[Course Overview](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live)

[Course Overview](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live)

[Hello everyone. My name is David Berry,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=5.91) [and welcome to my course, C# Design](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=7.81) [Patterns: Decorator. I'm a Pluralsight](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=10.34) [author, and in this course we're going to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=12.6) [learn about one of the classic Gang of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=14.35) [Four design patterns, the decorator. The](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=16.01) [decorator pattern allows you to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=18.81) [dynamically add functionality to classes](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=20.28) [without modifying the target class. It](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=22.52) [does this by creating a wrapper around the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=25.06) [original class, which gives you an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=26.94) [extension point to inject in new behavior.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=28.86) [In this course, I'll show you how the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=32.12) [decorator pattern works. We'll code up and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=33.43) [apply a couple of decorator classes](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=35.66) [ourselves, and we'll see where the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=37.25) [decorator pattern is used within .NET](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=39.05) [itself. Before starting this course, you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=41.23) [should be comfortable with object‑oriented](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=44.22) [concepts in C#, especially the use of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=45.77) [interfaces. By the end of this course,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=48.08) [you'll know everything you need to know](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=50.71) [about how to use the decorator pattern in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=52.23) [your projects. I hope you'll join me on](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=53.97) [this journey to learn the decorator design](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=56.48) [pattern in C# with this course on Pluralsight.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=94c7031f-268d-4e7a-9f34-74d6d8ea58b0&clip=0&mode=live&start=58.17)

[The Decorator Pattern](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live)

[Getting to Know the Decorator Pattern](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live)

[Hello, my name is David Berry, and welcome](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=1.59) [to this course on the decorator pattern in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=3.36) [C#. The decorator pattern is a Gang of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=5.29) [Four structural design pattern that allows](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=9.17) [you to dynamically add behavior to a class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=11.53) [without making changes to that class.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=13.82) [Adding this behavior by using the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=16.64) [decorator pattern allows you to maintain a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=18.15) [strong separation of concerns in your code](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=20.29) [base, but also gives you the flexibility](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=22.42) [to add, remove or resequence behaviors as](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=24.69) [needed. The way that the decorator pattern](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=27.51) [works is that you first need to have a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=30.8) [class that you want to add some behavior](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=32.43) [to. In this diagram we'll call that class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=34.53) [Component, and this represents the class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=36.95) [that we want to decorate. This class needs](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=39.15) [to implement an interface or extend a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=42) [common base class that our decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=43.85) [classes can also implement or extend. In](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=45.75) [practice, it is more common that an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=48.75) [interface is used, so that is what is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=50.54) [shown in the diagram here. Then, your](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=52.59) [decorator class will implement this same](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=55.88) [interface, and within the method](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=58.76) [implementations in your decorator class is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=60) [where you can inject any new behavior that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=62.54) [you're looking to add. You also will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=64.64) [define a constructor on your decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=67.31) [class that takes an object implementing](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=69.26) [the same interface. This allows you to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=71.38) [pass the object being decorated into the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=73.95) [decorator object and ultimately allows the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=76.59) [decorator object to act as a wrapper](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=79.47) [around this original object. If you could](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=81.98) [visualize what is happening here, it would](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=85.48) [look something like this. Your decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=87.36) [object will keep a reference to the object](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=90.24) [that is being decorated. In this case, the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=92.22) [Component object, and then it can pass](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=94.73) [method calls to and from the object as](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=96.94) [needed. At the same time, because the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=99.21) [decorator class implements the same](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=102) [interface as the original Component](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=103.96) [object, it now has a chance to intercept](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=105.91) [any method calls on the interface and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=108.47) [inject some additional behavior into those](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=110.95) [calls. Finally, because the decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=113.04) [class has the same interface as the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=116.24) [original Component object does, there's no](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=118.27) [need to modify any calling code. So when](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=120.9) [you hear the word decorator, it is useful](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=124.14) [to think about a diagram like this and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=126.11) [understand that what you're really doing](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=128.65) [is designing a series of objects that can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=130.42) [wrap around each other and inject behavior](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=132.44) [as needed. I say a series of decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=135.31) [objects because you're not limited to just](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=138.69) [one decorator object at a time. You can,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=141.15) [in fact, define and use multiple decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=144.1) [objects together so you can have a layered](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=146.61) [structure around your original object,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=149.01) [much like an onion. Each decorator class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=150.98) [can define different behaviors, so you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=154.28) [maintain that strong separation of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=156.59) [concerns, but again, since all of your](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=159.34) [decorator classes implement the same](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=161.11) [interface as your original object, you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=162.94) [don't have to change any of your client](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=165.56) [code to add in these various new](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=167.23) [behaviors. So this is really a very](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=169.3) [powerful technique to use. So now that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=171.51) [we've covered some of these initial](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=174.9) [principles, let's get familiar with the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=175.98) [example that we're going to use in this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=178.03) [course. In the sample project that we'll](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=179.87) [see in a moment, I have a class called](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=182.88) [WeatherService that I want to add some](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=184.65) [behavior to. This class implements the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=186.66) [IWeatherService interface, and as you can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=189.4) [see, it defines two methods, one for](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=192.02) [getting the current weather conditions and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=194.49) [the other for getting the forecast of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=196.21) [future weather conditions. This](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=197.85) [WeatherService class is a real service](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=200.14) [class. As you'll see in just a moment when](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=202.75) [we open up the code, it calls out to the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=204.6) [OpenWeatherMap API to actually get the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=207.72) [appropriate weather data based on a city](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=209.4) [name that you provide. What we're going to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=211.63) [do is implement two decorator classes, a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=214.37) [LoggingDecorator class and a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=217.08) [CachingDecorator class, and each of these](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=218.59) [represents a typical behavior that you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=221.21) [might want to add to a service class such](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=223.07) [as this. Once we have defined our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=225.26) [decorators, we'll need to wire them up in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=228.55) [our code to use them. Initially, we'll see](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=229.8) [that the sample application is just newing](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=232.84) [up a weather service like the code that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=234.96) [you see at the top of your screen, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=236.65) [then it just uses that service to get the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=238.82) [data that is needed. What we will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=240.62) [transition to is something like you see at](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=243.41) [the bottom of your screen. And here you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=245.58) [can see how these decorator objects wrap](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=247.9) [around each other and ultimately around](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=250.24) [the WeatherService object to form that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=252.37) [onion‑type structure. This sample code](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=254.6) [makes very clear why each of our decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=257.72) [classes needs to define a constructor that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=259.62) [takes an object of the type](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=262.52) [IWeatherService, and that is so we can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=263.87) [build up this structure as we create these](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=266.11) [objects. In addition, you can see the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=268.26) [importance of all of the decorator classes](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=271) [implementing the IWeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=273.18) [interface, because that allows us to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=274.81) [substitute in this entire structure of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=277.12) [objects, whereas before we just had a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=279.2) [simple WeatherService object because](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=281.21) [everything implements that same interface.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=283.47) [So with that, let's go ahead and take a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=286.34) [quick tour of the sample project so we can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=288.18) [start implementing our own decorator classes.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=0&mode=live&start=290.43)

