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# C# Access Modifiers

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## Access Modifiers

By now, you are quite familiar with the `public` keyword that appears in many of our examples:

```
public string color;
```

The `public` keyword is an **access modifier**, which is used to set the access level/visibility for classes, fields, methods and properties.

C# has the following access modifiers:

Modifier	Description
<code>public</code>	The code is accessible for all classes
<code>private</code>	The code is only accessible within the same class
<code>protected</code>	The code is accessible within the same class, or in a class that is inherited from that class. You will learn more about <u>inheritance</u> in a later chapter
<code>internal</code>	The code is only accessible within its own assembly, but not from another assembly. You will learn more about this in a later chapter

There's also two combinations: `protected internal` and `private protected`.

For now, let's focus on `public` and `private` modifiers.

## Private Modifier

If you declare a field with a `private` access modifier, it can only be accessed within the same class:

### Example

```
class Car
{
    private string model;

    static void Main(string[] args)
    {
        Car Ford = new Car("Mustang");
    }
}
```

```
        Console.WriteLine(Ford.model);  
    }  
}
```

The output will be:

Mustang

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If you try to access it outside the class, an error will occur:

## Example

```
class Car  
{  
    private string model = "Mustang";  
}  
  
class Program  
{  
    static void Main(string[] args)  
    {  
        Car myObj = new Car();  
        Console.WriteLine(myObj.model);  
    }  
}
```

The output will be:

'Car.model' is inaccessible due to its protection level  
The field 'Car.model' is assigned but its value is never used

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## Public Modifier

If you declare a field with a `public` access modifier, it is accessible for all classes:

### Example

```
class Car
{
    public string model = "Mustang";
}

class Program
{
    static void Main(string[] args)
    {
        Car myObj = new Car();
        Console.WriteLine(myObj.model);
    }
}
```

The output will be:

Mustang

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## Why Access Modifiers?

To control the visibility of class members (the security level of each individual class and class member).

To achieve "**Encapsulation**" - which is the process of making sure that "sensitive" data is hidden from users. This is done by declaring fields as `private`. You will learn more about this in the next chapter.

**Note:** By default, all members of a class are `private` if you don't specify an access modifier:

## Example

```
class Car
{
    string model; // private
    string year;  // private
}
```

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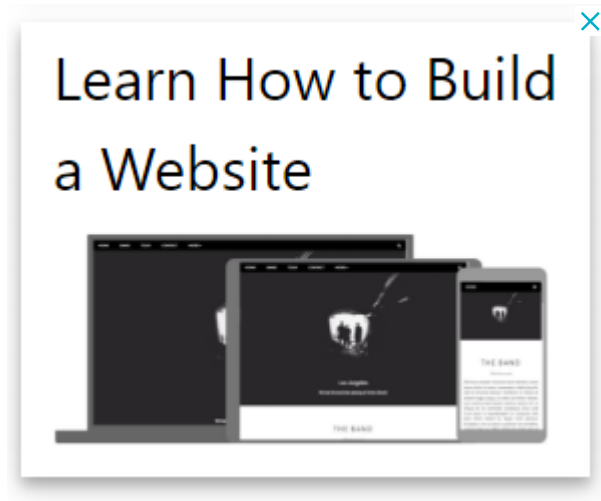
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