Prg1:

```
#include <iostream>

using namespace std;

int t1=0;
int t2=0;
int t3=0;
class Time
{
   int hrs,mins;
   public : void read();
      void display();
      void compute (Time,Time);
};

void Time :: read()
{
   cout << "Enter the hours and mins" << endl;
   cin >> hrs >> mins;
   cout << "Hrs " << hrs << " Min " << mins << endl;
}
void Time :: display()
{
   cout << "Hrs " << hrs << " Min " << mins << endl;
}

void Time :: compute (Time t1, Time t2)
{

   hrs = 0;
   mins=0;
   mins = t1.mins + t2.mins;
   while(mins >= 60)
   {
      hrs = hrs + 1;
      mins = mins - 60;
   }
   hrs = hrs + t2.hrs + t1.hrs;
}

int main()
{
   Time t1,t2,t3;
   t1.read();
   t2.read();
   t3.compute(t1,t2);
   t3.display();
   return 0;
}
```

prg_2

```
#include <iostream>
```

```
using namespace std;

class Student
{
   string name;
   int sem,m1,m2,m3;
   public : void read()
   {
      cout << "Enter student name,sem,marks1,marks2 and marks3" << endl;
      cin >> name >> sem >> m1 >> m2 >> m3;
   }

   void display()
   {
      cout << "Student details are : " << endl;
      cout << "Name : " << name << "\t Sem : " << sem << "\t Marks1 : " << m1 << "\t Marks2 : " << m2
<< "\t Marks3 : " << m3 ;
   }

   void total()
   {
      float t;
      t = m1+m2+m3;
      cout << "\tTotal marks : " << t << endl;
   }
};

int main()
{
   Student s1;
   s1.read();
   s1.display();
   s1.total();
   return 0;
}
```

prg_3

```
#include <iostream>

using namespace std;

class Complex
{
```

```
int r, i;
public: void read();
   void display();
   friend Complex add(int, Complex);
   friend Complex add(Complex, Complex);
};

void Complex::read()
{
cin>>r>>i;
}
void Complex::display()
{
cout<<r<<"+i"<<i<<endl;
}

Complex add(int a, Complex c2)
{
Complex t1;
t1.r= a+c2.r;
t1.i=c2.i;
return t1;
}

Complex add(Complex c1, Complex c2)
{
Complex t2;
t2.r= c1.r+c2.r;
t2.i= c1.i+c2.i;
return t2;
}

int main()
{

Complex c1,c2,c3,c4;
cout<<"enter the 1st complex number"<<endl;
c1.read();
cout<<"enter the 2nd complex number"<<endl;
c2.read();
int a;
cout<<"enter the integer a"<<endl;
cin>>a;
c3=add(a,c1);
c4= add(c1,c2);
c3.display();
c4.display();
return 0;
}
```

prg_4

```
#include <iostream>

using namespace std;

int t1=0;
int t2=0;
int t3=0;
class Time
{
   int hrs,mins;
   public : void read();
      void display();
      void compute (Time,Time);
};

void Time :: read()
{
```

```
    cout << "Enter the hours and mins" << endl;
    cin >> hrs >> mins;
}
void Time :: display()
{
    cout << "Hrs " << hrs << " Min " << mins << endl;
}

void Time :: compute (Time t1, Time t2)
{
    Time t3;
    t3.hrs = 0;
    t3.mins = t1.mins + t2.mins;
    while(t3.mins >= 60)
    {
        t3.hrs = t3.hrs + 1;
        t3.mins = t3.mins - 60;
    }
    t3.hrs = t3.hrs + t2.hrs + t1.hrs;
}

int main()
{
    Time t1,t2,t3;
    t1.read();
    t2.read();
    t3.compute(t1,t2);
    t3.display();
    return 0;
}
```

prg_5

```
//use array of objects concepts
#include <iostream>
#include <iomanip>

using namespace std;
class Employee
{
int Eno;
string Ename;
float salary;
public:
    void read()
    {
    cout<<"Enter Employee name, id and salary"<<endl;
    cin>>Ename>>Eno>>salary;
    }
    void disp()
    {
    cout<<"|"<<Eno<<"|"<<Ename<<"|"<<salary<<"|"<<endl;
    }
};
int main()
```

```
{
   int i, n;
   Employee E[50];
   cout<<"Enter number of employee "<<endl;
   cin>>n;
   for(i=0;i<n;i++)
      E[i].read();
   cout<<"Eno|"<<"Ename|"<<"Salary|"<<endl;
   for(i=0;i<n;i++)
      E[i].disp();
   return 0;
}
```

prg_6

```
#include <iostream>
#include<iomanip>
using namespace std;
class B;
class A
{
int num1;
public:
void read();
void display();
friend void compare( A a, B b);
};
class B
{
int num2;
public:
void read();
void display();
friend void compare(A a, B b);
};
void A::read()
{
cout<<"Enter value of n1";
cin>>num1;
}
void A::display()
```

```
{
cout<<"Entered value of n1 "<<num1<<endl;
}
void B::read()
{
cout<<"Enter num2";
cin>>num2;
}
void B::display()
{
cout<<"Entered num2 "<<num2<<endl;
}
void compare(A a, B b)
{
if(a.num1>b.num2)
{
cout<<"Greater"<<a.num1;
}
else
{
cout<<"Greater"<<b.num2;
}
}
int main()
{
A a;
B b;
a.read();
a.display();
b.read();
b.display();
compare(a,b);
return 0;
}
```

prg_7

```
#include <iostream>
using namespace std;
class Alpha
{
protected:
int n1;
public:
Alpha(int x)
{
cout<<"Alpha";
n1=x;
}
void putalpha()
{
cout<<" n1: "<<n1;
}
};
class Beta
{
protected:
int n2;
public:
Beta(int y)
{
cout<<"Beta";
n2=y;
}
void putbeta()
{
cout<<" n2: "<<n2;
}
};
class Gamma:public Alpha,public Beta
{
int n3;
public:
Gamma(int x,int y,int z):Alpha(x),Beta(y)
```

```
{
cout<<"Gamma";
n3=z;
}
void putGamma()
{
cout<<" n3: "<<n3;
}
};
int main()
{
Gamma g1(10,20,30);
g1.putalpha();
g1.putbeta();
g1.putGamma();
return 0;
}
```

prg_8

```
#include <iostream>

using namespace std;
class Sample
{
   int i;
   float f;
   char c;

public:
       Sample()
       {
       i=0;
       c='\0';
       f =0.0;
       }
       Sample(int a, char b, float d)
       {
          i= a;
          c=b;
          f=d;
       }
       Sample(Sample &s)
       {
       i=s.i;
       c=s.c;
       f=s.f;
       }
      Sample(int x, float z)
       {
          i= x;

          c='s';
          f=z;
       }
       void disp()
       {
       cout<<"Integer i = "<<i;
       cout<<endl<<"Float f = "<<f;
       cout<<endl<<"Charcter c = "<<c;
       }

};

int main()
{
   Sample s1;
```

```
    Sample s2(2,'a',6.6);
    Sample s3(s2);
    Sample s4(2,5.6);

    s1.disp();
    s2.disp();
    s3.disp();
    s4.disp();
    return 0;
}
```