[Sample Project and Source Code](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live)

[You can download the sample application](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=0.94) [both in the course downloads or from the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=2.85) [GitHub repository that you see on your](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=4.98) [screen. Within those downloads, you'll](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=6.68) [find a version of the sample code both for](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=9.37) [.NET Core and .NET Framework. In terms of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=11.62) [implementing the decorator pattern, the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=15.01) [code is the same, save for the part where](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=16.86) [you have to configure your decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=18.89) [classes to work with an IoC Container,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=20.27) [which we'll cover in a few clips. I'll be](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=22.5) [primarily using the .NET Core project in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=25.19) [the demos, but again, the concepts in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=27.53) [code are the same regardless of what](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=30.15) [version of .NET that you're using.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=32.12) [Switching over to the sample application,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=34.84) [we see that we have an ASP.NET MVC web](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=37.06) [application that will serve as a container](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=39.77) [for the code that we write. And what this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=41.97) [app does is it displays the current](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=44.2) [weather conditions for a location on the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=46.08) [home page. By default, we're showing the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=48.1) [weather for Chicago because I'm in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=50.68) [Chicago, but you could also type in any](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=53.42) [city name in this box and the app will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=54.84) [reach out and call the OpenWeatherMap API](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=56.99) [to get the current weather conditions for](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=59.72) [that city and display them on the page.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=61.43) [You can also click on the Forecast link at](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=64.54) [the top of this page, and that will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=66.52) [exercise the other method in our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=68.31) [WeatherService class and give you the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=69.82) [forecast for whatever city you type in. If](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=71.61) [we switch over to the source code, we'll](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=75.3) [see that both the Index and the Forecast](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=77.07) [action methods are implemented in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=79.44) [HomeController for the application. And it](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=81.57) [is in the constructor of the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=85.06) [HomeController that we see that our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=86.38) [WeatherService object is being created](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=88) [right now. And examining this code brings](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=90.06) [up an important point. If you want to be](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=92.94) [able to download this code and run it](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=95.48) [yourself and follow along during the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=97.24) [course, which I highly recommend that you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=98.95) [do, you're going to need to get an API key](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=100.94) [for the OpenWeatherMap API. Otherwise, all](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=104.11) [of these API calls are going to fail on](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=107.6) [you. To get an API key, go to this page:](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=109.8) [openweathermap.org/price, and you can sign](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=114.02) [up for a free account, and once you do,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=118.33) [you'll be able to get an API key. Once you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=120.95) [have that key, just add it into your](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=124.51) [appsettings.json file for ASP.NET Core or](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=126.32) [web.config file for .NET Framework, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=130.15) [then you'll be all set to go. As for the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=132.68) [rest of the code, the IWeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=135.63) [interface is defined in this folder,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=137.49) [WeatherInterface, and alongside it you can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=139.56) [see I have some standardized classes](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=142.19) [representing the current weather](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=144.09) [conditions and the forecast for a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=145.41) [location. So any concrete implementations](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=146.97) [of this interface would need to map their](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=149.97) [results to these standard classes. The](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=151.9) [actual concrete implementation of our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=155.01) [WeatherService class is up here in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=156.81) [OpenWeatherMap folder. So we have two](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=158.92) [classes that represent the actual](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=161.39) [responses that are received from the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=162.86) [OpenWeatherMap API, and then this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=165.25) [WeatherService class is the class that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=166.79) [implements the IWeatherService interface,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=168.96) [and it's the one that actually makes the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=171.35) [API calls out to that RESTful service and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=172.78) [maps the results into our standard](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=175.49) [objects. So with our tour complete, let's](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=177.01) [go ahead and write our first decorator class.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=1&mode=live&start=179.89)

