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

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace CSharp130716\_E1

{

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 |

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

{

if ((op1.x != 0) || (op1.y != 0) || (op1.z != 0) |

(op2.x != 0) || (op2.y != 0) || (op2.z != 0))

return new ThreeD(1, 1, 1); //atlest one cordinate is non zero

else

return new ThreeD(0, 0, 0);

}

//OVERLOAD &

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

{

if ((op1.x != 0) && (op1.y != 0) && (op1.z != 0) &

(op2.x != 0) && (op2.y != 0) && (op2.z != 0))

return new ThreeD(1, 1, 1); //atlest one cordinate is non zero

else

return new ThreeD(0, 0, 0);

}

//OVERLOAD !

public static bool operator !(ThreeD op)

{

if (op.x != 0 || op.y != 0 || op.z != 0)

return false; //atlest one cordinate is non zero

else

return true;

}

//OVERLOAD true

public static bool operator true(ThreeD op)

{

if ((op.x != 0) || (op.y != 0) || (op.z != 0))

return true; //atlest one cordinate is non zero

else

return false;

}

//OVERLOAD false

public static bool operator false(ThreeD op)

{

if ((op.x == 0) && (op.y == 0) && (op.z == 0))

return true; //all cordinate are non zero

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(4, 4, 4);

ThreeD c = new ThreeD(0, 0, 0);

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();

if (!a)

Console.WriteLine("a is false");

if (!b)

Console.WriteLine("b is false");

if (!c)

Console.WriteLine("c is false");

Console.WriteLine();

if (a & b)

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

else

Console.WriteLine("a & b is false");

if (a & c)

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

else

Console.WriteLine("a & c is false");

if (a | b)

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

else

Console.WriteLine("a | b is false");

if (a | c)

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

else

Console.WriteLine("a | c is false");

Console.WriteLine();

//Use Short Circuit Operator

Console.WriteLine("Use Short Circuit Operator && and ||");

if (a && b)

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

else

Console.WriteLine("a && b is false");

if (c && a)

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

else

Console.WriteLine("a && c is false");

if (a || b)

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

else

Console.WriteLine("a || b is false");

if (c || a)

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

else

Console.WriteLine("a || c is false");

Console.ReadLine();

}

}

}

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

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

namespace CSharp130716\_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 binary operator +

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;

}

//an implicit conversion from Threed to int

public static implicit operator int(ThreeD op1)

{

return op1.x + op1.y + op1.z;

}

//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 = new ThreeD();

int i;

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

a.show();

Console.WriteLine();

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

b.show();

Console.WriteLine();

c = a + b;

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

c.show();

Console.WriteLine();

i = a;

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

Console.WriteLine();

i = a + 2 - b;

Console.Write("Result of a + 2 - b: " + i);

Console.WriteLine();

Console.ReadLine();

}

}

}