

# SCALA

## Types

Boolean

Byte Short Int Long

Char

Float Double

String

JAVA Primitives

Unit — Void

Null

Nothing (Subtype of others / include "no")

Any

AnyRef (Any to Ref's type)

## SCALA Basics

LATER

# Functional Programming

## Partially Applied

$f = \text{sum}(1, 2, \_)$   
↑ will need to specify later

$f(2)$

## Impure

SCALA variables is modifiable within scope.

```
add = (x: Int) => {  
    n = x + n    ← n is modified  
    n  
}
```

Tail Recursion — Call function itself without extra work

$\text{return } x * \text{fac}(x-1) \longleftrightarrow \dots \text{fac}(x, \text{x * acc})$   
Not Tail                      Tail

Higher Order

Take Function as args  
Return Function

Currying Functions as Return Value

```
add(x: Int): Int => Int => {  
    return (y: Int) => x + y  
}
```

With Special Syntax       $\text{sum}(\text{f: Int => Int}, \text{a: Int}, \text{b: Int})$        $\text{sum}$  as  
pass f      where f is