[Creating Your First Decorator Class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live)

[The first decorator class that we're going](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=0.98) [to implement is a decorator to log all the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=2.64) [calls we make to the weather Service. In](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=4.8) [this decorator, we will track each time](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=7.35) [the service gets called, what parameters](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=8.92) [are getting passed to it, what the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=10.88) [response is, and how long each call took.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=12.55) [Now we could implement that functionality](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=15.94) [directly here in our WeatherService class,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=17.63) [but there are a couple of problems with](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=20.22) [that. First, if we start adding a bunch of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=21.65) [logging code into this class, it makes the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=24.34) [class harder to read, and it's harder to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=26.62) [tell exactly what it is doing. There's](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=28.45) [also the possibility that adding more](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=30.97) [logic into this class, we could](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=32.74) [accidentally introduce an error into our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=34.6) [WeatherService code. Second, if we put the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=36.37) [logging code in here, we're now having](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=39.64) [this one class handle multiple concerns,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=41.68) [both fetching the data and logging. And if](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=44.25) [we want to add more concerns later, say](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=46.96) [caching, as we'll do in the next clip,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=48.95) [then we're just exacerbating that problem](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=51.18) [of not following the Single Responsibility](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=53.16) [Principle. So the better approach is to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=55.24) [create a decorator class that is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=57.96) [responsible for logging, and that will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=59.48) [keep each of these classes narrowly](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=61.53) [focused on a single concern, so let's do](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=63.11) [that. To implement a decorator class, I'll](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=65.51) [start by adding a new class in Visual](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=68.47) [Studio. So in my WeatherInterface folder,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=70.435) [I'm going to right‑click and say Add and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=73.16) [then Class, and I will call this class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=75.52) [WeatherServiceLoggingDecorator, and there](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=78.24) [we go. The reason I am adding this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=80.98) [decorator class here in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=83.64) [WeatherInterface folder is because I can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=85.12) [apply this decorator class to any](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=86.95) [implementation that implements the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=89.69) [IWeatherService interface. Decorators are](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=90.46) [based off of the abstraction](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=93.1) [IWeatherService, not any particular](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=94.59) [concrete implementation. So for that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=96.9) [reason, it makes more sense to define our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=99.37) [decorator classes up here in this folder](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=101.27) [next to the interface that they're based](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=103.45) [on. So now that we have this class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=105.24) [created, the first requirement of a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=107.51) [decorator is that it needs to implement](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=109.42) [the same interface or extend the same base](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=111.33) [class as the classes that it will be](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=113.57) [decorating. So I'll go ahead and have this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=115.12) [class implement the IWeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=117.52) [interface, and I'll hit Ctrl+period here](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=119.25) [to have Visual Studio create the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=122.13) [appropriate methods for me, and there we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=123.37) [go. The second requirement of a decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=125.52) [class is that it needs to take an instance](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=128.45) [of the class to be decorated, so in this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=130.31) [case an IWeatherService object. And this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=132.4) [is the object that this decorator class is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=134.93) [wrapping around. So I'll create a member](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=136.84) [variable here named innerWeatherService,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=139.52) [and then in the constructor for this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=143.14) [class, that's going to need to take an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=144.84) [IWeatherService object as a parameter. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=146.59) [I'll do that. And then I'll set the member](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=150) [variable equal to that parameter. Now,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=152.29) [we're also going to need a logger to write](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=155.42) [our data out, so let me go ahead and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=157.02) [create a member variable for the logger,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=158.71) [and then I'll also add a parameter to the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=161.64) [constructor so when this object gets](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=164.41) [created, we can have an instance of a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=165.46) [logger passed in to us. And there we go.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=167.29) [And now we're ready to implement the two](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=171.54) [methods of our decorator class. First, I'm](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=173.14) [just going to put in a default](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=176.67) [implementation for each of these methods](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=177.8) [where the method will just act as a pass](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=179.52) [through and call the innerWeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=181.18) [object. And there we go. At this point,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=183.03) [the class actually will compile, and we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=186.36) [could use it to decorate an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=188.15) [IWeatherService object. However, we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=189.5) [haven't added any functionality at this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=192.08) [point. But I bring this up to point out](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=193.69) [that with a decorator class you need to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=196.25) [provide at least a default implementation](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=198.13) [for every method on the interface or in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=200.15) [the base class, even if it's just a simple](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=202.26) [pass through like this. Otherwise, things](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=204.4) [aren't going to work. So make sure that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=206.99) [you've at least provided an implementation](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=209.26) [for every method, like you see here. Now,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=211.09) [though, let's go ahead and provide our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=214.83) [actual implementations for these methods.