C SHARP VAR DATA TYPE AND ANONYMOUS TYPE

Var data type was introduced in C# 3.0. var is used to declare implicitly typed local variable means it tells the compiler to figure out the type of the variable at compilation time. A var variable must be initialized at the time of declaration.

Valid var statements

1. var str = "1";
2. var num = 0;
3. string s = "string";
4. var s2 = s;
5. s2 = null;
6. string s3 = null;
7. var s4 = s3;

At compile time, the above var statements are compiled to IL, like this:

1. string str = "1";
2. int num = 0;
3. string s2 = s;
4. string s4 = s3;

The compile-time type value of var variable cannot be null but the runtime value can be null.

// invalid var statements
2. var v; //need to initialize
3. var num = null; //can't be null at compile time

Once var variable is initialized its data type became fixed to the type of the initial data.
// invalid var statements
var v2 = "str12";

v2 = 3; // int value can’t be assign to implicitly type string variable v2

Anonymous Types

An anonymous type is a simple class generated by the compiler within IL to store a set of values. var data type and new keyword is used to create an anonymous type.

var emp = new { Name = "Deepak", Address = "Noida", Salary=21000 };
The anonymous type is very useful when you want to shape the result in your desired form like this:

```
1. var result = from book in Books
2.     where book.Price > 200
3.     orderby book.IssueDate descending
4.     select new
5.     {
6.         Name = book.Name,
8.     };
```

In above example, I change the name of the “Issue” field of Book table to “IssueNumber” and add # before value to get desired output.