Type Inference

Generic Type Inference
Lambda Expressions
Local Variables
Type Inference

The Java compiler can infer many types from context, cutting down on boilerplate code.

Instantiating generic classes:

```java
LinkedList<String> s = new LinkedList<>();
```

Generic methods:

```java
public <T> void add(T value) { }
```

```java
list.add("A String");
```
Local Variables

With the var keyword, Java can infer the type of a local variable from its initialization expression. The most specific type is inferred.

```java
var theAnswer = 42;
var bike = new Bike();
var mystery; // invalid - no initializer
var nothing = null; // invalid - null has no type
```
Lambda Expressions

Types of parameters to lambda expressions:
Predicate<String> nonEmpty = x -> x.length() > 0;

However, can’t infer the type of a lambda expression:
var lambda = x -> x + 1; // invalid – what type is x?
var lambda = (int x) -> x + 1; // invalid – what is lambda?
IntFunction lambda = (int x) -> x + 1; // OK