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=216.26) [And I'm going to start with the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=218.25) [GetCurrentWeather method. First, we need](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=219.01) [to use the .NET Stopwatch class so we can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=222.27) [time how long this method takes. So there](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=224.9) [we go. And now this is going to mean that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=228.72) [we need to pull our result out into a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=230.72) [local variable. So I'll do that. And then](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=232.54) [I'll return that variable at the end of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=235.91) [the method now. And finally, I'll paste in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=237.47) [a line of code that's going to write all](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=240.6) [this information out to the logger. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=242.45) [there we go, and I'm going to pause here](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=245.68) [for a moment because now this method](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=247.31) [really provides a good example of what the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=249.1) [decorator pattern is all about. We have](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=251.11) [the call to the inner service here on line](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=253.7) [25, but you can see that we've added code](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=256.78) [both before and after this call, which](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=258.62) [gives us the opportunity to insert](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=260.92) [additional functionality around that call.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=262.49) [In this case, we're timing how long the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=265.48) [call takes and logging some information,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=267.2) [but we really could do anything here. We](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=269.29499999999996) [could modify values that are going into](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=271.54) [that inner call, we could modify the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=273.28) [response in some way or take some other](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=274.97) [action, but this example here gives you a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=277.55) [good idea of what you can do with a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=279.38) [decorator because you get a chance to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=280.85) [intercept and wrap this inner method call](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=282.76) [with some additional logic. I'm going to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=284.97) [implement that same functionality down](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=287.96) [here on the GetForecast method, but to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=289.91) [save some time I already have that code](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=291.98) [queued up on the clipboard, so I'll just](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=293.97) [paste that in. And there we go, our first](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=295.48) [decorator class is now completed. We still](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=298.39) [need to tell our application, though, that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=301.45) [we want to use this decorator. So to do](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=303.07) [that I'm going to go over to the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=305.38) [HomeController. And right here at line 27](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=306.5) [where we're creating our WeatherService, I](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=310.43) [want to change this so that when we new up](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=312.65) [the WeatherService, it is wrapped in our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=314.23) [WeatherServiceLoggingDecorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=316.26) [constructor, so let me do that. And now I](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=318.7) [need a logger, so I'll go ahead and create](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=321.69) [one of those that I can pass into our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=323.6) [constructor. And there we go. So now we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=325.09) [have our concrete WeatherService wrapped](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=328.2) [in our WeatherServiceLoggingDecorator. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=330.02) [when we call either of those methods on](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=332.36) [the IWeatherService interface, we should](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=334.15) [see our calls first pass through the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=336.23) [decorator object before they go to the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=337.63) [WeatherService object. And to prove that,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=339.38) [I'm going to come down here to the Index](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=342.12) [action method and I'm going to set a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=343.73) [breakpoint. And now I'm going to go ahead](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=345.7) [and I'm going to run the application.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=348.32) [Okay, now I've hit the breakpoint in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=351.51) [Index method, so let's go ahead and step](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=352.85) [through this code. And you see now that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=354.67) [when I call the GetCurrentWeather method,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=357.25) [I'm landing first on our decorator object.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=359.08) [I'll keep debugging, and now if I step](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=362.18) [into this next GetCurrentWeather method](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=364.38) [call, now I'm down into the WeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=366.59) [object, and this is where the actual API](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=369.25) [call gets made. And so I've got some](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=371.36) [results now, so I'll go ahead and step out](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=374.18) [of this method, and I'm back up in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=376) [logging decorator, so I'll keep going. And](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=378.72) [now I'm back up in the Index method in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=382.67) [HomeController, and I'll let this finish.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=384.77) [And there we go. So, as you can see as we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=387.94) [trace through that call, you can get the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=390.5) [feel for this onion‑like layering where](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=392.02) [the method call first passes through the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=394.26) [decorator and then gets to the actual](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=395.9) [WeatherService object. And this is really](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=397.79) [the essence of the decorator pattern,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=400.31) [where that decorator class is going to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=402.02) [wrap around one or more other objects and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=403.64) [allow you to intercept all of the method](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=406.2) [calls and process some logic in there. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=407.99) [now that we've implemented our first](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=411.25) [decorator class, let's refine our skills further by building a second decorator.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=2&mode=live&start=412.63)

[Using Multiple Decorator Classes Together](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live)

