**Assignment 04**

#### **First Project:**

#### Define 3D Point Class and the basic Constructors (use chaining in constructors).

#### Override the ToString Function to produce this output:

#### Point3D P = new Point3D (10,10,10);

#### Console. WriteLine (P. ToString( ));

#### Output: “Point Coordinates: (10, 10, 10)”.

#### Read from the User the Coordinates for 2 points P1, P2 (Check the input using try Pares, Parse, Convert).

#### Try to use ==

#### If (P1 == P2) Does it work properly?

#### Define an array of points and sort this array based on X & Y coordinates.

#### Implement ICloneable interface to be able to clone the object.

#### To implement more than one interface.

#### class Point3D:IComparable ,ICloneable

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#### **Second Project:**

#### Define Class Maths that has four methods: Add, Subtract, Multiply, and Divide, each of them takes two parameters. Call each method in Main ().

#### Modify the program so that you do not have to create an instance of class to call the four methods.

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#### **Third Project:**

#### Define Class Duration To include Three Attributes Hours, Minutes and Seconds.

#### Override All System.Object Members (ToString, Equals,GetHasCode) .

#### Define All Required Constructors to Produce this output:

#### Duration D1 =new Duration (1,10,15);

#### D1.ToString();

#### **Output**: Hours: 1, Minutes :10, Seconds :15

#### Duration D1 =new Duration (3600);

#### D1.ToString();

#### **Output**: Hours: 1, Minutes :0, Seconds :0

#### Duration D2 =new Duration (7800);

#### D2.ToString();

#### **Output**: Hours: 2, Minutes :10, Seconds :0

#### Duration D3 =new Duration (666);

#### D3.ToString();

#### **Output**: Minutes :11, Seconds :6

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#### Implement All required Operators overloading to enable this Code:

#### D3=D1+D2

#### D3=D1 + 7800

#### D3=666+D3

#### D3= ++D1 (Increase One Minute)

#### D3 = --D2 (Decrease One Minute)

#### D1= D1 -D2

#### If (D1>D2)

#### If (D1<=D2)

#### If (D1)

#### DateTime Obj = (DateTime) D1

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