Java interfaces

Dr Tom Ridge

2018 Q1

Interfaces

- Java Precisely, section "Interfaces"
- Read more about Java interfaces here: http://docs.oracle.com/javase/tutorial/java/concepts/interface.html

Interfaces

- Java interfaces are a bit like classes

```java
interface SomeInterface {
  int getAge();
  int getHeight();
}
```

- Defines (0 or more) methods, but without giving the implementation (no code!)
- To use them, do:

```java
class A implements SomeInterface {
  ...
}
```

- This means that you **MUST** define the methods getAge, getHeight in class A.

What is the point of interfaces?

Java has a "typing" system. This distinguishes e.g. a string from an int etc.

```java
Person p = new Person("tom","ridge");
print(p.first); // OK

Object o = new Person("tom","ridge");
print(o.first); // error!
```

What is the point of interfaces?

Compare this

```
// version 1
class Student { ... } // has a getName() method

class Teacher { ... } // has a getName() method

Object[] arr = [...]; // all students and teachers

for(int i=0; i<arr.length; i++) {
  print(arr[i].getName()); } // error!
```

with

```
1   // version 2
2   interface Namable { String getName(); }
3
4   class Student implements Namable { ... }
5
6   class Teacher implements Namable { ... }
7
8   Namable[] arr = [...]; // all students and teachers
9
10  for(int i=0; i<arr.length; i++) {
11    print(arr[i].getName()); } // OK!
```