[Let's implement a second decorator class](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=1.04) [so we can see how to use multiple](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=3.14) [decorators together and how they interact.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=4.53) [For this example, I'm going to implement a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=7.44) [decorator that caches our weather request.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=9.16) [So if the same weather conditions or](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=11.84) [forecast is requested for the same city in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=13.4) [a given period of time, we'll use a value](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=15.37) [pulled from our cache instead of making](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=17.56) [another API call. This is another common](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=19.22) [use of the decorator pattern, to cache a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=22.19) [call that goes out to an external service](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=24.42) [or system or otherwise takes a long time](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=26.29) [to execute. Using the decorator to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=28.77) [implement caching gives you a good](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=30.97) [separation of concerns and is a very](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=32.52) [elegant solution to this problem. So I'm](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=34.4) [going to move pretty quickly through the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=37.63) [initial class setup because we saw that in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=38.72) [the previous clip. First, I'll go ahead](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=40.78) [and create the decorator class, and then](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=43.41) [I'm going to implement the IWeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=46.58) [interface. I'll add a member variable for](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=48.33) [the object that I am wrapping, and I will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=51.1) [create my constructor. Now what I need to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=53.41) [do is to add a cache object, and for this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=56.66) [demo, I'm just going to use .NET Core's](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=59.06) [IMemoryCache. So let me add another member](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=61.06) [variable for that. And then I need to add](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=63.74) [that to my constructor. So when this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=66.56) [decorator object gets created, I can have](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=68.47) [that cache object handed to me. So there](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=70.52) [we go. Now, let's go implement the caching](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=72.71) [in our methods, and like before, I'll](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=76.26) [start with the GetCurrentWeather method.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=78.02) [I'll start by defining a cacheKey that I](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=80.91) [want to use. And I'll use some C# string](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=82.91) [interpolation for that. So now what I want](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=85.59) [to do is to check the cache to see if we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=88.58) [have the current weather for this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=90.06) [location. And the way that I do that is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=91.31) [with an if statement, and then on my cache](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=93.53) [object I say TryGetValue. And I'll want a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=97.11) [CurrentWeather object here for the generic](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=100.24) [type, and then I pass in my cacheKey, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=102.37) [then this second parameter is an out](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=106.41) [variable. So if I say out var](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=108.1) [currentWeather, if there's a value in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=110.4725) [cache for this cacheKey, then it's going](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=112.98) [to go ahead and put that value in this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=115.31) [variable. And if there was, I can simply](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=116.98) [return that. If there was not a value in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=120.03) [the cache, then I want to come down here](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=123.26) [and I'll need an else block. And then what](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=125.37) [I'll want to do is I'll want to call](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=128.17) [GetCurrentWeather on that inner object. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=129.73) [this is where the wrapped service is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=132.78) [getting called. Then, once I have that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=134.16) [value, I'll want to add that to the cache.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=137.29) [So I'll do that here, and I'll cache that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=140.1) [value for 30 minutes, and then I'll go](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=143.28) [ahead and return this value. So this is a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=146.35) [little bit of a different implementation](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=149.2) [this time. In this case, if we already](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=150.86) [have the value in the cache, then we never](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=152.91) [need to call the wrapped WeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=154.99) [object. We can short circuit the call and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=156.76) [just return directly the value that we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=159.17) [have. And this is a perfectly valid thing](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=160.87) [to do. In some cases when you intercept a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=163.27) [call, you don't need to go any further.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=165.7) [It's only in our second case when we don't](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=168.64) [have the necessary data in the cache that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=170.64) [we need to keep calling down the stack of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=172.63) [our IWeatherService objects, and we see](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=174.34) [that behavior there. So now, like before,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=176.79) [I'm going to go ahead and copy and paste](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=180.14) [in an implementation for the GetForecast](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=181.87) [method. And then I'm going to go back up](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=184.25) [to the HomeController so we can wire up](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=187.09) [this additional decorator. I could come in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=188.99) [here and wrap these two existing](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=192.73) [constructors with the caching decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=194.29) [constructor that I just created, and that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=196.08) [would work perfectly fine. However, I'm](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=198.05) [not going to do that because when you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=200.69) [start to get three or four layers of these](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=202.23) [decorators, it can get a little bit hard](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=204.34) [to read and see what's going on. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=206.48) [instead, I'm going to paste in some](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=208.87) [different code here. And you can see what](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=210.32) [I'm doing here. I'm just constructing](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=212.9) [things from the inside out, and I'm](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=214.62) [passing each object to the subsequent](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=216.12) [object's constructor. So this is building](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=218.2) [that onion from the inside out. I just](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=220.66) [find this code a little bit easier to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=223.09) [read. So now let's go ahead and run this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=224.71) [so we can step through it. And again, I'm](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=227.74) [landing in the Index action on the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=231.09) [HomeController. If I step into this code,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=232.95) [now you'll see that I'm in the caching](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=236.53) [decorator that we just wrote. And since](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=237.78) [the app just started I expect the cache to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=240.5) [be empty. And indeed we've jumped down](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=242.27) [here to the else block. So now we'll step](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=244.21) [into the next GetCurrentWeather call. And](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=247.26) [you can see that now we're in our logging](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=250.09) [decorator, because remember, the logging](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=251.88) [decorator was the next or the middle layer](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=253.91) [of the onion. So I'll step through that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=256.15) [here, and now into the next](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=258.82) [GetCurrentWeather call. And now I'm in my](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=260.98) [concrete WeatherService class. This will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=263.99) [make the API call, I'm going to actually](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=266.59) [step out of this and let it do it, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=268.44) [you'll see that I'm back up in the logging](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=270.83) [decorator and stepping through. Now I'm](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=272.45) [back up in the caching decorator. And so](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=275.64) [now I'll go ahead and let all this run](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=278.34) [through. What you can see there is that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=280.7) [wrapping or layering effect was very](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=284.4) [apparent because first we started out in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=286.27) [our caching decorator, we moved down into](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=287.97) [the logging decorator, and finally ended](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=290.06) [up in the concrete WeatherService class.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=292.02) [So I'm going to do one more thing, I'm](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=295.54) [going to refresh this page and run through](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=296.83) [everything again. And I'll step into this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=298.57) [method, and you can see that I'm in the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=301.56) [caching decorator again. But this time as](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=303.73) [I step through this, we already have data](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=306.48) [for Chicago. So in this case, I'm just](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=308.79) [going to return right back out. We're not](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=311.47) [going to call down into those other](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=313.21) [objects. So again, another use of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=314.72) [decorators. But you should start to be](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=317.9) [able to see how you can layer these](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=319.94) [individual decorator classes together with](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=321.45) [each one focused on a specific task, but](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=323.58) [building up to the overall functionality](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=326.23) [that you desire. And this is one of the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=328.02) [great strengths of the decorator pattern](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=329.96) [is how we can layer this functionality](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=331.9) [together and add in new functionality as](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=333.44) [needed, or even resequence that functionality as we need to.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=3&mode=live&start=335.51)

