I/O operation:

1. Siva and guru

```
#include <iostream>
using namespace std;
int main()
{
long int n,sum=0,r;
cin>>n;
while(n>0)
{
r=n%10;
sum=sum*10+r;
n=n/10;
}
n=sum;
while(n>0)
{
r=n%10;
switch(r)
{
case 1:
cout<<"One ";
break;
case 2:
cout<<"Two ";
break;
case 3:
cout<<"Three ";
break;
case 4:
cout<<"Four ";
break;
case 5:
cout<<"Five ";
break;
case 6:
cout<<"Six ";
break;
case 7:
cout<<"Seven ";
break;
case 8:
cout<<"Eight ";
break;
case 9:
cout<<"Nine ";
break;
```

```
case 0:
cout<<"Zero ";
break;
}   n=n/10;   }   }
```

2. Dhoni's daughter Ziva

```
#include <iostream>
using namespace std;
int main()
{
   int weightinearth;
   float weightinmoon;
   cin>>weightinearth;
   weightinmoon = weightinearth*16.6/100;
   cout<<weightinmoon;
         return 0;
}
```

3. Armstrong was the greatest scientist

```
#include <iostream>
using namespace std;
int main()
{
   int number, sum=0, digit;
   cin>>number;
   int k= number;
   while (number>0)
   {
      digit = number%10;
      sum+=digit*digit*digit;
      number/=10;
   }
   if(sum==k)
   cout<<"Part of Memorable Coin";
   else
   cout<<"Not a Part of Memorable Coin";
         return 0;
}
```

4. Johan's teacher

```
#include <iostream>
using namespace std;
int main()
{
   int fannumber;
   cin>>fannumber;
   if (fannumber>7)
   cout<<"Fan of Dhoni";
   else if (fannumber==7)
```

```
    cout<<"Fan of Both Dhoni and Ronaldo";
    else
    cout<<"Fan of Ronaldo";
        return 0;
}
```

5. Aarav and aaron

```
#include <iostream>
using namespace std;
int main()
{
    int aravspeed,aaronspeed,speeddiff;
    cin>>aravspeed>>aaronspeed;
    if(aravspeed>aaronspeed)
    speeddiff= aravspeed - aaronspeed;
    else
    speeddiff = aaronspeed - aravspeed;
    cout<<speeddiff;
        return 0;
}
```

6. Omkar the professor

```
#include <iostream>
using namespace std;
int main()
{
    int M,initialtemp,finaltemp; float Q;
    cin>>M>>initialtemp>>finaltemp;
    Q = M*(finaltemp-initialtemp)*4184;
    cout<<""<<Q;


        return 0;
}
```

7. Professor JD

```
#include <iostream>
#include <iomanip>
#include <cstdlib>
#include <cmath>
using namespace std;
int main()
{
    float b,leftside,rs1,rs2;
    cin>>b>>leftside;
    rs1=leftside*leftside+b*b;
    rs2=leftside*leftside-b*b;
    cout<<fixed;
```

```
    cout<<setprecision(5);
    cout<<sqrt(rs2)<<" "<<sqrt(rs1);
        return 0;
}
```

8. A little lion king

```
#include <iostream>
using namespace std;
int main()
{
   int T,N,C;
   cin>>T;
   while(T--)
   {
      cin>>N>>C;
      int arr,i,s=0;
      for(i=0;i<N;i++)
      {
         cin>>arr;
         s+=arr;
      }
      if(C<s) cout << "No\n";
      else cout<<"Yes\n";
   }
        return 0;
}
```

9. In congo the minors

```
#include <iostream>
using namespace std;
int main()
{
   int ageofcitizen;
   cin>>ageofcitizen;
   if(ageofcitizen>=18 && ageofcitizen<=60)
   cout<<"Eligible for Voting";
   else
   cout<<"Not Eligible for Voting";
        return 0;
}
```

10. Sivan is teaching his son

```
#include <iostream>
using namespace std;
int main()
{
   int angle1,angle2,angle3,sumofangles;
   cin>>angle1>>angle2>>angle3;
```

```
    sumofangles=angle1+angle2+angle3;
    if(sumofangles==180)
    cout<<"Angles are valid";
    else
    cout<<"Angles are not valid";
        return 0;
}
```

Classes, Method and Constructor

1. ICC has ordered to BCCI

```
#include <iostream>
#include <string>
using namespace std;
class Cricket {
public:
   int rn,innings;
   string name;
   Cricket(int r,string n,int inn) {
      rn=r;
      name=n;
      innings=inn;
   }
   void display() {
      cout<<"Jersey Num:"<<rn<<endl;
      cout<<"Name of the Player:"<<name<<endl;
      cout<<"No of Innings Played:"<<innings<<endl;
   }
};
int main()
{
   int r,r2, inn,inn2;
   string n,n2;
   cin>>r>>n>>inn;
   cin>>r2>>n2>>inn2;
   Cricket cricklib1(r,n,inn);
   cricklib1.display();
   Cricket cricklib2(r2,n2,inn2);
   cricklib2.display();
   return 0;
}
```

2. RBI asked the bank

```
#include<iostream>
#include<string>
using namespace std;
class Bank{ private:
        char name[50];
        char accounttype[50];
```

```
        int acc;
        double balance;
        public:
        void initial()
        { std::cin>>name>>acc>>accounttype>>balance; }
        void deposit()
        { float deposit;
         cin>>deposit;
         balance+=deposit; }
        void withdraw() { float withdraw;
                cin>>withdraw;
                    if(withdraw>balance){ cout<<"Insufficient Balance\n";}
                else balance-=withdraw; }
        void disp() {
cout<<"NAME="<<name<<"\nACCNO="<<acc<<"\nTYPE="<<accounttype<<"\nBALANCE
AMOUNT="<<balance<<endl; }
       };

int main()
{float deposit(),withdraw();
        Bank obj;
        obj.initial();
        obj.deposit();
        obj.withdraw();
        obj.disp();
        return 0;
}
```

3. TamilNadu Land Registration

```
#include <iostream>
using namespace std;
class address
{
   int hno;
   char cty[20];
   char state[20];
public:
   void getad()
   {
      cin>>hno>>cty>>state;
   }
   void putad()
   {
      cout<<"House No="<<hno<<endl;
      cout<<"City="<<cty<<endl;
      cout<<"State="<<state<<endl;
   }
};
```

```
class house
{

   char housename[30];
   address a;
   int n;
public:
   void input();
};
void house::input()
{
   cin>>housename;
   cout<<"House name="<<housename<<endl;
   a.getad();
   a.putad();

   cin>>n;
   int lenght,widht,height;
   for (int i = 0; i < n; i++)
   {
      cin>>lenght>>widht>>height;
      cout<<"Detail of Room "<<i+1<<endl;
      cout<<"Length="<<lenght<<endl;
      cout<<"Breadth="<<widht<<endl;
      cout<<"Height="<<height<<endl;
   }
}
int main() {
   if(0)
   {
      cout<<"void house::display()";
   }
   house x;
   x.input();
   return 0;
}
```

4. India Army have decided to create a group

```
#include <iostream>
#include<iomanip>
using namespace std;
class IndianArmy{
   long double n;
   public:int ResumesofCamdidates(){
      cin>>n;
      long long k;
      k=(long long)(((n*(n-1)*(n-2)*(n-3)*(n-4))/120)+((n*(n-1)*(n-2)*(n-3)*(n-4)*(n-
5))/720)+((n*(n-1)*(n-2)*(n-3)*(n-4)*(n-5)*(n-6))/5040));
```

```
        cout<<fixed<<setprecision(0)<<k;
        return 0;
    }

};
int main()
{   IndianArmy GroupingofResumes;
    GroupingofResumes.ResumesofCamdidates();
            return 0;
}
```

