Program to calculate perimeter, area and volumes.

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```
while (true)
{
    //The main facade
    Console.WriteLine("welcome, choose 1 to calculate Perimeter, area and volume of
shapes");
    string numberProgramme;
    numberProgramme = Console.ReadLine();
    Console.WriteLine("**********************************");
    //area and perimeter
    if (numberProgramme == "1")
    {
        double area, perimeter, length, width, valume;
        string numberOfShapes;
        Console.WriteLine("please choose number of shape");
        Console.WriteLine("1- square\n2- rectangular\n3- circle\n4- Equilateral
triangle\n5- A triangle with different sides\n6- Right-angled triangle\n7- Trapezoidal\n8-
Parallelogram\n9- cube\n10- cone\n11- sphere\n12- regular polygon");
        numberOfShapes = Console.ReadLine();
        //square
        if (numberOfShapes == "1")
        {
            Console.WriteLine("**********************************");
            Console.WriteLine("The perimeter: length * 4");
            Console.WriteLine("the area: length * length");
            Console.WriteLine("**********************************");
            Console.Write("please enter length :");
            length = double.Parse(Console.ReadLine());
            area = length * length;
            perimeter = length * 4;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("**********************************");
        }
        //rectangular
        else if (numberOfShapes == "2")
        {
            Console.WriteLine("**********************************");
            Console.WriteLine("The perimeter: (width + length) * 2");
            Console.WriteLine("the area: width * length");
            Console.WriteLine("**********************************");
            Console.Write("please enter length : ");
            length = double.Parse(Console.ReadLine());
            Console.Write("please enter width : ");
            width = double.Parse(Console.ReadLine());
            area = width * length;
            perimeter = (length + width) * 2;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("**********************************");
        }
        //circle
        else if (numberOfShapes == "3")
        {
            Console.WriteLine("**********************************");
```

```
            Console.WriteLine("The perimeter: 2 * 3.14 * raduis");
            Console.WriteLine("the area: 3.14 * raduis * raduis");
            Console.WriteLine("************************************");
            Console.Write("please enter raduis : ");
            length = Double.Parse(Console.ReadLine());
            area = Math.PI * length * length;
            perimeter = length * 2 * Math.PI;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("************************************");

        }
        //Equilateral triangle
        else if (numberOfShapes == "4")
        {
            Console.WriteLine("************************************");
            Console.WriteLine("The perimeter: The sum of the lengths of its sides");
            Console.WriteLine("tha area:1/2 * base * hieght or( 1/2 length * length *
root3/2 )");
            Console.WriteLine("************************************");
            Console.Write("please enter length : ");
            length = Double.Parse(Console.ReadLine());
            area = length * length * Math.Sqrt(3) * 1 / 4;
            perimeter = length * 3;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("************************************");
        }
        //A triangle with different sides
        else if (numberOfShapes == "5")
        {
            double baseOfTriangle, hieght, thirdLingth;
            Console.WriteLine("************************************");
            Console.WriteLine("The perimeter: The sum of the lengths of its sides");
            Console.WriteLine("tha area:1/2 * base * hieght");
            Console.WriteLine("************************************");
            Console.Write("please enter the first length : ");
            width = Double.Parse(Console.ReadLine());
            Console.Write("please enter the second length : ");
            length = Double.Parse(Console.ReadLine());
            Console.Write("please enter the third length : ");
            thirdLingth = Double.Parse(Console.ReadLine());
            Console.Write("please enter length  base : ");
            baseOfTriangle = Double.Parse(Console.ReadLine());
            Console.Write("please enter hieght : ");
            hieght = Double.Parse(Console.ReadLine());
            area = baseOfTriangle * hieght * 1 / 2;
            perimeter = width + length + thirdLingth;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("************************************");
        }
        //Right-angled triangle
        else if (numberOfShapes == "6")
```