[Using Decorators with Dependency Injection](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live)

[These days we're newing up objects like](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=1.07) [you see here less and less, and instead](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=3.1) [we're often using dependency injection to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=5.59) [create our objects for us. So let's](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=7.46) [understand how we can use the decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=9.7) [pattern when we're using dependency](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=11.47) [injection in our applications. If you're](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=13.13) [not familiar with dependency injection,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=16.11) [this is a technique you're going to want](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=18.17) [to get good at because it really is one of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=19.48) [the cornerstones of modern application](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=21.56) [development. We have an excellent course](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=23.49) [here on Pluralsight by my friend, Jeremy](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=25.71) [Clark, that will give you a solid](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=28.04) [foundation in what dependency injection is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=29.12) [all about and how it is used. So if that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=31.09) [is of interest to you, be sure to check](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=33.72) [that course out. I've refactored our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=35.61) [controller class to make use of dependency](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=38.07) [injection, and now you can see we have an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=40.03) [IWeatherService object being injected into](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=42.24) [our constructor, and we no longer have all](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=44.76) [of that code we had before that was](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=47.08) [instantiating our service object and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=49.05) [decorator objects. The creation of an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=50.5) [appropriate IWeatherService object is now](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=53.08) [the responsibility of the IoC, or](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=55.27) [Inversion of Control Container. How the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=57.34) [IoC container is configured varies](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=60.08) [depending on if you're using .NET Core or](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=62.38) [.NET Framework, so we'll look at examples](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=64.41) [of each. If you're using .NET Core, most](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=66.97) [likely you're using the built‑in IoC](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=70.83) [Container. And if you're simply](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=72.84) [configuring the WeatherService class in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=74.66) [the container, your code would look](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=76.48) [something like this: what you see on lines](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=78.3) [35 and 36. So how do we add decorators to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=80.48) [this configuration? There are two](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=84.18) [different ways. First, we can take control](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=86.23) [of the instantiation process. We already](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=89.58) [see on line 36 that I'm providing a lambda](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=92.55) [function to new up a WeatherService API](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=95.13) [object and provided an API key as part of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=97.59) [the constructor. I could expand this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=100.45) [lambda function out like this, though. And](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=102.93) [now you see that familiar code from the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=105.43) [last module within the lambda function. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=107.24) [now, when the HomeController or any other](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=110.37) [piece of code in our application needs an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=112.76) [IWeatherService object, this function is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=114.85) [going to be executed. And as you can see,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=117.4) [this is going to new up the WeatherService](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=120.21) [object surrounded by these decorators. If](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=121.79) [we wanted to add another decorator, we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=125.03) [would just come in and we would modify the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=127.06) [code in this lambda function. If you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=128.74) [prefer a more fluent syntax, you can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=132.1) [install a NuGet package called Scrutor,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=134.11) [and you can see the NuGet install](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=136.54) [information on this page. If you click on](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=138.27) [the Project Site link, that will take you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=141.59) [to the GitHub repository for the project,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=143.64) [which has the documentation about how to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=145.63) [use the library. What this looks like in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=147.36) [our example project is like this. As you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=150.23) [can see, these first 2 lines, lines 35 and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=153.63) [36, are the same as our original](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=156.56) [configuration. What Scrutor gives us,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=158.55) [among other things, is this additional](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=161.58) [extension method, Decorate, and as you can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=164.01) [see, that takes a lambda function, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=166.78) [this lambda function has two arguments.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=169.3) [The first object, inner, represents the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=172.18) [object that the decorator will be wrapping](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=174.56) [around, so the decorated object. And the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=176.89) [second argument represents the IoC](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=179.04) [Container, which in our case we need so we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=181.1) [can get instances of the logger and memory](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=183.77) [cache objects to inject into our decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=186) [objects. Both of these methods work](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=188.8) [equally well and is really just about](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=191.98) [which syntax you prefer. Personally, I](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=194.31) [like the fluent syntax that Scrutor](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=196.98) [provides because I think it's a little bit](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=198.74) [more readable, but you can choose either](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=200.41) [approach. If you're using ASP.NET MVC 5,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=202.57) [you're probably going to be using either](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=207.04) [Autofac or Ninject for your IoC Container.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=208.69) [And in this case, what you want to do is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=211.81) [go to the documentation page for the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=213.91) [library that you're using and do a search](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=215.72) [on decorators. Here, I'm looking at the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=217.7) [documentation for Autofac, and you can see](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=220.83) [that they give examples of how to wire](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=223.52) [things up. The important thing isn't to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=225.22) [remember this exact syntax, but to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=227.95) [remember that if you ever need it, you can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=230.19) [come here and look it up. If you take this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=231.87) [and translate that into our sample](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=234.55) [project, this is what things look like](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=236.45) [when using Autofac as an IoC Container.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=238.59) [Again, when our HomeController or any](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=242.48) [other piece of code needs an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=243.89) [IWeatherService object, it will get not](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=245.12) [just a WeatherService object, but an](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=247.59) [object that has been decorated as we've](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=249.33) [specified here. So the big takeaway from](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=251.13) [this is you can use decorators even when](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=254.51) [you're using dependency injection in your](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=256.82) [applications. You'll get that same wrapped](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=259.49) [object structure like we saw before when](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=261.44) [we were newing up our objects ourselves,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=263.51) [it's just configured a little bit](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=265.69500000000005) [differently, and in this clip, we've seen examples of how to do that.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=4&mode=live&start=266.99)

