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

//Problem1
class Student
{
private:
	int admno;
	char sname[20];
	float eng;
	float math;
	float science;
	float total;

	void ctotal()
	{
		total = eng + math + science;
	}

public:
	void Takedata(int a, char s[20], float e, float m, float sc)
	{
		admno = a;
		strcpy(sname, s);
		eng = e;
		math = m;
		science = sc;
		ctotal();
	}

	void Showdata()
	{
		cout<<"admno is "<<admno<<endl;
		cout<<"sname is "<<sname<<endl;
		cout<<"eng is "<<eng<<endl;
		cout<<"math is "<<math<<endl;
		cout<<"science is "<<science<<endl;
		cout<<"total is "<<total<<endl;
	}
};

//Problem2
class Batsman
```

```
{
private:
	int bcode[4];
	char bname[20];
	int innings;
	int notout;
	int runs;
	float batavg;

	void calcavg()
	{
		batavg = runs / (innings - notout);
	}

public:
	void readdata(int bc[4], char bn[20], int in, int no, int r)
	{
		for(int i = 0; i < 4; i++)
			bcode[i] = bc[i];
		strcpy(bname, bn);
		innings = in;
		notout = no;
		runs = r;
		calcavg();
	}

	void displaydata()
	{
		cout<<"bcode is "<<bcode<<endl;
		cout<<"bname is "<<bname<<endl;
		cout<<"innings is "<<innings<<endl;
		cout<<"notout is "<<notout<<endl;
		cout<<"runs is "<<runs<<endl;
		cout<<"batavg is "<<batavg<<endl;
	}
};


//Problem3
class Test
{
private:
	int testCode;
	string description;
```

```
    int noCandidates;
    int centerReqd;

    float calCNTR()
    {
        return noCandidates / 100 + 1;
    }

public:
    void SCHEDULE()
    {
        cout << "Input test code: ";
        cin >> testCode;
        cout << "Input Description: ";
        cin >> description;
        cout << "Input no candidate: ";
        cin >> noCandidates;
        centerReqd = calCNTR();
    }

    void DISPTEST()
    {
        cout<<"test code is "<<testCode<<endl;
        cout<<"Description is "<<description<<endl;
        cout<<"no candidate is "<<noCandidates<<endl;
        cout<<"number of centers required is "<<centerReqd<<endl;
    }
};

//Problem4
class Flights
{
private:
    int flightN;
    string destination;
    float distance;
    float fuel;

    void calFUEL()
    {
        if(distance <= 1000)
            fuel = 500;
        else if(distance <= 2000 && distance > 1000)
            fuel = 1100;
```

```
        else if(distance > 2000)
            fuel = 2200;
    }

public:
    void FEEDINFO()
    {
        cout << "Input flight number : ";
        cin >> flightN;
        cout << "Input Destination: ";
        cin >> destination;
        cout << "Input Distance: ";
        cin >> distance;
        calFUEL();
    }

    void SHOWINFO()
    {
        cout<<"Flight number is "<<flightN<<endl;
        cout<<"Destination is "<<destination<<endl;
        cout<<"Distance is "<<distance<<endl;
        cout<<"Fuel is "<<fuel<<endl;
    }
};

//Problem5
class Book
{
private:
    int bookNO;
    char bookTITLE[20];
    float price;

    float totalCOST(int n)
    {
        return price * n;
    }

public:
    void INPUT()
    {
        cout << "Input book NO: ";
        cin >> bookNO;
        cout << "Input book title: ";
```

```
            cin >> bookTITLE;
            cout << "Input book price: ";
            cin >> price;
        }

        void PURCHASE()
        {
            int n;
            cout << "Input book NO: ";
            cin >> n;
            cout<<"Total cost is: "<<totalCOST(n)<<endl;
        }
};

//Problem6
class REPORT
{
private:
        char adno[4];
        char name[20];
        float marks[5];
        float average;

        void GETAVG()
        {
            int sum = 0;
            for(int i = 0; i < 5; i++)
                sum += marks[i];
            average = sum / 5;
        }

public:
        void READINFO()
        {
            cout << "Input admission number: ";
            cin >> adno;
            cout << "Input name: ";
            cin >> name;
            for(int i = 0; i < 5; i++)
            {
                cout << "Input marks: ";
                cin >> marks[i];
            }
            GETAVG();
```