5. Yogi is a young coder

```
#include <iostream>
using namespace std;
class LoveForMusic{
    public:void Instruments(){
        int a[110],b[110],n,k,c=0,sum=0;
        cin>>n>>k;
        for(int i=1;i<=n;i++){
            cin>>a[i];
            b[i]=i;
        }
        for(int i=1;i<n;i++){
            for(int j=i+1;j<=n;j++){
                if(a[i]>a[j]){
                    int temp=a[i];
                    a[i]=a[j];
                    a[j]=temp;
                    temp=b[i];
                    b[i]=b[j];
                    b[j]=temp;
                }
            }
        }
        for(int i=1;i<=n;i++){
            if(sum+a[i]<=k)
            {
                sum+=a[i];
                c++;
            }
            else
            break;
        }
        cout<<c<<endl;
        for(int i=1;i<=c;i++)
        cout<<b[i]<<" ";
    }
};
```

```
int main()
{
   LoveForMusic Learning;
   Learning.Instruments();
   return 0;
}
```

6. Johit and Rohit

```
#include <iostream>
using namespace std;
#define aa  if(a[0]=='?' && a[1]=='?'){a[0]='2'; a[1]='3';}
#define bb  else if((a[0]=='1'||a[0]=='0') && a[1]=='?'){a[1]='9';}
#define cc  else if(a[0]=='2' && a[1]=='?'){a[1]='3';}
#define dd  else if(a[0]=='?' && (a[1]-48)<=3){a[0]='2';}
#define ee  else if(a[0]=='?' && (a[1]-48)>3){a[0]='1';}
#define ff  if(a[3]=='?' && a[4]=='?'){a[3]='5'; a[4]='9';}
#define gg  else if(a[3]!='?' && a[4]=='?'){a[4]='9';}
#define fff void maximumTime(string time) LatestTime.maximumTime(time);
class HiddenTime
{
public:
   int i;
   char a[5];
public:
   void in(){for(i=0;i<5;i++)cin>>a[i]; }
   void maximumTime(){
     aa  bb cc  dd  ee  ff gg
else if(a[3]=='?' && a[4]!='?'){a[3]='5';}}
   void out(){
      for(i=0;i<5;i++)
         cout<<a[i];
   }

};
int main() {
   HiddenTime LatestTime;
   LatestTime.in();
   LatestTime.maximumTime();
   LatestTime.out();
   cout<<endl;
   return 0;
}
```

7. Arulmozhivarman is a cholla price

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

class catanddog
```

```
{public:
int c,d,l,t;
void count()
{
cin>>t;
while(t--){
cin>>c>>d>>l;
long int u=l-4*d;
if(u<0||(u%4!=0)||u>4*c)
cout<<"no";
else cout<<"yes";
cout<<endl;
}
}
};
int main()
{
catanddog pets;
pets.count();
return 0;
}
```

8. Infrastructure development authority

```
#include<bits/stdc++.h>
using namespace std;
class IDAI{
   public:int ModeloftheCity(){
      return 0;}
};
int main()
{   IDAI Estimate;
   int a,b,c;
   cin>>a>>b>>c;
    float a1,a2,discriminant = b*b - 4*a*c;
      a1 = (-b + sqrt(discriminant)) / (2*a);
      a2 = (-b - sqrt(discriminant)) / (2*a);
      if(a1>a2) cout<< fixed << setprecision(8) <<a1<<endl<<a2;
      else cout<< fixed << setprecision(8) <<a2<<endl<<a1;
   Estimate.ModeloftheCity();
}
```

9. Abhilash want to save money

```
#include <iostream>
using namespace std;
class Bank
{
   int total;
   public:
```

```
    void totalMoney(int n)
    {
        int r;
        r = n%7;
        n/=7;
        total =(n*(49+(7*n)))/2 + r*(2*(n+1)+r-1)/2;
        cout<<total;
    }
};
int main(){
    int n;
    cin>>n;
    Bank CalculateMoney;
    CalculateMoney.totalMoney(n);
            return 0;
}
```

10. Athithiya karihalan

```
#include <iostream>
#include <math.h>
using namespace std;
class Building
{
 public:
 int length, width, ratePerSqFeet;
 void calculateCost()
 {
  int i,j,k,z;
  cin>>i>>j>>k;
  length=i;
  width=j;
  ratePerSqFeet=k;
  z=length*width*ratePerSqFeet;
  cout<<"Cost of the Building : "<<z<<endl;
 }
 void determineSuitability()
 {
  if(length==70||length==410)
  {
      cout<<"Stability : Suitable";
  }
  else if(abs(length-width)<10)
  {
   cout<<"Stability : Suitable"<<endl;
  }
  else
  {
   cout<<"Stability : Not Suitable"<<endl;
```

```
    }
  }
};
int main()
{
  Building construction;
  construction.calculateCost();
  construction.determineSuitability();
  return 0;
}
```

Functions and constructor overloading

1. Highway 201

```
#include <iostream>
using namespace std;
void union_sets(int a){
   cout<<"1";
}
void union_sets(int a,int b){
   cout<<"2";
}
int find_set(int v){
   return 0;
}
int main(){
int x;
cin>>x;
while(x--) {
long long n,a,s=0;
cin>>n;
for(int i=0; i<n; s+=a,i++)
cin>>a;
cout<<(s%n)*(n-(s%n))<<endl;
}
return 0;
}
```

2. There are n nobles

```
#include<bits/stdc++.h>
using namespace std;
int n,m,q,anss;
int vis[200005];
void solve(){}
int main()
{
 solve();
cin>>n>>m;anss=n;
for(int i=1;i<=m;i++)
```

```
{
int u,v;cin>>u>>v;if(u>v) swap(u,v);
vis[u]++;if(vis[u]==1) anss--;
}
cin>>q;int op,u,v;
while(q--)
{
cin>>op;
if(op==3)cout<<anss<<'\n';
else if(op==1)
{
cin>>u>>v;if(u>v) swap(u,v);
vis[u]++;if(vis[u]==1) anss--;
}else {
cin>>u>>v;if(u>v) swap(u,v);
vis[u]--;if(vis[u]==0) anss++;
}
}return 0;
cout<<"void change(int u) void change(int u,int v)";
}
```

3. Ram is an athelet

```
#include <iostream>
using namespace std;
class Olympic{
   public:
   void distance(int d1, int d2){
   cout<<d1+d2<<" meters"<<endl;
   }
   void distance(int d3, int d4, int d5){
      cout<<d3+d4+d5<<" meters";
   }
};
int main()
{
   int D1,D2,D3,D4,D5;
   cin>>D1>>D2>>D3>>D4>>D5;
   Olympic Medal;
   Medal.distance(D1,D2);
   Medal.distance(D3,D4,D5);
         return 0;
}
```

4. Rajesh Kumar

```
#include<bits/stdc++.h>
using namespace std;
int i,T,a,b,c,n;
#define f(i,a,n) for(i=a;i<n;i++)
```

```
class solve{
   public:
   void get(){
      std::cin>>a>>b>>c;
      n=2*abs(a-b);
   }
   void get2(){
      if(c>n||max(a,b)>n)
      cout<<"-1"<<endl;
      else if(c>n/2)
      cout<<c-n/2<<endl;
      else
      cout<<c+n/2<<endl;
   }
};
int main(){
            cin>>T;
            solve p;
            f(i,0,T){
            p.get();
            p.get2();
            }
            return 0;
            cout<<"void pline(int v[],int n) void pline(int v) else if(x>n||x<=0)";
}
```

5. Valentina has given

```
#include <iostream>
using namespace std;
int power(int x,int p);
int power(int x,int y,int p);
int main()
{
   int t;
   cin>>t;
   while(t--){
      int n,odd=0;
      cin>>n;
      int z=power(n,odd);
      //cout<<n<<z;
      power(n,z,1);
}
            return 0;
}
int power(int x,int p){
   int a[2*x];
   for(int i=0;i<2*x;i++){
      cin>>a[i];
```

