```
using System;

namespace CS
{
    class Program
    {
        static void Main(string[] args)
        {
            /*
                This is my first program
            */
            Console.WriteLine("Hello World!");

            Console.ReadLine();
        }
    }
}



/*  =================== Variables and DataType =====================*/

using System;

namespace CS
{
    class Program
    {
        static void Main(string[] args)
        {
            string Name = "Mehedi Hasan";
            int age = 20;


            Console.WriteLine("The person \n name is " +  Name);
            Console.WriteLine("The age is " + age + " Years Old");

            // ********* Different type of data ************

            string  phrase = "Mehedi is good boy";
            char ch = 'A';
            int num = 3030;
            double gpa = 3.4;
            float num2 = 202.3;
            bool isMale = true;
            decimal acount  = 100.2;

            Console.ReadLine();
        }
    }
}


// ================= Working With Strings ==================

using System;

namespace CS
{
    class Program
    {
        static void Main(string[] args)
        {

           string Name = "Mehedi Hasan" + " is a good boy";

           Console.WriteLine("Mehedi \n Hasan");
           Console.WriteLine(Name);
           Console.WriteLine("length of String " + Name.Length ); // 26

           Console.WriteLine("Upper case " + Name.ToUpper()); // MEHEDI HASAN IS A GOOD BOY
           Console.WriteLine("Lower case " + Name.ToLower()); //  mehedi hasan is a good boy

           Console.WriteLine("search for " + Name.Contains("is")); //  mehedi hasan is a good boy
           Console.WriteLine("index by = " + Name[0]);

           Console.WriteLine("index position = " + Name.IndexOf("Hasan")); // 7
           Console.WriteLine("character index = " + Name.IndexOf('M')); // 0

           Console.WriteLine("substring make = " + Name.Substring(0)); // Subtring( startPos) =>  Mehedi Hasan is a good boy
            Console.WriteLine("substring make = " + Name.Substring(0, 3)); // Subtring( startPos, howMany) => Meh
        }
    }
}


// ================ Working with Number ====================

using System;

namespace CS
{
    class Program
    {
        static void Main(string[] args)
        {

            int num1 = 5;
            int num2 = 2;
            float num3 = 2.0F; // F
            Console.WriteLine(num1 / num2); // 2
            Console.WriteLine(num1 / num3); // 2.5

            Console.WriteLine(Math.Abs(-40)); // 40
            Console.WriteLine(Math.Pow(2, 3)); // 8
            Console.WriteLine(Math.Sqrt(36)); // 6
            Console.WriteLine(Math.Max(4, 90)); // 90
            Console.WriteLine(Math.Min(4, 50)); // 4
            Console.WriteLine(Math.Round(4.6)); // 5

        }
    }
}


// ================ Getting User Input ===============

using System;

namespace CS
{
    class Program
    {
        static void Main(string[] args)
        {

           string Name, Age;
            Console.Write("Enter you Name ");
            Name = Console.ReadLine(); // Always String return the ReadLine();
             Console.WriteLine("Enter your Age ");
            Console.WriteLine("Enter your Age");
            Age = Console.ReadLine();
            Console.WriteLine("Hi " + Name + " you are " + Age);

            // how to make number From string
            // if we add to string number that will only concatinate just
            Console.WriteLine("44" + "56"); // 4456

            int num = Convert.ToInt32("44");
            Console.WriteLine(num + 6); // 40

            // input number and convert
            int num2 = Convert.ToInt32(Console.ReadLine());

            double num3 = Convert.ToDouble(Console.ReadLine());

            Console.ReadLine();

        }
    }
}


// ==================== Array ==========================
using System;

namespace CS
{
    class Program
    {
        static void Main(string[] args)
        {
          int[] Arr = {1, 2, 3, 4};
          Console.WriteLine(Arr[0]);

          // if we do not want to give the initially value then this way we have to follow
          string[] Names = new string[300]; // 300 is size we have to tell the

          Names[0] = "mehedi";
          Names[1] = "SM Nayema";

        }
    }
}


// ================ Methods or function =====================
using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {

            // Call ours Method...
            SayHi("Mehedi", 32);

            // Add function Call
           int x =  add(2, 3);

           Console.WriteLine(x); // 5
        }

        // New Method which we want to create ...
        static void SayHi(string name, int age)
        {
            Console.WriteLine("Hi " + name + " age is " + age);
        }

        static int add(int a, int b){

            return (a + b);

        }

    }
}


// ================= if else ==================
using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {
            bool isMale = true;
            bool isTall = true;

            if(isMale == true && isTall == true)
            {
                Console.WriteLine("you are Male and Tall");
            }
            else if(isMale == false)
            {
                Console.WriteLine("you are not Male or small");
            }
            else
            {
                Console.WriteLine("Other Gender");
            }
        }
    }
}


// ================ loop ===================
using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {
          int i = 1;

          while(i <= 10)
          {
              Console.WriteLine(i);
              i++;
          }

        int[] Arr = {1, 2, 3, 4, 5, 6};
```

```

          for(int j = 0; j < 5; j++)
          {
              Console.Write(Arr[j] + " ");
          }
        }
    }
}


// ==================== 2D Array ==================

using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {
            int [ , ] numberGrid = {

                {1, 2, 3},
                {4, 5, 6},
                {7, 8, 9}

            };

            // [0, 1] => 2 here
            Console.WriteLine(numberGrid[0, 1]); // name[row , col];

            // But if we do not mention element of THEN we have to tell the size...