```
    }

    void DISPLAYINFO()
    {
        cout<<"Admission number is: "<<adno<<endl;
        cout<<"Name is: "<<name<<endl;
        cout<<"Marks are: ";
        for(int i = 0; i < 5; i++)
            cout<<marks[i]<<endl;
        cout<<"Average is: "<<average<<endl;
    }
};

//Problem7
class Rectangle
{
private:
    float length;
    float width;

public:

    void setlength(float l)
    {
        length = l;
    }

    void setwidth(float w)
    {
        width = w;
    }

    float perimeter()
    {
        return 2 * (length + width);
    }

    float area()
    {
        return length * width;
    }

    void show()
    {
```

```
        cout<<"Rectangle length is: "<<length<<endl;
        cout<<"Rectangle width is: "<<width<<endl;
        cout<<"Rectangle area is: "<<area()<<endl;
        cout<<"Rectangle perimeter is: "<<perimeter()<<endl;
    }

    int sameArea(Rectangle r)
    {
        if(area() == r.area())
            return 1;
        return 0;
    }
};

int main()
{
    Rectangle r1;
    r1.setlength(5);
    r1.setwidth(2.5);
    r1.show();

    Rectangle r2;
    r2.setlength(5);
    r2.setwidth(18.9);
    r2.show();

    if(r1.sameArea(r2))
        cout<<"r1 has same area with r2\n";
    else
        cout<<"r1 has different area with r2\n";

    r1.setlength(15);
    r1.setwidth(6.3);

    if(r1.sameArea(r2))
        cout<<"r1 has same area with r2\n"<<endl;
    else
        cout<<"r1 has different area with r2\n"<<endl;

    return 0;
}


//Problem8
```

```
class Complex
{
private:
	float real;
	float imag;

public:
	void setN(float r, float i)
	{
		real = r;
		imag = i;
	}

	void disp()
	{
		cout<<"real number is: "<<real<<endl;
		cout<<"imaginary number is: "<<imag<<endl;
	}

	Complex sum(Complex a)
	{
		Complex n;
		n.real = real + a.real;
		n.imag = imag + a.imag;
		return n;
	}
};

int main()
{
	Complex c1;
	Complex c2;
	Complex c3;

	c1.setN(1.1, 2.2);
	c2.setN(3.3, 4.4);
	c3 = c1.sum(c2);

	c1.disp();
	c2.disp();
	c3.disp();
	return 0;
}
```

```
//Problem9
class Distance
{
private:
	int feet;
	float inches;

public:
	void setD(int f, float i)
	{
		feet = f;
		inches = i;
	}
	void disp()
	{
		cout<<"Feet is: "<<feet<<endl;
		cout<<"Inches is: "<<inches<<endl;
	}
	Distance add(Distance d)
	{
		Distance n;
		n.feet = feet + d.feet;
		n.inches = inches + d.inches;
		return n;
	}
};

int main()
{
	Distance d1;
	Distance d2;
	Distance d3;

	d1.setD(1, 2.2);
	d2.setD(3, 4.4);
	d3 = d1.add(d2);

	d1.disp();
	d2.disp();
	d3.disp();

	return 0;
}
```

```
//Problem10
class Time
{
private:
	int hours;
	int minutes;

public:
	void settime(int h, int m)
	{
		hours = h;
		minutes = m;
	}
	void showtime()
	{
		cout<<"Hours is: "<<hours<<endl;
		cout<<"Minutes is: "<<minutes<<endl;
	}
	Time sum(Time t)
	{
		Time n;
		n.hours = hours + t.hours;
		n.minutes = minutes + t.minutes;
		return n;
	}
};

int main()
{
	Time t1;
	Time t2;
	Time t3;

	t1.settime(1, 27);
	t2.settime(3, 31);
	t3 = t1.sum(t2);

	t1.showtime();
	t2.showtime();
	t3.showtime();

	return 0;
```

}