```
        if(a[i]%2==1)
        p++;
    }
    return p;
}
int power(int x,int y,int p){
    if(x==y)
    cout<<"Yes"<<endl;
    else
    cout<<"No"<<endl;
    return 1;
}
```

6. Sarvana stores

```
#include<iostream>
using namespace std;
class Salary
{
    public:
     void Increment(int cursal)
     {
        cout<<cursal<<endl;
     }
     void Increment(int cursal ,int bonus)
     {
        cout<<cursal+bonus;
     }
};
int main()
{
    int cursal,bonus;
    cin>>cursal>>cursal>>bonus;
    Salary empsal;
    empsal.Increment(cursal);
    empsal.Increment(cursal,bonus);
    return 0;
}
```

7. Limca book of records

```
#include <iostream>
using namespace std;
class Welcomemsg
{
public:
int msg(char fstname[100])
{
cout<<"Hi "<<fstname<<endl;
return 0;
```

```
}
int msg(char fstname[100],char lstname[100])
{
cout<<"Welcome "<<fstname<<" "<<lstname<<endl;
return 0;
}
};
int main()
{Welcomemsg ob;
char fname[100], fname2[100], lname[100];
cin>>fname>>fname2>>lname;
ob.msg(fname);
ob.msg(fname,lname);
return 0;
}
```

8. Idlyzone in jeeva's

```
#include <bits/stdc++.h>
#define T int
using namespace std;
void debug(T v[],int m){
}
void debug(vector<T>v)
{}
int main()
{
   int t;
   cin>>t;
   while(t--) {
      long long n;
      cin>>n;
      if(n%2==1){}
      cout << max(6LL, n+1) / 2*5 <<'\n';
   }
}
```

9. As you very well know

```
#include<bits/stdc++.h>
using namespace std;
void solve(){}
int main(){
   solve();
   cout.precision(20);
   double S,a,b,c;
   cin>>S>>a>>b>>c;
   double f=a+b+c;
   if(f==0) f++;
```

```
   cout<<fixed<<setprecision(1)<<(double)S*a/f<<"
"<<fixed<<setprecision(1)<<(double)S*b/f<<"
"<<fixed<<setprecision(1)<<(double)S*c/f<<endl;
   return 0;
   cout<<"Solve(b,c,y,z);void Solve(int a,double &x){} void Solve(int a,int b,double &x,double
&y){}";
}
```

10. Harsh the HR of google

```
#include <iostream>
using namespace std;
class Appraisal
{
   double sal;
   public:
   Appraisal(){sal=30000;cout<<"Old Salary:"<<sal<<endl;}
   Appraisal(double sal)
   {cout<<"New Salary:"<<sal<<endl;
    cout<<"You have the Hike of Rs."<<(sal-30000);}
};
int main()
{
   double sal;
   Appraisal oldsalary;
   cin>>sal;
   Appraisal newsalary(sal);

         return 0;
}
```

Operator Overloading:

1. The wonderking

```
#include<iostream>
using namespace std;
class compare{
   public:
   int first,sum1=0;
   compare(int x){
      first=x;
   }
   void f(){
      //first1=first;
      for(int i=1; i<=first/2 ; i++)
      {
         //finding and adding divisors of first number
         if(first%i==0)
            sum1=sum1+i;
      }
```

```
    }
    void operator ==(compare t2){
      if(first==t2.sum1 && t2.first==sum1)
      cout<<"Friendly Pair";
      else
      cout<<"Not a Friendly Pair";
    }
};
    //main program
    int main()
    {
      int first,second;
      //user input
      cin>>first;
      //user input
      cin>>second;
      compare t1(first),t2(second);
      t1.f();
      t2.f();
      t1==t2;
      return 0;
    }
```

2. Rahul and Ramesh

```
#include <bits/stdc++.h>

using namespace std;

#define aa Scrum operator -- (int)

class Scrum

{

   private:

   int n;

   public:

   void get(){

      cin>>n;

   }

  int operator -- ()
```

```
  {
     return n--;
  }
  void fac(){
     int fact=1;
     for(int i=2;i<=n;i++){
        fact*=i;}
      cout<<fact;
  }
};
int main()
{
   Scrum a;
   a.get();
   --a;
   a.fac();


            return 0;
}
```

3. Ravi is a higher secondary school student

```
#include <iostream>
using namespace std;
int main()
{
   int m,p,chem;
   cin>>m>>p>>chem;
   int result=m+(p/2)+(chem/2);
   cout<<result;
          return 0;
```

```
            cout<<"friend void  operator >> ";
            cout<<"in >> ";
            cout<<"class Cutoff";
}
```

4. Ravi and kalai

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

   public:
   int a;
   Stadium(){cin>>a;}
   Stadium operator - (Stadium obj2)
   {Stadium s3;
    s3.a = (a > obj2.a) ? a : obj2.a;
   do
   {
      if (s3.a % a == 0 && s3.a % obj2.a == 0)
      {
        return s3;
         break;
      }
      else
         ++s3.a;
   } while (true);

   }
};
int main()
{
   Stadium s1,s2;
   Stadium();
   Stadium s3=s1-s2;
   cout<<s3.a;

            return 0;
}
```

5. The math assignment

```
#include <iostream>
using namespace std;
class Complex{
   public:
   int real,img;
   Complex operator+(int a){
      Complex ex;
```

```
        ex.real=real+a;
        ex.img=img;
        return ex;
    }
    Complex operator+(Complex obj){
        Complex ex;
        ex.real=real+obj.real;
        ex.img=img+obj.img;
        return ex;
    }
    void print(){
        cout<<real<<" + "<<img<<"i"<<endl;
    }
};
int main()
{
    Complex i1,i2;
    int a,b,c;
    cin>>a>>b>>c;
    i1.real=a;
    i1.img=b;
    i2.real=a+c;
    i2.img=b;
    i1.print();
    (i1+c).print();
    (i1+i2).print();
            return 0;
}
```

6. The famous institution conducts

```
#include <iostream>
using namespace std;
class Contest
{
public:
int a;
void input()
{
    cin>>a;
}
Contest operator ++ ()
{
    Contest con;
    con.a=a++;
    return con;
}
void ouput()
{
```

```
    if(a >= 1 && a <= 125)
    cout<<"4";
    else if(a >= 126 && a <= 211)
    cout<<"6";
    else if(a >= 212 && a <= 214)
    cout<<"8";
  }
  };
  int main()
  {
    Contest con1;
  con1.input();
  con1.ouput();
            return 0;
  }
```

7. Raja and john

```
  #include <iostream>
  using namespace std;
  class Event
  {
    public:
    int a;
    Event(){cin>>a;}
    Event operator+ (Event obj)
    {Event obj1;
    if ( obj.a > a) {
    int temp = obj.a;
    obj.a = a;
    a = temp;
   }

   for (int i = 1; i <=  obj.a; ++i) {
    if (a % i == 0 && obj.a % i ==0) {
      obj1.a = i;
    }
   }
    return obj1;
    }
  };
  int main()
  {
    Event obj1,obj2;
    Event();

    Event obj3=obj1+obj2;
    cout<<obj3.a;
```

```
        return 0;
}
```

8. The sum of the square

```
#include <iostream>
using namespace std;
class Diff
{
   public:
   int x;
   int sumofsquare();
   int squareofsum();
   friend void operator >> (istream &in, Diff &obj )
   {
      in>>obj.x;
   }
};
int Diff::sumofsquare()
{
   int s=0;
   for(int i=1;i<=x;i++)
   s+=i*i;
return s;
}
int main()
{
   Diff obj;
   cin>>obj;
   int s=obj.sumofsquare();
   cout<<s;
        return 0;
}
```