[The Decorator Pattern in .NET](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live)

[The decorator pattern is not just using](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=1.14) [the code we write as developers, but is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=2.89) [used within .NET itself. And a prime](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=5.03) [example of this is the Stream class and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=7.35) [other associated classes related to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=9.65) [working with streams in .NET. Let's take a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=11.3) [look at these. At the top of the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=13.89) [hierarchy, we have the Stream class. This](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=16.29) [is an abstract class and requires you to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=18.44) [provide implementations for several](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=20.29) [methods. But the most important of these](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=21.91) [are the Read and Write methods. Even](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=24.07) [though this is an abstract class, this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=26.85) [would be equivalent to the interface we](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=28.65) [used in our previous examples. The Stream](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=30.42) [class defines the abstraction that each](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=33.01) [implementation has to fulfill. Then you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=35.15) [have several concrete implementations of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=38.16) [the Stream class, including FileStream,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=40.13) [MemoryStream, and NetworkStream. These are](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=42.23) [the classes that do the actual work of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=44.9) [reading and writing bytes to and from](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=46.75) [these different sources. Each of these](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=48.7) [classes would be equivalent to the Service](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=51.2) [class that we saw in the last example.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=52.94) [Finally, we have a number of classes that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=55.9) [act is decorators. These include the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=58.04) [BufferedStream, GZipStream, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=60.41) [CryptoStream classes. These classes all](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=62.75) [derive from the Stream class, all take a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=65.89) [Stream class in their constructor, and all](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=68.21) [modify the stream in some way. For](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=70.62) [example, the BufferedStream will buffer](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=73.86) [data as you read or write from a stream,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=75.78) [rather than reading or writing just a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=78) [single byte at a time. The GZipStream will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=79.63) [decompress or compress data as it's](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=82.64) [processed. And the CryptoStream will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=84.44) [encrypt or decrypt data. You can use all](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=86.13) [of these classes individually or in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=88.89) [conjunction with one another, but you will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=90.48) [always use these classes with a concrete](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=92.58) [stream. This simple program takes a string](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=95.25) [and writes it to a file. But in doing so,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=99.06) [it is using the CryptoStream class to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=101.82) [encrypt the data in that file, and the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=103.74) [BufferedStream class to improve](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=105.94) [performance by buffering the data before](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=107.57) [it's written. You can see here the same](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=109.43) [wrapping behavior that we saw before where](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=112.12) [CryptoStream and BufferedStream are](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=114.55) [wrapping around our FileStream object and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=116.38) [adding their respective pieces of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=119.03) [functionality. While the classes](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=120.52) [CryptoStream, GZipStream, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=123.17) [BufferedStream don't have the word](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=125.05) [decorator in their names, that is what](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=126.44) [they are, decorator classes because they](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=128.67) [extend the same common base class, Stream,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=131.09) [they take an instance of a Stream object](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=134) [as part of their constructor, and they add](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=135.96) [new behaviors to the stream that they're](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=137.98) [wrapping. Plus, CryptoStream, GZipStream,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=140) [and BufferedStream work with any concrete](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=143.72) [stream you have, whether it's a file,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=145.85) [working with a MemoryStream, or data over](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=148.17) [a network. So the takeaway of all of this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=150.7) [is that the decorator pattern is a pattern](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=153.47) [that you'll not just see in using your](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=155.73) [code, but you'll also see it used in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=157.48) [frameworks and libraries across the .NET ecosystem.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=5&mode=live&start=159.68)

