A screen shot of a computer

Description automatically generated

**using** **System**;

**namespace** **ECE2310\_Final**

{

**class** **Program**

{

**static** **void** Main(string[] args)

{

GraphObject[] objects = **new** GraphObject[4];

objects[0] = **new** RightTriangle(6, 8);

objects[1] = **new** Square(8);

objects[2] = **new** RightTriangle(5, 15);

objects[3] = **new** Square(7);

double[] areas = **new** double[4];

double[] perimeters = **new** double[4];

Console.WriteLine("[+] Displaying shape information.");

**for** (int i = 0; i < objects.Length; ++i)

{

objects[i].CalArea();

objects[i].CalPerimeter();

areas[i] = objects[i].CalArea();

perimeters[i] = objects[i].CalPerimeter();

Console.WriteLine($"Object #{i + 1}: {objects[i]}");

}

Console.WriteLine("--------------");

Console.Write($"Largest Area: Object #");

Utilities.FindLargest(areas);

Console.Write($"Largest Perimeter: Object #");

Utilities.FindLargest(perimeters);

Console.WriteLine("--------------");

}

}

}

**using** **System**;

**namespace** **ECE2310\_Final**

{

**public** **class** **GraphObject**

{

**protected** double Area { **get**; **set**; } = 1;

**protected** double Perimeter { **get**; **set**; } = 1;

**public** GraphObject() { }

**public** GraphObject(double area, double perimeter)

{

**this**.Area = area;

**this**.Perimeter = perimeter;

}

**public** **virtual** double CalArea()

{

**return** Area;

}

**public** **virtual** double CalPerimeter()

{

**return** Perimeter;

}

**public** **override** string ToString()

{

**return** ($"area = {Math.Round(Area, 2)}; perimeter = {Math.Round(Perimeter, 2)}");

}

}

}

**using** **System**;

**namespace** **ECE2310\_Final**

{

**public** **class** **RightTriangle** : GraphObject

{

**private** int \_height = 1;

**private** int \_bas = 1;

**public** int Height

{

**get** => \_height;

**set** => \_height = **value**;

}

**public** int Bas

{

**get** => \_bas;

**set** => \_bas = **value**;

}

**public** RightTriangle() { }

**public** RightTriangle(int height, int bas)

{

**this**.Height = height;

**this**.Bas = bas;

}

**public** **override** double CalArea()

{

double area = (0.5) \* Bas \* Height;

Area = area;

**return** area;

}

**public** **override** double CalPerimeter()

{

double perimeter = Height + Bas + Math.Sqrt(Math.Pow(Height, 2) + Math.Pow(Bas, 2));

Perimeter = perimeter;

**return** perimeter;

}

**public** **override** string ToString()

{

**return** ($"Triangle info: height = {Height}; base = {Bas}; {base.ToString()}");

}

}

}

**using** **System**;

**namespace** **ECE2310\_Final**

{

**public** **class** **Square** : GraphObject

{

**private** int \_segment = 1;

**public** int Segment

{

**get** => \_segment;

**set** => \_segment = **value**;

}

**public** Square() { }

**public** Square(int segment)

{

**this**.Segment = segment;

}

**public** **override** double CalArea()

{

double area = Math.Pow(Segment, 2);

**base**.Area = area;

**return** area;

}

**public** **override** double CalPerimeter()

{

double perimeter = 4 \* Segment;

**base**.Perimeter = perimeter;

**return** perimeter;

}

**public** **override** string ToString()

{

**return** ($"Square info: segment = {Segment}; {base.ToString()}");

}

}

}

**using** **System**;

**using** **System.Linq**;

**namespace** **ECE2310\_Final**

{

**public** **static** **class** **Utilities**

{

**public** **static** **void** FindLargest(double[] array)

{

double maxValue = array.Max();

int maxIndex = array.ToList().IndexOf(maxValue);

Console.WriteLine($"{maxIndex + 1 } has largest value of {Math.Round(maxValue, 2)}");

}

}

}