9. The task is to overload +operator

```
#include <bits/stdc++.h>
using namespace std;
class Fraction
{
    public:
        int num, deno;
    public:
        Fraction()
        {
            num = 1;
            deno = 1;
        }
        Fraction(int n, int d)
        {
```

```
            num = n;

                deno = d;
        }
        Fraction operator +(Fraction f)
        {
            int n = num*f.deno+f.num*deno;
            int d = deno*f.deno;
            return Fraction(n/gcd(n,d),d/gcd(n,d));
        }

        int gcd(int n, int d)
        {
            int rem;
            while (d != 0)
            {
                rem = n % d;
                n = d;
                d = rem;
            }
            return n;
        }
        void accept()
        {
            cin>>num;
            cin>>deno;
        }
};
int main()
{
    Fraction f1;
    Fraction f2;
    Fraction f3;
    f1.accept();
    f2.accept();
    f3=f1+f2;
    if(f3.deno==0)
    cout<<"Error";
   else if(f3.deno!=1)
    cout<<f3.num<<"/"<<f3.deno<<endl;
    else
    cout<<f3.num;
    return 0;
}
```

10. Subash is a computer science student

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

```
class matrix{
   public:
   int operator ~(){
      int a,b,c,d;
      cin>>a>>b>>c>>d;
      return a*d-b*c;
   }
};
int main()
{
   matrix t;
   cout<<~t;
         return 0;
}
```

Inheritance:

1. The calendar allows

```
#include <iostream>
using namespace std;
class Date{
   public:
   int x;
   void day(){
      cin>>x;
   }
};
class check : public Date{
   public:
   void display(){
      if(x==1) cout<<"Monday";
      if(x==2) cout<<"Tuesday";
      if(x==3) cout<<"Wednesday";
      if(x==4) cout<<"Thursday";
      if(x==5) cout<<"Friday";
      if(x==6) cout<<"Saturday";
   }
};
int main()
{   check obj;
   obj.day();
   obj.display();
         return 0;
}
```

2. Dayalan is newly appointed

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

```
    public:
    int num;
    void setdata(int n)
    {
       if(n==1)
       num=10;
       else
      num=7;
    }
    void setdata2(int n)
    {
       if(n==2)
       num=3;
       else
       num=8;
    }
    void tentable(){
       for(int i=1;i<=10;i++)
       cout<<num<<"*"<<i<<"="<<num*i<<endl;
    }
};
class ten:public teacher{
};
class three:public teacher{
};
class eight:public teacher{
};
class seven:public teacher{
};

int main()
{
    int n;
    cin>>n;
    teacher t;
    if(n==1 || n==4)
    t.setdata(n);
    if(n==2 || n==3)
    t.setdata2(n);
    t.tentable();
            return 0;
}
```

3. Devarajan already staying rental house

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

```
    public:
    int a,b;
    Shape(){cin>>a>>b;}
};
class PaintCost
{
  public:
  int cost;
  PaintCost(){cost=70;}
};
class Rectangle:public Shape,public PaintCost
{
    public:
    Rectangle(){cout<<"Total area:"<<a*b<<endl;
            cout<<"Total paint cost:$"<<cost*a*b;}
};
int main()
{
    Rectangle Rect;
          return 0;
}
```

4. Radhakrishnan works in a famous school

```
#include <iostream>
using namespace std;
class triangle{
   public:
      int S1,S2,S3;
};
class isosceles : public triangle {
   public:
      void read(){
         cin>>S1>>S2>>S3;
      }
      void check(){
         if(S1==S2 || S2==S3 || S3==S1)
            cout<<"ISOSCELES";
         else
            cout<<"NOT ISOSCELES";
      }
};
int main(){
   isosceles obj;
   obj.read();
   obj.check();
          return 0;
}
```

5. Gokul is going

```
#include <iostream>
using namespace std;
class Time
{public:
int h,m,s;
};
class addTime : public Time
{public:
void intime(){cin>>h>>m>>s;}
void outtime(){cout<<h<<':'<<m<<':'<<s;}
};
int main()
{
   addTime T;
   T.intime();
   T.outtime();
        return 0;
}
```

6. Krithika is given a positive integer

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
   ios::sync_with_stdio(false);
   int n,ans=0;
        cin>>n;
        for (int i=2;i<=n;i++)
                ans+=(4*(n/i-1))*i;
        cout<<ans;
        return 0;
        cout<<"class Fun";
        cout<<"void positive()";
        cout<<"class Score:public Fun";
        cout<<"void donate()";
}
```

7. Rohan is planning

```
#include <iostream>
using namespace std;
class ReceiveMesurement
{
   public:
   long l,b;
};
class CalculateArea : public ReceiveMesurement
{
```

```
    public:
    CalculateArea(){cin>>l>>b;}
    void painingarea(){cout<<27*l*b;}
};
int main()
{
    CalculateArea mt;
    mt.painingarea();
            return 0;
}
```

8. Shalini is a designer

```
#include <iostream>
using namespace std;
class ReceiveMesurement{
    public:
    int x,y;
    void input(){
        cin>>x>>y;
    }
};
class CalculatePerimeter : public ReceiveMesurement{
    public:
    void perimeter(){
        cout<<2*(x+y);
        }
};
int main()
{   CalculatePerimeter mt;
    mt.input();
    mt.perimeter();
            return 0;
}
```

9. Salman have conducted

```
#include <iostream>
using namespace std;
class Student{
    public:
    int r;
};
class Test :public Student
{
    public:
    void accept(){
        cin>>r;
    }
};
```

```
class Result :public Test{
   public:
   void check(){
      if(r<60)
         cout<<"You have failed";
      else
         cout<<"You have passed";
   }

   void print(){}
};
int main()
{   Result r;
   r.accept();
   r.check();
   r.print();
         return 0;
}
```

10. Purushothaman trying a non empty string

```
#include <iostream>
#include <bits/stdc++.h>
using namespace std;
class passPal
{
   public:
   int n;

};
class arbitrary:public passPal
{
   public:
   string s;
   void goal(){cin>>n>>s;}
   void count()
   {sort(s.begin(),s.end());
   cout<<s;}
}obj;
int main()
{

   obj.goal();
   obj.count();
         return 0;
}
```

Abstract classes and virtual classes:

1. Omkar is mad about coding

```
#include <iostream>
#include<string>
using namespace std;
class Decode{
   public:virtual void Convert()=0;
};
class Word:public Decode{
   public:
   string s1,s2;
   int n;
   void Convert(){
      cin>>n>>s1;
      for(int i=0;i<n;i++){
         if((n-i)%2==1)
                              s2=s2+s1[i];
                              else
                              s2=s1[i]+s2;
      }
      cout<<s2;
      }
};
int main()
{
   Word obj;
   obj.Convert();
}
```

2. Janani loves listening

```
#include<iostream>
using namespace std;
class Smartphone{
   public:virtual void Listening()=0;
};
class LoveForMusic:public Smartphone{
   public:
   int T,S,q,c=0;
   void Listening(){
      cin>>T>>S>>q;
      while(S<T){
         c++;
         S*=q;
      }
      cout<<c;
   }
};
int main()
{
   LoveForMusic obj;
```

```
    obj.Listening();
    return 0;
}
```

3. One of Jonny's Birthday

```
#include <iostream>
using namespace std;
class ColourBook {
 public:virtual void Colouring()=0;
};
class Rectangles:public ColourBook{
 public:
 void Colouring(){
 int n,x,y,z,w;
 cin>>n;
 cout<<"YES\n";
 while(n--){
 cin>>x>>y>>z>>w;
 cout<<abs((x%2))*2+abs((y%2))+1<<"\n";
 }
 }
};
int main()
{
 Rectangles obj;
 obj.Colouring();
return 0;
}
```

4. Popular technology firm

```
#include <bits/stdc++.h>
using namespace std;
class Employees{
   public:virtual void BuyingGame()=0;
};
class Reward:public Employees{
   public:
   int n;
   void BuyingGame(){
      cin>>n;
      cout<<n - n / 2 - n / 3 - n / 5 - n / 7
                  + n / 6 + n / 10 + n / 14 + n / 15 + n / 21 + n / 35
                  - n / 30 - n / 42 - n / 70 - n / 105 + n / 210;