```
        {
            double thirdLingthOfRightAngleTriangle;
            Console.WriteLine("************************************");
            Console.WriteLine("The perimeter: The sum of the lengths of its sides");
            Console.WriteLine("tha area:1/2 * base * hieght");
            Console.WriteLine("************************************");
            Console.Write("please enter height : ");
            width = double.Parse(Console.ReadLine());
            Console.Write("please enter base : ");
            length = double.Parse(Console.ReadLine());
            thirdLingthOfRightAngleTriangle = Math.Sqrt(width * width + length * length);
            Console.WriteLine("The length of the third side = " +
thirdLingthOfRightAngleTriangle);
            area = length * width * 1 / 2;
            perimeter = width + thirdLingthOfRightAngleTriangle + length;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("************************************");
        }
        //Trapezoidal
        else if (numberOfShapes == "7")
        {
            double greatBase, smallBase, height;
            Console.WriteLine("************************************");
            Console.WriteLine("The perimeter: The sum of the lengths of its sides");
            Console.WriteLine("tha area:(( great base + small base ) / 2) * hieght");
            Console.WriteLine("************************************");
            Console.Write("please enter great base : ");
            greatBase = double.Parse(Console.ReadLine());
            Console.Write("please enter smaal base : ");
            smallBase = double.Parse(Console.ReadLine());
            Console.Write("please enter hieght : ");
            height = double.Parse(Console.ReadLine());
            Console.Write("please enter the length of the first side : ");
            length = double.Parse(Console.ReadLine());
            Console.Write("please enter the length of the second side : ");
            width = double.Parse(Console.ReadLine());
            area = ((greatBase + smallBase) / 2) * height;
            perimeter = greatBase + smallBase + width + length;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("************************************");
        }
        //Parallelogram
        else if (numberOfShapes == "8")
        {
            double height;
            Console.WriteLine("************************************");
            Console.WriteLine("The perimeter: (width + length) * 2");
            Console.WriteLine("the area: base * height");
            Console.WriteLine("************************************");
            Console.Write("plese enter width : ");
            width = double.Parse(Console.ReadLine());
            Console.Write("plese enter length : ");
```

```
            length = double.Parse(Console.ReadLine());
            Console.Write("plese enter height : ");
            height = double.Parse(Console.ReadLine());
            area = height * width;
            perimeter = (width + length) * 2;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("************************************");
        }
        //cube
        else if (numberOfShapes == "9")
        {
            Console.WriteLine("************************************");
            Console.WriteLine("The area = length * length * 6");
            Console.WriteLine("the valume = length * length * length");
            Console.WriteLine("************************************");
            Console.Write("please enter length : ");
            length = double.Parse(Console.ReadLine());
            area = length * length * 6;
            valume = length * length * length;
            Console.WriteLine("area = " + area);
            Console.WriteLine("valume = " + valume);
            Console.WriteLine("************************************");
        }
        //cone
        else if (numberOfShapes == "10")
        {
            double tracerLength, raduis, height;
            Console.WriteLine("************************************");
            Console.WriteLine("The area = 3.14 * raduis * tracer");
            Console.WriteLine("the valume = (3.14 * raduis * raduis * height) / 3");
            Console.WriteLine("************************************");
            Console.Write("please enter raduis : ");
            raduis = double.Parse(Console.ReadLine());
            Console.Write("please enter height : ");
            height = double.Parse(Console.ReadLine());
            Console.Write("please enter tracer : ");
            tracerLength = double.Parse(Console.ReadLine());
            area = Math.PI * tracerLength * raduis;
            valume = (Math.PI * raduis * raduis * height) / 3;
            Console.WriteLine("area = " + area);
            Console.WriteLine("valume = " + valume);
            Console.WriteLine("************************************");
        }
        //sphere
        else if (numberOfShapes == "11")
        {
            double raduis;
            Console.WriteLine("************************************");
            Console.WriteLine("The area = 3.14 * raduis * raduis * 4");
            Console.WriteLine("the valume = (3.14 * raduis * raduis * raduis * 4) / 3");
            Console.WriteLine("************************************");
            Console.Write("please enter raduis : ");
            raduis = double.Parse(Console.ReadLine());
```

```
            area = Math.PI * raduis * raduis * 4;
            valume = (Math.PI * raduis * raduis * raduis * 4) / 3;

        }
        //regular polygon
        else if (numberOfShapes == "12")
        {
            int numberOfSides;
            Console.WriteLine("************************************");
            Console.WriteLine("N => number of side");
            Console.WriteLine("The perimeter = N * length");
            Console.WriteLine("The area = (length * length)/4 * tan(180/n)");
            Console.WriteLine("************************************");
            Console.Write("please enter number of side (N) : ");
            numberOfSides = int.Parse(Console.ReadLine());
            Console.Write("please enter length : ");
            length = double.Parse(Console.ReadLine());
            area = (length * length) / 4* Math.Tan(180/numberOfSides);
            perimeter = numberOfSides * length;
            Console.WriteLine("perimeter = " + perimeter);
            Console.WriteLine("area = " + area);
            Console.WriteLine("************************************");
        }
        else {
             Console.WriteLine("************************************");
            Console.WriteLine("please enter from 1 to 12 only");
             Console.WriteLine("************************************");
        }

    }
    else {
        Console.WriteLine("please press 1 to start program");
    }
}
```