

Wildcards



Richard Warburton

@richardwarburto | www.insightfullogic.com



Upper Bounded

`List<? extends Cls>`

Lower Bounded

`List<? super Cls>`

Unbounded

`List<?>`

The Substitution Principle

Upper Bounded Wildcards

Lower Bounded Wildcards

Unbounded Wildcards

Conclusions

? extends

- Declare an upper bound for the type parameter
- To get data out of the parameter
- Covariance

? super

- Declare a lower bound for the type parameter
- To put data into the parameter
- Contravariance

Guidelines for Usage

Get data with
extends

Put data with super

Use ? Instead of ?
extends Object

Get and Put
without wildcards

Summary



How Generics and Inheritance interact

Bounded vs. Unbounded Wildcards

How and why to use Wildcards

What about compatibility?