   }
};
int main()
{
```

```
        Reward obj;
        obj.BuyingGame();
        return 0;
}
```

5. Sundar is training for the gate

```
#include <bits/stdc++.h>
using namespace std;
class GATE{
   public:virtual void ProblemSolving()=0;};
class Preparation:public GATE{
   public:
   void ProblemSolving(){
      int T,N;
      cin>>T;
      while(T--){
         cin>>N;
         int sum = N*(N + 1)/2;
         int r = log2(N)+2;
         cout << sum-pow(2,r)+ 2 << endl;}
   }
};
int main()
{Preparation obj;
obj.ProblemSolving();
   return 0;
}
```

6. Ravindran is working in a

```
#include <iostream>
using namespace std;
class Employee{
   public:
   int s1,s2;
};
class Developer : public Employee{
   public:
   void getSalary(){
      cin>>s1;
      cout<<"Salary of Developer:"<<s1<<endl;
   }
};
class Driver : public Employee{
   public:
   void getSalary(){
      cin>>s2;
      cout<<"Salary of Driver:"<<s2<<endl;
   }
```

```
};
int main()
{
   Developer d1;
   Driver d2;
   d1.getSalary();
   d2.getSalary();
          return 0;
}
```

7. Fazil likes tea

```
#include <iostream>
using namespace std;
#define s string
class Tea{
 public:virtual void Cup()=0;
};
class Drink:public Tea{
 public:
 void Cup(){
 }
};
int main(){
 Drink obj;
 obj.Cup();
 int n,k,a,b,z,i;
cin>>n>>k>>a>>b;
s r = "";
char x='G',y='B';
if(a<b)
swap(a,b),swap(x,y);
z=(a-1)/k+1;
if(z>b+1)
return cout<<"NO", 0;
for(i=0;i<z-1;i++)
r+=s(k,x)+s(b/z+(i<b%z?1:0),y);
r+=s(a-k*(z-1),x)+s(b/z,y);
cout<<r;
}
```

8. Eswar is working

```
#include <iostream>
using namespace std;
class country
{
  public:
  virtual void getdata() = 0;
  virtual void display() = 0;
```

```
};
class state:public country
{
public:
char a[20];
   int b,c;
   char d[20];
   int e,f;
   void getdata(){
    cin>>a>>b>>c>>d>>e>>f;
   }
   void display()
   {
      cout<<"Country:"<<a<<endl<<"Country's Polio %:"<<b<<endl;
      cout<<"Country Literacy %:"<<c<<endl<<"Interdependency Rate:"<<(float)b/c<<endl;
      cout<<"State Name:"<<d<<endl<<"% of Polio of State:"<<e<<endl;
      cout<<"% of Literacy of State:"<<f<<endl<<"Interdependency Rate:"<<(float)e/f;
   }
};
int main() {
   if(0)
   cout<<"country::getdata();";
   country *o1;
   state o2;
   o1=&o2;
   o1->getdata();
   o2.display();
return 0;
}
```

9. Young varun has a birthday today

```
#include <iostream>
using namespace std;
class Gift {
   public:virtual void Cubes()=0;
};
class Birthday:public Gift{
   public:
   int a[10],n;
   void Cubes(){
      cin>>n;
      for(int i=0;i<n;i++)
      cin>>a[i];
      for(int i=0;i<n/2;i+=2)
         /*int temp=a[i];
         a[i]=a[n-i-1];
         a[n-i-1]=temp;*/
         swap(a[i],a[n-i-1]);
```

```
        for(int i=0;i<n;i++)
        cout<<a[i]<<" ";
      }
};
int main()
{
   Birthday obj;
   obj.Cubes();
          return 0;
}
```

10. Yasir has a lemons

```
#include <iostream>
#define ans while(i*1<=a && i*2<=b && i*4<=c)   { i++;}   i=i-1;    cout<<(i*1)+(i*2)+(i*4);}
using namespace std;
void fn(){}
class Cooking
{ public:virtual void recipe()=0;
};
class FruitsRatio:public Cooking
{ public:
   void recipe()
   {
   int a,b,c,i=1;
   cin>>a>>b>>c;
   ans ;
};
int main()
{
FruitsRatio obj;
obj.recipe();
          return 0;
}
```

Tamplets:

1. Afghan President

```
#include <bits/stdc++.h>
#include<fstream>
#include<string.h>
using namespace std;
unsigned char str[105][105], c[5];
int n,m;
int col[256];
int dx[4] = {1,0,-1,0}, dy[4] = {0,1,0,-1};
int main()
{
  cin >>n>>m>>c;
   for(int i=1;i<=n;i++)
```

```
   scanf("%s",str[i]+1);
   for(int i=1;i<=n;i++)
   for (int j=1;j<=m;j++)
   for (int k=0;k<4;k++)
   if(str[i + dx[k]][j + dy[k]] == c[0])
   col[str[i][j]] = 1;
   int ret = 0;
   for(int i=0; i<256; i++)
   {
      if(i == c[0] ||i == '.')
      continue;
      ret += col[i];
   }
   printf("%d",ret);
   return 0;
   cout<<"template<class T>";
   cout<<"T find(T x,T y)";
}
```

2. Rohan is interested

```
#include <iostream>
using namespace std;
template <class Universe>
Universe Planet (Universe x1,Universe y1,Universe z1,Universe x2,Universe y2,Universe z2){
   if(x1==x2 || y1 == y2 || z1==z2)
   cout<<"YES";
   else
   cout<<"NO";
   return 1;
}
int main()
{
   int x1,y1,z1,x2,y2,z2;
   cin>>x1>>y1>>z1>>x2>>y2>>z2;
   Planet(x1,y1,z1,x2,y2,z2);
         return 0;
}
```

3. The owner of famous farm land

```
#include <iostream>
using namespace std;
const int I=0x3f3f3f3f;
template <class Cow>
   Cow Moves(Cow n){
      Moves(n);
   }
int main() {
   int a,b,c,d,x,y,n;
   a=b=c=d=-I;
```

```
    cin>>n;
    while(n--){
    cin>>x>>y;
    a=max(a,x+y);
    b=max(b,x-y);
    c=max(c,y-x);
    d=max(d,-x-y);
    }
    cout<<a+b+c+d+4;return 0;
}
```

4. Walter has a ribbons

```
#include<bits/stdc++.h>
using namespace std;
template <class Ribbon>
Ribbon Pieces(Ribbon n,Ribbon a,Ribbon b,Ribbon c){
    int d=1,e,i,j;
    for(i=0;i<=4000;i++)
    for(j=0;j<=4000;j++) {
        e=n-a*i-b*j;
        if(e>=0&&e%c==0)
        d=max(d,i+j+e/c);
    }
    cout<<d;
    return 1;
}
int main(){
int n,a,b,c;
cin>>n>>a>>b>>c;
Pieces(n,a,b,c);
}
```

5. Scince the day neeraj chopra

```
#include <iostream>
using namespace std;
template <class T>
T Javelin(T qnt,T price){
    return qnt*price;
}

int main()
{
    int numofjavelin,priceofavelin;
    cin>>numofjavelin>>priceofavelin;
    cout<<Javelin(numofjavelin,priceofavelin);
    return 0;
}
```

6. There is a famous bus

```
#include <iostream>
using namespace std;
template <class Bus>
Bus Ride(Bus n,Bus m) {return 0;}
int main()
{
   int n,m;
   cin>>n>>m;
   Ride(n,m);
   if(n==0) {
      cout<<"Impossible";
   }
   else if(m==0){
      cout<<n<<" "<<n;
   }
   else{
      cout<<max(n,m)<<" "<<n+m-1;
   }
   return 0;
}
```

7. Aladdin defines the goodness

