Program 1

#include <iostream>

using namespace std;

bool isAnagram(char a[],char b[])

{

int c1[26];int c2[26];

if(strlen(a)!=strlen(b))

return false;

int i;

for(i=0;a[i]!='\0';i++)

{

c1[a[i]-'a']++;

}

for(i=0;b[i]!='\0';i++)

{

c2[b[i]-'a']++;

}

for(i=0;a[i]!='\0';i++)

{

if(c1[i]!=c2[i])

return false;

}

return true;

}

int main()

{

cout<<isAnagram("silent","listen")<<endl;

cout<<isAnagram("garden","ranged")<<endl;

cout<<isAnagram("taak","taak")<<endl;

cout<<isAnagram("teacher","teach")<<endl;

return 0;

}

Program 2

#include <iostream>

using namespace std;

int lcmArray(int a[],int n)

{

int i,j;bool check;int min;

for(i=1;;i++)

{

min=i\*a[1];

check=true;

for(j=0;j<n;j++)

{

if(min%a[j]!=0)

check=false;

}

if(check==true)

return min;

}

}

int main()

{

int a1[3]={24,16,48};

cout<<lcmArray(a1,3)<<endl;

int a2[4]={30,50,25,75};

cout<<lcmArray(a2,4)<<endl;

int a3[5]={30,50,25,75,8};

cout<<lcmArray(a3,5)<<endl;

return 0;

}

Program 3

#include <iostream>

#include <cmath>

using namespace std;

class Circle2D

{

private:

double x,y;

double radius;

public:

double getx() const

{

return x;

}

double gety() const

{

return y;

}

double getr() const

{

return radius;

}

Circle2D(){x=0;y=0;radius=1;}

Circle2D(double px,double py,double pr)

{x=px;y=py;radius=pr; }

double getArea() const

{

return 3.1416\*radius\*radius;

}

double getPerimeter() const

{

return 2\*3.1416\*radius;

}

bool contains(double x, double y) const

{

return sqrt(pow(x-this->x,2)+pow(y-this->y,2))<radius;

}

bool contains(const Circle2D& circle) const

{

return circle.radius+sqrt((pow(circle.x-x,2)+pow(circle.y-y,2))) <= radius;

}

bool overlaps(const Circle2D& circle) const

{

return x==circle.x && y==circle.y && radius==circle.radius;

}

};

int main()

{

Circle2D c1(2,2,5.5);

Circle2D c2(2,2,2.5);

Circle2D c3(4,5,10.5);

cout<<"c1 perimeter is "<<c1.getPerimeter()<<endl;

cout<<"c1 area is "<<c1.getArea()<<endl;

if(c1.contains(3,3))

cout<<"c1 contains the point (3,3)"<<endl;

if(c1.contains(c2))

cout<<"c1 contains c2"<<endl;

if(c1.overlaps(c3))

cout<<"c1 overlaps c3"<<endl;

return 0;

}

Program 4

#include <iostream>

#include <cmath>

using namespace std;

char\* sort(char a[])

{

int i,j;

char temp;

static char fin[20];

for(i=0;a[i]!='\0';i++)

{

fin[i]=a[i];

}

for(i=0;fin[i]!='\0';i++)

for(j=0;fin[j]!='\0';j++)

{

if(fin[j]<fin[j+1])

{

temp=fin[j];

fin[j]=fin[j+1];

fin[j+1]=temp;

}

}

return fin;

}

int main()

{

char c1[20]="540126";

cout<<c1<<",";

cout<<sort(c1)<<endl;

char c2[20]="045897236798";

cout<<c2<<",";

cout<<sort(c2)<<endl;

return 0;

}

Program 5

#include <iostream>

#include <cmath>

using namespace std;

class USTBStudent

{

protected:

int id;

char\* name;

public:

static int count;

USTBStudent()

{

count++;

id=0;

char\* a="USTB";

name=a;

}

USTBStudent(int pi, char \*pname)

{

count++;

id=pi;

name=new char [strlen(pname)+1];

if(name!=0)

strcpy(name,pname);

}

virtual int getId()

{return id;}

virtual char\* getName()

{return name;}

virtual void printString()

{

cout<<id<<endl;

cout<<name<<endl;

}

~USTBStudent(){delete[] name;}

};

class MaterialUSTBStudent: public USTBStudent

{

private:

char\* major;

public:

MaterialUSTBStudent()

{

id=1000+count;

char a[10]="zhangsan";

name=a;

char b[10]="Material";

major=b;

}

MaterialUSTBStudent(int pi, char \*pname, char \*pmajor)

{

id=pi;

name=new char [strlen(pname)+1];

if(name!=0)

strcpy(name,pname);

major=new char [strlen(pmajor)+1];

if(major!=0)

strcpy(major,pmajor);

}

char\* getMajor()

{return major;}

void printString()

{

cout<<id<<endl;

cout<<name<<endl;

cout<<major<<endl;

}

~MaterialUSTBStudent(){delete[] major;}

};

int USTBStudent::count=0;

int main()

{

USTBStudent uStudent[8];

cout<<"the number of USTBStudent is "<<USTBStudent::count<<endl;

uStudent[1].printString();

MaterialUSTBStudent mStudent[9];

cout<<"the number of USTBStudent is "<<mStudent[0].count<<endl;

MaterialUSTBStudent \*p=new MaterialUSTBStudent(1001,"zhangsan","material science");

p->printString();

cout<<p->getId()<<endl;

cout<<p->getName()<<endl;

cout<<p->getMajor()<<endl;

cout<<"the number of USTBStudent is "<<mStudent[0].count<<endl;

delete p;

return 0;

}

Program 6

#include<iostream>

using namespace std;

int main()

{

int i,j,k,l;

bool check[40];

bool result;

int a1,a2,a3,a4;

int mass;

int var;

for( i=1;i<=40;i++)

for(j=i+1;j<=40;j++)

for(k=j+1;k<=40;k++)

for(l=k+1;l<=40;l++)

{

result=true;

for(var=0;var<40;var++)

check[var]=false;

for(mass=1;mass<=40;mass++)

for(a1=-1;a1<=1;a1++)

for(a2=-1;a2<=1;a2++)

for(a3=-1;a3<=1;a3++)

for(a4=-1;a4<=1;a4++)

{

if(mass==(a1\*i+a2\*j+a3\*k+a4\*l))

check[mass-1]=true;

}

for(var=0;var<40;var++)

{if(check[var]==false) result=false;}

if(result==true)

{

cout<<i<<" "<<j<<" "<<k<<" "<<l<<endl;

exit(0);

}

}

return 0;

}