

# C# Properties

A new way to get and set



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# C# Properties

- In C++, you have been taught to use the Get/Set functions to expose variables that should be accessible by other objects:

```
class Foo
{
public:
    float GetValue() {return m_fValue; }
    void SetValue(float fVal) { m_fValue = fVal; }

private:
    float m_fValue;
};
```

# C# Properties

- C# Properties work as accessor methods, but are much simpler to use:

```
class Bar
{
    private float m_fValue;

    public floatValue
    {
        get { return m_fValue; }
        set { m_fValue = value; }
    }
}
```

# Using Properties

- Using the syntax on the previous slide, we can access the variable like so:

```
void DoSomething()  
{  
    Bar kInstance = new Bar();  
    kInstance.Value = 10;  
    float fValue = kInstance.Value;  
}
```

# Using Properties

- We can also modify our properties so they do more than just return or set the value, just as you would with a Get/Set method:

```
class Bar
{
    private float m_fValue;

    public float Value
    {
        get { return m_fValue; }
        set {m_fValue = (value < 10) ? value : 10; }
    }
}
```

# C# Properties

- If we are just going to be setting/getting the value, C# allows us to use a shorthand method:

```
class Bar
{
    private float m_fValue;

    public float Value { get; set; }
}
```

# C# Properties

- It is also possible to extend the shorthand to make private / protected accessors:

```
class Bar
{
    private float m_fValue;

    public float Value { get; private set; }
}
```

- In this example, only the get accessor is visible outside of the class



# Summary

- Properties are a shorthand and convenient way of expressing Getters and Setters in C#
- We can still use all of the custom logic that Getters and Setters can have

# References

- Microsoft, 2014, *MSDN Guide To Properties*
  - [http://msdn.microsoft.com/en-us/library/x9fsa0sw\(v=vs.80\).aspx](http://msdn.microsoft.com/en-us/library/x9fsa0sw(v=vs.80).aspx)