[Making Use of the Decorator Pattern in Your Projects](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live)

[We've introduced the decorator pattern in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=1.1) [this course, coded up a couple of samples,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=2.61) [and seen an instance of how the decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=4.7) [pattern is used within .NET itself. At](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=6.41) [this point, we'll wrap the course up by](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=9.41) [talking about where you might use the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=11.01) [decorator pattern in your code and some](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=12.37) [tips for doing so. One of the places I](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=14.07) [most frequently make use of decorators is](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=16.77) [when I need to apply cross cutting](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=18.91) [concerns. These are things like logging,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=20.36) [performance tracking, caching, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=23.36) [authorization. We saw two examples of this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=24.67) [in the course, and you can recognize from](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=27.83) [these examples how the decorator pattern](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=29.81) [keeps these concerns neatly separated in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=31.77) [another class. So whenever you have these](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=34.22) [cross cutting concerns come up, think](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=36.52) [about if you can implement them using a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=38.57) [decorator pattern. Another type of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=40.18) [behavior we can implement using the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=42.87) [decorator pattern is to modify the data](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=44.4) [that is sent to and from a component. For](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=46.8) [example, say there are certain fields of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=49.55) [an object we need to encrypt and decrypt](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=51.35) [before being passed to a component. Or say](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=53.14) [there are fields whose values we need to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=55.78) [convert, say from U.S. standard units to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=57.26) [the metric system. Both of these problems](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=59.4) [could easily be solved with a decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=61.88) [class. I also want to share a couple](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=63.78) [pieces of advice on implementing the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=66.84) [decorator pattern. One of the requirements](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=68.32) [of the decorator pattern is that you have](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=71.02) [a common interface, or base class, that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=72.59) [both your concrete implementations and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=74.59) [decorated classes can derive from. But](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=76.47) [what if the class you want to add](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=79.33) [functionality to doesn't implement a](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=80.53) [common interface or derive from a common](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=82.33) [base class? What can you do then? The most](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=84.36) [straightforward answer is that you can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=87.48) [extract an interface from the class and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=88.93) [have your class and your decorators](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=91.01) [implement that interface. While you could](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=92.78) [extract this interface manually, you can](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=95.38) [also use the built‑in refactoring tools in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=97.65) [Visual Studio, either with the keyboard](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=99.82) [shortcut of Ctrl+R and then Ctrl+I, or](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=101.97) [through the Edit> Refactor> Extract](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=105.21) [Interface menu item. What if, however, you](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=107.2) [have a class that you don't own, or for](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=110.52) [some reason you cannot change to implement](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=112.37) [an interface? In that case, what you want](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=114.26) [to do is to use another design pattern,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=117.16) [the Adapter pattern, to put a class in](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=119.25) [front of your component and then have the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=121.59) [Adapter pattern implement the interface](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=123.32) [that you have extracted. In this case, the](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=125.52) [Adapter class will be a simple wrapper](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=127.94) [around your Component class, but it will](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=129.84) [give you a class that you control, and](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=131.87) [therefore serve as an extension point that](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=133.55) [you can build your decorator classes](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=135.44) [around. Finally, the decorator pattern,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=136.93) [like all software design patterns, is more](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=140.28) [than just about UML diagrams or](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=142.55) [specifications. They're really a way to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=144.26) [think about solving problems in software.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=146.51) [You've seen how to implement the decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=149.44) [pattern in this course, but keep the big](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=151.09) [ideas of the decorator pattern in mind.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=153.39) [First, using an interface or common base](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=156.14) [class helps us to be able to create](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=158.44) [loosely coupled software by allowing us to](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=159.92) [program to an abstraction. In the case of](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=162.3) [the decorator pattern, though, this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=165.2) [ability to program to an abstraction also](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=167.3) [gives us an extension point for our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=169.65) [classes because now we can create](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=171.19) [decorator classes that wrap around our](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=173.28) [component objects and even around each](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=175.2) [other. And through these decorator](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=177.66) [classes, we can inject functionality into](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=179.58) [the method calls of our component. Being](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=182.19) [able to layer objects together in this](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=185.29) [onion‑type structure and then intercept](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=187.2) [and modify method calls is a very powerful](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=188.945) [idea because it allows us to separate](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=191.76) [concerns and dynamically add new](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=193.67) [functionality when new needs come up. So](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=195.74) [as you work with the decorator pattern,](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=199.11) [keep these ideas in mind. Thank you for](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=200.76) [watching, and I wish you good luck and you continue your studies of design patterns.](https://app.pluralsight.com/player?course=c-sharp-design-patterns-decorator&author=david-berry&name=806b63bb-6e2d-43e0-8d2b-a53afed61b18&clip=6&mode=live&start=203.37)