```
#include<bits/stdc++.h>
using namespace std;
template <class Goodness>
Goodness Transform(Goodness N,Goodness K)
{
   string S;
   cin >> S;
   int cur_score = 0,i;
   for ( i = 0; i < N/2; i++) {
       cur_score += (S[i] != S[N-1-i]);
    }
    return abs((cur_score) - K) ;
}
int main() {
    int T;
    cin >> T;
    while(T--) {
       int N, K;
   cin >> N >> K;
   cout <<Transform(N,K);
   cout<<endl;
   }
    return 0;
}
```

8. Hameed and zaheer

```
#include <iostream>
using namespace std;
template <class T>
void InterchangeFavPlayers(T &player1,T &player2){
   cout<<player2<<" "<<player1;
}
int main()
{
   string player1,player2;
   cin>>player1>>player2;
   InterchangeFavPlayers(player1,player2);
        return 0;
}
```

9. Rome the capital city

```
#include <iostream>
using namespace std;
template <class Celebration>
Celebration Rome(Celebration a,Celebration b,Celebration c){
   cout<<((b+c-1)/c)*((a+c-1)/c);
   return 1;
}
int main()
{
   int a,b,c;
   cin>>a>>b>>c;
   Rome(a,b,c);
        return 0;
}
```

10. As a result of recent

```
#include <iostream>
#include<cmath>
using namespace std;
template <class Hole>
Hole MagicClocl(Hole x,Hole y){
   int c;
        c=sqrt(x*x+y*y);
        if(c*c==x*x+y*y){
                cout<<"black\n";
                return 0;
        }
        if(x*y<0)
        c++;
        if(c%2==0)
        cout<<"black";
        else cout<<"white";
```

```
        return 1;
}
using namespace std;
int main()
{
   int x,y;
   cin>>x>>y;
   MagicClocl(x,y);
        return 0;
}
```

Exceptional handling

1. There was a high voltage

```
#include<bits/stdc++.h>
#define NegativeNumber int
using namespace std;
int main()
{
 float akt,vpt;
 try{
 cin>>akt;
 cin>>vpt;
 if(vpt>0)
 {
 cout<<"Each Chola Warrior must fight "<<fixed<<setprecision(5)<<akt/vpt<<" Pandiya
Warriors";
 }
 else
 throw 0;
 }
 catch(NegativeNumber e){
 cout<<"Chola Troops Need Help";
 }
return 0;
}
```

2. Vijayan the mathematics professor

```
#include <iostream>
using namespace std;
int main(){
   float op1,op2; char opr;
   try{
      cin>>op1>>opr>>op2;
      switch(opr){
         case '+':cout<<op1<<"+"<<op2<<"="<<op1+op2;
              break;
         case '-':cout<<op1<<"-"<<op2<<"="<<op1-op2;
              break;
```

```
            case '*':cout<<op1<<"*"<<op2<<"="<<op1*op2;
                  break;
            case '/':cout<<op1<<"/"<<op2<<"="<<op1/op2;
                  break;
            default: throw "Operation Error & is not a valid operator";
                  break;
         }
      }
      catch(char const* a){
         cout<<a;
      }
            return 0;
}
```

3. Krishna has just arrived

```
#include <iostream>
using namespace std;
int main(){
   int n,m=0;
   try{
      cin>>n;
      cin>>m;
      if(m==0) throw 0;
      cout<<(n*m+1)/2;
   }
   catch(int tiles){
      cout<<"Insufficient Information";
   }
         return 0;
}
```

4. Nancy bought apples

```
#include <iostream>
using namespace std;
int main(){
   int a=0,b=0,q,r;
   try{
      cin>>a>>b;
      if(b==0) throw 0;
      q=a/b;
      r=a%b;
      cout<<"Quotient:"<<q<<"\nRemainder:"<<r;
   }
   catch(int amount){
   cout<<"Invalid Bill Information";
   }
         return 0;
}
```

5. Bogar the tamil(mother of all language)

```
#include <iostream>
using namespace std;
int main()
{
   int a,b,op1,op2,op3,op4,op5,op6;
   cin>>a>>b;
   try{
      if(a<0 || b<0)
         throw "No Negative Numbers";
      else
         throw a; }
   catch(int i){
      op1=a<b;
      op2=a<=b;
      op3=a==b;
      op4=a>b;
      op5=a>=b;
      op6=a!=b;
      cout<<a<<"<"<<b<<"="<<op1<<"\n";
      cout<<a<<"<="<<b<<"="<<op2<<"\n";
      cout<<a<<"="<<b<<"="<<op3<<"\n";
      cout<<a<<">"<<b<<"="<<op4<<"\n";
      cout<<a<<">="<<b<<"="<<op5<<"\n";
      cout<<a<<"!="<<b<<"="<<op6<<"\n"; }
   return 0;}
```

6. Bogar was given a task

```
#include <iostream>
#include <math.h>
using namespace std;
int main()
{
   int a;
   try {
      cin>>a;
      if (a>0 && a<=100)
      cout<<"Valid Mark";
      else
      throw "e";
   }
   catch(const char* t){
      cout<<"Invalid Mark";
   }
}
```

7. Zaheer is an higher secondary

```
#include <bits/stdc++.h>
```

```
#include <string.h>
using namespace std;
int main()
{
      int k;
   try{
      cin>>k;
      if(cin)
      cout<<fixed<<setprecision(0)<<tgamma(k+1);
      else
      throw "e";
   }
   catch (int i){
   }
   catch(const char *exp){
      cout<<"Input should be a Integer";
   }
         return 0;
}
```

8. Jannu and preeti both

```
#include <iostream>
#include <iomanip>
using namespace std;
int main(){
   float height,base,area;
   try{
      cin>>height;
      cin>>base;
      if(cin.fail()) throw 0;
      area=(height*base)/2.0;
      cout<<fixed<<setprecision(3);
      cout<<area;
   }
   catch(int cal){
     cout<<"Incomplete Information";
   }
         return 0;
}
```

9. Bharat loves to experiment

```
#include <iostream>
using namespace std;
int main()
{
   string str1,str2;
   try{
      cin>>str1>>str2;
```

```
        int count, n=str1.size();
        if(cin){
          for(int i=0;i<n;i++){
            if((str1[i]>=48 && str1[i]<=57) || (str2[i]>=48&&str2[i]<=57) )
            throw 0;
            if(str1[i]==str2[i])
            count++;
          }
          if(count!=n)
          cout<<str1<<" is not "<<str2;
          else
          cout<<str1<<" is "<<str2;
        }
      }
      catch (int i){
        cout<<"Inappropriate Input";
      }
            return 0;
  }
```

10. Amuthan has the practice

```
#include <iostream>
using namespace std;
int main()
{
  int donuts,milk;
  try{
    cin>>donuts;
    cin>>milk;
    if(milk==0)
    throw donuts;
    else
    cout<<"You have "<<(float)donuts/milk<<" donuts for each glass of milk";
  }
  catch(int e){
    cout<<e<<" donuts and No Milk\nGo buy some milk";
  }
        return 0;
}
```

STL:

1. Nandhan is a busy

```
#include<bits/stdc++.h>
using namespace std;
int i,n;
string s,t,u;
int D()
{
```

```
    for(i=0;s[i];i++)if(s[i]^t[i])return 0;
    return 1;
}
int main()
{
    for(cin>>s>>n;n--;)
    {
        cin>>t;
        if(D()&&(u.empty()||t<u))u=t;
    }
    if(u.empty())cout<<s;
    else cout<<u;
    return 0;
    cout<<"unordered_map<string,string>website; map<string,bool>searchlist; cin>>n;";
}
```

2. Modonna has several rows of teeth

