/////////Program1///////////

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace CSharp110716

{

class ThreeD

{

int x, y, z;

public ThreeD()

{

x = y = z = 0;

}

public ThreeD(int i, int j, int k)

{

x = i;

y = j;

z = k;

}

//OVERLOAD BINARY + for ThreeD + ThreeD

public static ThreeD operator +(ThreeD op1, ThreeD op2)

{

ThreeD result = new ThreeD();

result.x = op1.x + op2.x;

result.y = op1.y + op2.y;

result.z = op1.z + op2.z;

return result;

}

//OVERLOAD BINARY + for int + ThreeD

public static ThreeD operator +(ThreeD op1, int op2)

{

ThreeD result = new ThreeD();

result.x = op1.x + op2;

result.y = op1.y + op2;

result.z = op1.z + op2;

return result;

}

//OVERLOAD BINARY +

public static ThreeD operator +(int op1, ThreeD op2)

{

ThreeD result = new ThreeD();

result.x = op1 + op2.x;

result.y = op1 + op2.y;

result.z = op1 + op2.z;

return result;

}

//Show x y z coordinates

public void show()

{

Console.WriteLine(x + ", " + y + ", " + z);

}

}

class Program

{

static void Main(string[] args)

{

ThreeD a = new ThreeD(1, 2, 3);

ThreeD b = new ThreeD(10, 10, 10);

ThreeD c;

Console.Write("Here is a: ");

a.show();

Console.WriteLine();

Console.Write("Here is b: ");

b.show();

Console.WriteLine();

c = a + b; //ThreeD + ThreeD

Console.Write("Result of a + b: ");

c.show();

Console.WriteLine();

c = b + 15; //ThreeD + int

Console.Write("Result of b + 15: ");

c.show();

Console.WriteLine();

c = 20 + b; //ThreeD + int

Console.Write("Result of 20 + b: ");

c.show();

Console.WriteLine();

Console.ReadLine();

}

}

}

////////Program2///////////

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace CSharp110716\_E2

{

class ThreeD

{

int x, y, z;

public ThreeD()

{

x = y = z = 0;

}

public ThreeD(int i, int j, int k)

{

x = i;

y = j;

z = k;

}

//OVERLOAD BOOLEAN <

public static bool operator <(ThreeD op1, ThreeD op2)

{

if (Math.Sqrt(op1.x \* op1.x + op1.y \* op1.y + op1.z \* op1.z) <

Math.Sqrt(op2.x \* op2.x + op2.y \* op2.y + op2.z \* op2.z))

return true;

else

return false;

}

//OVERLOAD BOOLEAN >

public static bool operator >(ThreeD op1, ThreeD op2)

{

if (Math.Sqrt(op1.x \* op1.x + op1.y \* op1.y + op1.z \* op1.z) >

Math.Sqrt(op2.x \* op2.x + op2.y \* op2.y + op2.z \* op2.z))

return true;

else

return false;

}

//OVERLOAD BOOLEAN ==

public static bool operator ==(ThreeD op1, ThreeD op2)

{

if (op1.x == op2.x && op1.y == op2.y && op1.z == op2.z)

return true;

else

return false;

}

//OVERLOAD BOOLEAN !=

public static bool operator !=(ThreeD op1, ThreeD op2)

{

if (op1.x != op2.x && op1.y != op2.y && op1.z != op2.z)

return true;

else

return false;

}

//Show x y z coordinates

public void show()

{

Console.WriteLine(x + ", " + y + ", " + z);

}

}

class Program

{

static void Main(string[] args)

{

ThreeD a = new ThreeD(5, 6,7);

ThreeD b = new ThreeD(10, 10, 10);

ThreeD c = new ThreeD(1, 2, 3);

ThreeD d = new ThreeD(6, 7, 5);

Console.Write("Here is a: ");

a.show();

Console.WriteLine();

Console.Write("Here is b: ");

b.show();

Console.WriteLine();

Console.Write("Here is c: ");

c.show();

Console.WriteLine();

Console.Write("Here is d: ");

d.show();

Console.WriteLine();

if (a > c)

Console.WriteLine("a > c is true");

if (a < c)

Console.WriteLine("a < c is true");

if (a > b)

Console.WriteLine("a > b is true");

if (a < b)

Console.WriteLine("a < b is true");

if (a > d)

Console.WriteLine("a > d is true");

else if (a < d)

Console.WriteLine("a < d is true");

else

Console.WriteLine("a and d are same distance from origin");

Console.WriteLine();

if (a == b)

Console.WriteLine("a and b are same distance from origin");

else

Console.WriteLine("a and b are not same distance from origin");

Console.WriteLine();

if (a != b)

Console.WriteLine("a and b are not same distance from origin");

else

Console.WriteLine("a and b are same distance from origin");

Console.ReadLine();

}

}

}