;
    double calculate_a(){
        return length*breadth;
    }
    double calculate_v()
    {
        return length*breadth*height;
    }
};
int main()
{
    Room room1;
    room1.length=42.5;
    room1.breadth=30.8;
    room1.height=19.2;
    cout<<"area of room ="<< room1.calculate_a()<<"\n";
    cout<<"volume of room ="<< room1.calculate_v()<<"\n";
    return 0;

}
```

Change the values and write the output received:

SAMPLE OUTPUT:

area of room =1309

volume of room =25132.8

PROGRAM:

```cpp
#include<iostream>
using namespace std;
class student
{
    int rno;
    char name[50];
    double fee;
    public:
    student()
    {
        cout<<"enter the rollno: ";
        cin>>rno;
        cout<<"enter the name: ";
        cin>>name;
        cout<<"enter the fee: ";
        cin>>fee;
    }
    void display()
    {
        cout<<endl<<rno<<"\t"<<name<<"\t"<<fee;
    }
};
int main()
{
    student s;
    s.display();
    return 0;
}
```

Change the values and write the output received:

SAMPLE OUTPUT:

enter the rollno: 230384

enter the name: PURUSOTHAMAN

enter the fee: 150000

230384 PURUSOTHAMAN   150000

PROGRAM:

```cpp
#include<iostream>
using namespace std;
class student
{
    int rno;
    char name[50];
    double fee;
    public:
    student();
    void display();
};
student::student()
{
    cout<<"enter the rollno: ";
    cin>>rno;
    cout<<"enter the name: ";
    cin>>name;
    cout<<"enter the fee: ";
    cin>>fee;
}
void student::display()
{
    cout<<endl<<rno<<"\t"<<name<<"\t"<<fee;
}
int main()
{
    student s;
    s.display();
    return 0;
}
```

SAMPLE OUTPUT:

enter the rollno: 230384

enter the name: PURUSOTHAMAN

enter the fee: 150000

230384 PURUSOTHAMAN   150000

Change the values and write the output received:

PROGRAM:

```cpp
#include<iostream>

using namespace std;

class Distance{

    private:

    int m;

    friend int addFive(Distance);

    public:

    Distance():m(0){}

};

int addFive(Distance d){

    d.m+=5;

    return d.m;

}

int main()

{

    Distance d;

    cout<<"Distance:" <<addFive(d);

    return 0;

}
```

Change the values and write the output received:

SAMPLE OUTPUT:

Distance:5

PROGRAM:

```cpp
#include <iostream>

using namespace std;

class pa

{

    private:

    int real , imag;

    public:

     pa(int r=0, int i=0)

     {

       real = r;

       imag=i;

     }

     pa operator+(pa const & obj)

     {

       pa res;

       res.real = real+obj.real;

       res.imag= imag +obj.imag;

       return res;

     }

    void print()  {cout<< real<<"+i"<<imag<<"\n";}

};

int main()

{

  pa c1(10,8),c2(2,6);

  pa c3=c1+c2;

  c3.print();

}
```

Change the values and write the output received:

SAMPLE OUTPUT:

12+i14

PROGRAM:

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

{
  public:
  int add (int a,int b)
  {
    return a+b;
  }
  int add(int a,int b,int c)
  {
    return a+b+c;
  }
};
int main()
{
  int a,b,c;
  cal s;
  cout<<"enter a values a,b,c";
  cin>>a>>b>>c;
  cout<<s.add(a,b)<<endl;
  cout<<s.add(a,b,c);
  return 0;
}
```

Change the values and write the output received:

SAMPLE OUTPUT:
enter a values a,b,c 2 6 3
8
11

PROGRAM:

```
#include <iostream>
using namespace std;
class Parent
{
public:
int id_p;
};

class Child : public Parent
{
public:
int id_c;
};
int main()
{
Child obj1;

obj1.id_c = 7;
obj1.id_p = 91;

cout << "Child id is " << obj1.id_c << endl;
cout << "Parent id is " << obj1.id_p << endl;
return 0;
}
```

Change the values and write the output received:

SAMPLE OUTPUT:

Child id is 7
Parent id is 91

PROGRAM:

```cpp
#include <iostream>
using namespace std;
int sum(int num1, int num2)
{
    return num1 + num2;
}

double sum(double num1, double num2)
{
    return num1 + num2;
}

int sum(int num1, int num2, int num3)
{
    return num1 + num2 + num3;
}

int main()
{
    cout << "Sum 1 = " << sum(5, 6) << endl;
    cout << "Sum 2 = " << sum(5.23, 6.19) << endl;
    cout << "Sum 3 = " << sum(5, 6, 7) << endl;

    return 0;
}
```

SAMPLE OUTPUT:

Sum 1 = 11
Sum 2 = 11.42
Sum 3 = 18

Change the values and write the output received:

PROGRAM:

```cpp
#include<iostream>
using namespace std;
int main()
{
    try
    {
        int num =10;
        int deno=0;
        int res;
        if (deno==0)
        {
            throw runtime_error("division by zero not allowed!!");
        }
        res=num/deno;
        cout<<"result after division:"<<res<<endl;
    }
    catch(const exception & e)
    {
        cout<<"exception:"<<e.what()<<endl;
    }
    return 0;

}
```

SAMPLE OUTPUT:

exception:division by zero not allowed!!

Change the values and write the output received:

PROGRAM :

```java
import java.util.*;

class NestedIfDemo {
   public static void main(String args[])
   {
      int i = 10;

      if (i == 10 || i<15) {
         if (i < 15)
            System.out.println("i is smaller than 15");
         if (i < 12)
            System.out.println(
                "i is smaller than 12 too");
      } else{
            System.out.println("i is greater than 15");
      }
   }
}
```

SAMPLE OUTPUT:

i is smaller than 15
i is smaller than 12 too

Change the values and write the output received:

PROGRAM:

```java
import java.util.Scanner;

public class StringManipulation {

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the first string: ");
        String str1 = scanner.nextLine();

        System.out.print("Enter the second string: ");
        String str2 = scanner.nextLine();

        String concatenated = str1 + " " + str2;
        System.out.println("\nConcatenated String: " + concatenated);

        if (str1.equals(str2)) {
            System.out.println("The strings are equal.");
        } else {
            System.out.println("The strings are not equal.");
        }

        System.out.println("First string in uppercase: " + str1.toUpperCase());
        System.out.println("Second string in lowercase: " + str2.toLowerCase());

        String reversed = new StringBuilder(str1).reverse().toString();
        System.out.println("Reversed first string: " + reversed);

        scanner.close();
    }
}
```

Change the values and write the output received:

SAMPLE OUTPUT:

Enter the first string: Hello
Enter the second string: World

Concatenated String: Hello World
The strings are not equal.
First string in uppercase: HELLO
Second string in lowercase: world
Reversed first string: olleH

PROGRAM:

```java
class NumberThread extends Thread {
    @Override
    public void run() {
        for (int i = 1; i <= 5; i++) {
            System.out.println("Number: " + i);
            try {
                Thread.sleep(500);
            } catch (InterruptedException e) {
                System.out.println("Number Thread Interrupted");
            }
        }
    }
}
class LetterThread extends Thread {
    @Override
    public void run() {
        for (char ch = 'A'; ch <= 'E'; ch++) {
            System.out.println("Letter: " + ch);
            try {
                Thread.sleep(500);
            } catch (InterruptedException e) {
                System.out.println("Letter Thread Interrupted");
            }
        }
    }
}
public class MultiThreadDemo {
    public static void main(String[] args) {
        NumberThread numberThread = new NumberThread();
        LetterThread letterThread = new LetterThread();
```

```
        numberThread.start();

        letterThread.start();

    }

}
```

SAMPLE OUTPUT:

Number: 1

Letter: A

Number: 2

Letter: B

Number: 3

Letter: C

Number: 4

Letter: D

Number: 5

Letter: E

Change the values and write the output received:

PROGRAM:

```java
import javax.swing.*;
import java.awt.event.*;

public class EventDrivenDemo {
    public static void main(String[] args) {
        JFrame frame = new JFrame("Event-Driven Programming Demo");
        frame.setSize(300, 200);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setLayout(null);

        JButton button = new JButton("Click Me");
        button.setBounds(100, 70, 100, 30);

        button.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent e) {
                JOptionPane.showMessageDialog(frame, "Button Clicked!");
            }
        });

        frame.add(button);
        frame.setVisible(true);
    }
}
```

SAMPLE OUTPUT:

Button Clicked!