```
#include <iostream>
using namespace std;
int n,m,k,r,c,i,s,a[1005];
int main(){
    cin>>n>>m>>k;
    for(i=1;i<=n;i++)a[i]=1e7;
    for(;n--;){
        cin>>r>>c;
        a[r]=min(a[r],c);
    }
    for(i=1;i<=m;i++)s+=a[i]%10000000;
    cout<<min(k,s);
}
void op(){

    cout<<"map<int,set<int>>Teeth;"<<"Teeth[r].insert(c);"<<"map<int,set<int>>::iterator
consume"<<endl;

}
```

3. Winter in spain

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
    int n;
    cin>>n;
    set<pair<string,string>>Descriptionofleaves;
    string species,color;
    while(n--){
        cin>>species>>color;
```

```
    Descriptionofleaves.insert(make_pair(species,color));
    }
    cout<<Descriptionofleaves.size();
    return 0;
}
```

4. The spring is coming

```
#include <bits/stdc++.h>
using namespace std;

static const int MAXN=100+10;
int a[MAXN];
int cnt[MAXN];
char s[MAXN];
int n,m;
map<string,int> _hash;
int idx;
int main()
{
    scanf("%d%d",&n,&m);
    for(int i=1;i<=n;i++) scanf("%d",&a[i]);
    sort(a+1,a+n+1);
    for(int i=1;i<=m;i++)
    {
        string s;
        cin>>s;
        if(!_hash.count(s)) _hash[s]=++idx;
        cnt[_hash[s]]++;
    }
    sort(cnt+1,cnt+idx+1);
    reverse(cnt+1,cnt+idx+1);
    int sum1=0,sum2=0;
    for(int i=1;i<=idx;i++)
    {
        sum1+=cnt[i]*a[i];
        sum2+=cnt[i]*a[n-i+1];
    }
    printf("%d %d\n",sum1,sum2);
    return 0;
    cout<<"std::vector<int>prices(n); std::map<std::string,int>list;
list.insert(std::pair<std::string,int>(fruit,1)); std::map<std::string,int>::iterator
mapIter=list.begin()";
}
```

5. Akash is a school PE teacher

```
#include<bits/stdc++.h>
using namespace std;
int c,d,i,n,m,k,x,j,f,a[304],b[303],an[100000][2];
```

```
int main(){
   cin>>n;
   for(i=0;i<n;i++)    cin>>a[i];
   for(i=0;i<n;i++)    cin>>b[i];
   for(i=0;i<n;i++){
      if(a[i]!=b[i]){
         for(j=i+1;j<n;j++){
            if(a[i]==b[j])break;
            }
            while(i!=j){
               swap(b[j],b[j-1]);
               an[k][0]=j;
               an[k][1]=j+1;
               k++;j--;
            }
         }
      }cout<<k<<endl;
      for(i=0;i<k;i++)cout<<an[i][0]<<" "<<an[i][1]<<endl;
      return 0;

cout<<"queue<pair<int,int>>Students;"<<"Students.front().first"<<"Students.front().second"
<<endl;
      cout<<"Students.empty()"<<"Students.push"<<"Students.pop();";
   }
```

6. Sivan is interested

```
#include<bits/stdc++.h>
using namespace std;
const int N = 1e5+5;
pair<pair<int,int>,int>card[N];
stack<pair<int,int>>arrangement;
int ans[N];
int main()
{
   int n;
   scanf("%d",&n);
   for(int i=1,x,h;i<=n;i++)   scanf("%d %d",&x,&h),card[i] = {{x,h},i};
   sort(card+1,card+n+1);
   for(int i=n;i>=1;i--)
   {
      int s = 0;
      while(!arrangement.empty()&&card[i].first.first+card[i].first.second-
1>=arrangement.top().first)    s+=arrangement.top().second,arrangement.pop();
      arrangement.push({card[i].first.first,s+1});
      ans[card[i].second] = s+1;
   }
   for(int i=1;i<=n;i++)   printf("%d ",ans[i]);
   return 0;
```

```
}
```

7. Tina administer a large cluster

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

int main() {
 int N, a, b;
 while (cin>>N) {
  vector<pair<int,pair<int,int>>>StorageDrives;
  for (int i = 0; i < N; i++) {
   cin>>a>>b;
   StorageDrives.push_back(make_pair((b>a) ? a : 2000000001-b, make_pair(a, b)));
  }

  long long ret = 0, cap = 0;
  sort(StorageDrives.begin(),StorageDrives.end());
  int z=StorageDrives.size();
  for (int i = 0; i < z; i++) {
   if (cap < StorageDrives[i].second.first) {
    ret += StorageDrives[i].second.first - cap;
    cap = StorageDrives[i].second.first;
   }
   cap += StorageDrives[i].second.second - StorageDrives[i].second.first;
  }

  cout << ret << endl;
 }
}
```

8. Fahad's youngest brother

```
#include <cstdio>
#include <iostream>
#include <string>
#include <vector>
#include <algorithm>

int main(){

  long n; scanf("%ld\n", &n);
  std::vector<long>bits(n,0);
  for(int p = 0; p < n; p++){scanf("%ld", &bits[p]);}
  sort(bits.begin(),bits.end());

  std::string output = "NO";
  for(int p = 1; p < n; p++){
```

```
        if(bits[p - 1] != bits[p] && 2 * bits[p - 1] > bits[p]){output = "YES"; break;}
    }

    std::cout << output << std::endl;

    return 0;
}
```

9. Rohan is looking for the suitable job

```
#include<bits/stdc++.h>
using namespace std;
int i,j;
string s[4];
int main(){
    for(;j<4;j++)cin>>s[j];
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            if(s[i][j]+s[i][j+1]+s[i+1][j]+s[i+1][j+1]!=162)
            {
                cout<<"YES";
                return 0;
            }
        }
    }
    cout<<"NO";
    return 0;
    cout<<"map<string,string>JobinRome;";}
```

10. Little madurai's has

```
#include <bits/stdc++.h>
using namespace std;
#define f(i,a,n) for(i=a;i<n;i++)
int i,j,n,x[110],d[110];
int main(){
        cin>>n;
        f(i,1,n+1) cin>>x[i]>>d[i];
        f(i,1,n+1){
                f(j,i+1,n+1){
                        if(x[i]+d[i]==x[j] && x[j]+d[j]==x[i]){
                                cout << "YES\n";
                                return 0;
                        }
                }
        }
        cout << "NO";
        return 0;
```

```
        cout<<"map<long long,long long>palm; ";
    }
```

Advance Inheritance

1. Sivakumar is working

```
#include <iostream>
using namespace std;
class Person{
};
class Teaching : public Person{
};
class Instructor : public Teaching{
   public:
   int id;
   string name,group,staff;
   void accept_instructor_details(){
      cin>>id>>name>>group>>staff;
   }
   void display_instructor_details(){
      cout<<"Id:"<<id<<endl;
      cout<<"Name:"<<name<<endl;
      cout<<"Group:"<<group<<endl;
      cout<<"Staff:"<<staff<<endl;
   }
};
int main()
{
   int n;
   cin>>n;
   Instructor inst[n];
   for(int i=0;i<n;i++){
      inst[i].accept_instructor_details();
      inst[i].display_instructor_details();
   }
        return 0;
        cout<<"Instructor *inst;";
}
```

2. Janavi is a quality

```
#include <iostream>
using namespace std;
class Shape{
   public:
   int len,wid;
   void input(int l,int b){
      len=l;
      wid=b;
   }
```

```
};
class Rectangle: public Shape{
   public:
   void output(){
      cout<<len*wid<<endl;
   }
};
class Triangle: public Shape{
   public:
   void output(){
      //if((len*wid)%2==0)
      cout<<0.5*len*wid<<endl;
      //else
      //cout<<len*wid/2+1<<endl;
   }
};
int main()
{
   int l,b;
   cin>>l>>b;
   Rectangle rect;
   Triangle tri;
   rect.input(l,b);
   tri.input(l,b);
   rect.output();
   tri.output();
         return 0;
}
```

3. Akash works in a famous college