            int [ , ] Arr2 = new int [2, 3]; // row = 2, col = 3


        }
    }
}

// ====================== Exception Handling ======================
using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {

            try
            {
                 Console.WriteLine("Eneter a number ");
                int num1 = Convert.ToInt32(Console.ReadLine());
                Console.WriteLine("Enter another Number ");
                int num2 = Convert.ToInt32(Console.ReadLine());

            Console.WriteLine( num1 / num2);
            }

            catch( DivideByZeroException e)
            {

                Console.WriteLine("divided by Zero");
                Console.WriteLine("divided by Zero");
            }
            catch(FormatException e)
            {
                Console.WriteLine("Format Exception")
            }

            catch(Exception e)
            {

                Console.WriteLine("Error" + e.Message);
            }
            finally{
                Console.WriteLine("Run all time")
            }

            Console.ReadLine();
        }
    }
}


// ========================= Classes & Objects ===================

// ****************** main() function ****************
using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {
            // this how we can create object of Book class ..
            /*
                dataType variable;
                string bookName = "C programming";
                Book variable = create object

                Access Atributes by (.) dot of the class

            */
            Book book1 = new Book();

            book1.Title = "Harry Pottter";
            book1.author = "Jk Rowling";
            book1.pages = 400;

            Console.WriteLine(book1.Title);
        }
    }
}

// ************ END *************

// *************************** Book Class **********************

using System;

namespace CS
{
    class Book
    {
        public string Title;
        public string author;
        public int pages;
    }

}

// ************ END *******************

// ===================== Class End ========================






// ======================== Constructors ==================

// ***************** main() function ***************
using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {

            Book book1 = new Book();
            Book book2 = new Book("C programming");

            book1.Title = "Harry Pottter";
            book1.author = "Jk Rowling";
            book1.pages = 400;

            Console.WriteLine(book1.Title);

            // We can pass all Argument to initializtion the Book Atribute
            // create constructor same way
            Book book3 = new Book("C++", "Sir", 300);

            Console.WriteLine(book3.Title); // C++
        }
    }
}

//  **** OUtPUT *****
/*
    Creating book object
   book name is C programming object create call
  Harry Pottter
  C++
*/

// *********** END ************


// ************************** Book parameters Base constructor  *********************
using System;

namespace CS
{
    class Book
    {
        public string Title;
        public string author;
        public int pages;

        // Constructor ... when object create in main function that time it run

        // Constructor without parameter
        public Book()
        {
            Console.WriteLine("Creating book object");
        }

        // Constructor ...with parameter
        public Book(string name){
            Console.WriteLine("book name is " + name + " object create call");
        }

        public Book(string aTitle, string aAuthor, int aPages)
        {
            Title = aTitle;
            author = aAuthor;
            pages = aPages;
        }

    }

}
// ************* END ********************

// ====================== topic End =========================




// ========================= Object Methods create and use ===================

// ****************** main() function ****************
using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {
            Student St1 = new Student("mehedi", "CSE", 3.4);
            Student St2 = new Student("Hasan", "CSE", 3.6);

            Console.WriteLine(St1.HasEligable());
        }
    }
}

// ************ END *************


// *************************** Student Class  **********************
using System;

namespace CS
{
    class Student
    {
        public string Name;
        public string Subject;
        public double Gpa;
        public Student(string aName, string aSubject, double aGpa)
        {
            Name = aName;
            Subject = aSubject;
            Gpa = aGpa;
        }

        public bool HasEligable()
        {
            if(Gpa >= 3.5)
            {
                return true;
            }
            else
            {
                return false;
            }
        }

    }

}
// ************* END *******************

// ======================= topic End ==========================





// =========================== Getter and Setter value as Private ====================

// ***************** main() function ***************

using System;

namespace CS
{
    class Program
    {
            // Main() function
        static void Main(string[] args)
        {
            Student St1 = new Student("mehedi", "CSE", 3.4);
            Student St2 = new Student("Hasan", "CSE", 3.6);

            Console.WriteLine(St1.PPrivateGpa);
        }
    }
}


// ************ END *************


// *************************** Strudent  **********************
using System;

namespace CS
{
    class Student
    {
        public string Name;
        public string Subject;
        // Create variable as private to secqure
        // Create variable as private to secqure
        private double PrivateGpa;

        public Student(string aName, string aSubject, double aGpa)
        {
            Name = aName;
            Subject = aSubject;
            PrivateGpa = aGpa;
        }

      // Special kind of function which is allow to me getter and setter applying
      public double PPrivateGpa
      {
          get {
                return PrivateGpa;
          }
          set{
              if(value >= 3.2){

                 PrivateGpa = value;
              }
              else{
                 PrivateGpa= 0.0;
              }
          }
      }

    }

}
// ************* END *******************

// ====================== topic End ========================




// ========================= topic ===================

// ****************** main() function ****************

// ************ END *************


// *************************** sub  **********************

// ************* END *******************

// ====================== topic End ========================
```