

# Visitor

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# Opening Discussion

- Do you have any questions about the reading for today?

# Visitor

- This pattern provides a way to perform an operation on all of the elements of some structure. This allows you to change the operation without having to alter the code for the structure itself.
- To do this we define a Visitor interface with a method that is called when an object is “visited” that method also accepts the object being visited as an argument.
- The ConcreteVisitor can collect information, or might be like a simple functor.

# Example

- GoF uses an example of a compiler where the code is compiled to a meta-format and then we pass through that format several times doing different things.
- Without visitor, we need a different method for each type of pass we want to do. That adds a new method to every type in our meta-format. With visitor we just create a new ConcreteVisitor.
- More familiar to you would be having a binary tree and wanting to do different things to the elements.

# Benefits and Drawbacks

- The primary benefit is that it is very easy to add new operations. It is also easy to change that functionality for a single visitor because it sits in a single visitor class.
- This also keeps things related to different operations separated into different visitors.
- When you want to add a new type to the structure, that can be hard. This is because different visitors might handle each subtype differently.

# More Benefits and Drawbacks

- Visitors can work across class hierarchies. An iterator can't do this. The visitor can also be more efficient than an iterator in some cases.
- The visitor can accumulate state where data would have to be passed through if the methods were part of the objects.
- Visitors often require you to break encapsulation in some way.

# Progress Presentations

- Does anyone want to present anything this week for progress on the project working in Java?
- It is critical to understand that sometimes you just have to pick a way to do something and do it.