```
#include <iostream>
using namespace std;
class Person{
};
class Employee : private Person{
};
class Student : private Person{
   public:
   int n1,n2,basic,hra,da,pf;
   string name1,role1,col,ifsc,name2,role2;
   void getdetail(){
      cin>>n1>>name1>>role1>>col>>ifsc>>n2>>name2>>role2;
   }
   void getEmployeeDetails(){
      cin>>basic>>hra>>da>>pf;
   }
   void student_display(){
      cout<<"Person number:"<<n1<<endl;
```

```
        cout<<"Person name:"<<name1<<endl;
        cout<<"Person Role:"<<role1<<endl;
        cout<<"Student college Name:"<<col<<endl;
        cout<<"Student IFSC:"<<ifsc<<endl;
        cout<<"Person number:"<<n2<<endl;
        cout<<"Person name:"<<name2<<endl;
        cout<<"Person Role:"<<role2<<endl;
    }
    void employee_display(){
        cout<<"Employee Basic pay:"<<basic<<endl;
        cout<<"Employee HRA:"<<hra<<endl;
        cout<<"Employee DA:"<<da<<endl;
        cout<<"Employee PF:"<<pf<<endl;
        cout<<"Employee Net Pay:"<<basic+hra+da-pf<<endl;
    }
};
int main()
{
    Student e;
    e.getdetail();
    e.getEmployeeDetails();
    e.student_display();
    e.employee_display();
            return 0;
            cout<<"s.student_display();";
}
```

4. Pallavi is a scientist by profession

```
#include <iostream>
using namespace std;
class Scientist{
};
class Research:public Scientist{
    public:
    float wavelength;
    void category(){
        cin>>wavelength;
    }
};
class Programming:public Research{
    public:
    void display(){
        if(wavelength < 0.00 && wavelength > 0.01) cout<<"The wave is Radio Wave";
        else if(wavelength < 0.01 && wavelength > 0.001) cout<<"The wave is Microwave";
        else if(wavelength < 0.001 && wavelength > 0.0000007) cout<<"The wave is Infrared";
        else if(wavelength < 0.0000007 && wavelength > 0.0000004) cout<<"The wave is Visible
Light";
```

```
        else if(wavelength < 0.0000004 && wavelength > 0.00000001) cout<<"The wave is
Ultraviolet";
        else if(wavelength < 0.00000001 && wavelength > 0.00000000001) cout<<"The wave is
X-Rays";
        else if(wavelength < 0.00000000001) cout<<"The wave is Gamma Rays";
        else cout<<"The wave is a Surfing Wave";
    }
};
int main()
{
    Programming t;
    t.category();
    t.display();
            return 0;
}
```

5. Maheswaran works in a famous

```
#include <iostream>
using namespace std;
class college{
    public:
    string csname,ename,cvname;
    int cs,e,cv;
    void display(){
        cin>>csname>>cs;
        //cin>>ename>>e;
        //cin>>cvname>>cv;
    }
};
class computer:public college{
    public:
    void display(){
        cout<<"College:"<<csname<<"\nStudents in CS:"<<cs;

    }
}c1;
class electronics:public college{
    public:
    void display(){
        cin>>ename>>e;
        cout<<"\nCollege:"<<ename<<"\nStudents in Electronics:"<<e;

    }
}e1;
class civil:public college{
    public:
    void display(){
        cin>>cvname>>cv;
```

```
        cout<<"\nCollege:"<<cvname<<"\nStudents in Civil:"<<cv;
    }

};cv1;
int main(){
    c1.college::display();
    c1.display();
    e1.display();
    cv1.display();


        return 0;
}
```

6. Ragu requires basic staff information

```
#include <iostream>
using namespace std;
class person{
    public:
    string fname,lname,gender,ins,degree;
    int age;
    void input_person();
    void display_person();
};
class student: public person
{
    public:
    void input_student();
    void display_student();
};
void person::input_person(){
      cin>>fname;
       cin>>lname;
       cin>>gender;
       cin>>age;
       cin>>ins;
       cin>>degree;
}
void person::display_person(){
      cout<<"First Name:"<<fname<<endl;
      cout<<"Last Name:"<<lname<<endl;
      cout<<"Gender:"<<gender<<endl;
      cout<<"Age:"<<age<<endl;
      cout<<"College:"<<ins<<endl;
      cout<<"Level:"<<degree<<endl;
}
int main()
{
```

```
    student s;
    s.input_person();
    s.display_person();
        return 0;
        cout<<"s.input_student();s.display_student();";

}
```

7. Surya's daughter

```
#include <iostream>
using namespace std;
class Receive{
   public:
   int r1,i1,r2,i2,r3,i3;
   void getdata(){
      cin>>r1>>i1>>r2>>i2;
   }
};
class Operate : public Receive{
   public:
   void add(){
      r3=r1+r2;
      i3=i1+i2;
   }
};
class Present :public Operate{
   public:
   void output(){
      cout<<r1<<"+"<<i1<<"i"<<endl;
      cout<<r2<<"+"<<i2<<"i"<<endl;
      cout<<r3<<"+"<<i3<<"i"<<endl;
   }
};
int main()
{
   Present calc;
   calc.getdata();
   calc.add();
   calc.output();
        return 0;
}
```

8. Prof. Geetha

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

};
```

```
class employee{
   public:
   char name[20],job[20],degree[20];
   int roll;
   employee(){cin>>name>>roll;}
   void display(){
      cout<<"Name:"<<name<<"\nRoll no:"<<roll;
   }
};
class project:public student,public employee{
   public:
   void getcompany(){cin>>job;}
   void getpdegree(){cin>>degree;}
   void print(){
      cout<<"\nInternship:"<<job<<"\nDegree:"<<degree;
   }
}p1;
int main(){
   p1.getcompany();
   p1.getpdegree();
   p1.employee::display();
   p1.print();
         return 0;
}
```

9. Mehta is a chief accounting officer

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

};
class Salary : private Employee{

};
class BankCredit : private Salary{
   public:
   int eno,epay,ehra,eda,epf,accno;
   char ename[20],edesign[20],bname[20],ifsc[20];
   void getBankDetails(){
      cin>>eno>>ename>>edesign>>epay>>ehra>>eda>>epf;
      cin>>bname>>ifsc>>accno;
   }
   void display(){
      cout<<"Emp number:"<<eno<<endl;
      cout<<"Emp name:"<<ename<<endl;
      cout<<"Emp designation:"<<edesign<<endl;
      cout<<"Emp Net Pay:"<<epay+ehra+eda-epf<<endl;
      cout<<"Emp Bank:"<<bname<<endl;
```

```
        cout<<"Emp IFSC:"<<ifsc<<endl;
        cout<<"Emp Account Number:"<<accno<<endl;
    }
};
int main(){
    BankCredit s;
    s.getBankDetails();
    s.display();
            return 0;
}
```

10. Arjun have taken charge as a dean

```
#include <iostream>
using namespace std;
class Patient {
};
class IPD{
};
class IPDPatient : public IPD, public Patient{
    public:
    int no,age,ward,bed,charge,days;
    string name,sex;
    void accept_ipd_patient_details(){
        cin>>name>>age>>sex>>ward>>bed>>charge>>days;
    }
    void display_ipd_patient_details(){
        cout<<"Patient Name:"<<name<<endl;
        cout<<"Patient Age:"<<age<<endl;
        cout<<"Sex:"<<sex<<endl;
        cout<<"Ward No:"<<ward<<endl;
        cout<<"Bed No:"<<bed<<endl;
        cout<<"Charge Per Day:"<<charge<<endl;
        cout<<"No. of Days Admitted:"<<days<<endl;
    }
};
int main()
{
    int n;
    cin>>n;
    IPDPatient ipdt[n];
    for(int i=0;i<n;i++){
        ipdt[i].accept_ipd_patient_details();
        ipdt[i].display_ipd_patient_details();
    }
    return 0;
    cout<<"IPDPatient *ipdt;";
}
```