Introduction to Scala

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Why ?

```
//
// ComplexNumber.java

public class ComplexNumber {
        private final double real;
    private final double imaginary;

    public ComplexNumber (double r, double i) {
        real = r;
        imaginary = i;
    }

    public double getRealPart () {
        return real;
    }

    public double getImaginaryPart () {
        return imaginary;
    }


}
```

Key Point

The JVM is amazing.

Java - the language, not so much.

What is Scala ?

$$Scala = \int_{OOP}^{Functional} Concepts$$

Object Oriented

Everything is an object. Even functions.

Less verbose syntax

```
class ComplexNumber(val real: Double,
        val imaginary: Double)
```

```


val origin = new ComplexNumber(0, 0)

/* access */
println(origin.real)
println(origin.imaginary)

/* x = 10 + 0i */
val x = origin.copy(real=10)
```

Java Interop

All java libraries are accessible

```
import java.util.Scanner

val stdin = new Scanner(System.in)

val text = stdin.nextLine()
val i = stdin.nextInt()
```

Functional

```
val sumOfSquares = 1.until(10).map(math.pow(_, 2)).sum
```

Other Features

```
def factorial(n: BigInt): BigInt =
        if (n == 0) 1 else n * factorial(n-1)

val f50 = factorial(50)
```

```
val document = <ids>
<id>123</id>
<id>563423</id>
</id>

val nodes = document \\ "id"
println (nodes.map(_.text))
```