Australian National University

Type Inference

J13

Generic Type Inference

Lambda Expressions

Local Variables

Type Inference

Most of the time, Java requires us to explicitly describe the types of values we are dealing with.

Sometimes, things are so obvious that even the Java compiler can figure them out, so you need to write less boilerplate code.

- Instantiating generic classes:

  ```
  LinkedList<String> strings = new LinkedList<>();
  ```

- Generic methods:

  ```
  public static <T> T id(T t) { return t; }
  … MyClass.id(“Hello”) …
  ```

Local Variables

The var keyword lets Java infer the type of a local variable from its initialisation expression, using the most specific type.

```
var theAnswer = 42;
var bike = new Bike();
var mystery; //invalid - no initialiser
var nothing = null; //invalid - null can be anything
```

Lambda Expressions

Types of lambda expressions can be inferred from context:

```
Predicate<String> nonempty = x -> x.length() > 0;
```

Without sufficient context, this does not work:

```
var lambda = x -> x + 1; // invalid - what type is x?
var lambda = (int x) -> x + 1; // invalid - what should
                               // lambda be?
```