Java to Scala

[Scala for Java Developers] http://www.scala-lang.org/docu/files/ScalaTutorial.pdf (http://www.scala-lang.org/docu/files/ScalaTutorial.pdf)

In [1]:
```
import java.util.{Date, Locale}
import java.text.DateFormat._
```

```
import java.util.{Date, Locale}
import java.text.DateFormat._
```

In [5]:
```
println(getDateInstance(LONG,Locale.UK).format(new Date()))
```

```
29 May 2017
```

In [3]:
```
println(getDateInstance(LONG,Locale.US) format new Date)
```

```
May 29, 2017
```

In [4]:
```
println(getDateInstance(LONG,Locale.GERMANY) format new Date)
```

```
29. Mai 2017
```

CLASSES

In [6]:
```
class Person(name:String, age:Int){
  def name =name
  def age = age //fun is also first class Citizen//name is defining ag
ain
}
```

```
Main.scala:24: overloaded method name needs result type
  def name =name
           ^
Main.scala:25: overloaded method age needs result type
  def age = age
           ^
```

In [6]:
```
class Person(name:String, age:Int){
  def name :String =name
  def age:Int = age
}
```

```
Main.scala:24: ambiguous reference to overloaded definition,
both method name in class Person of type => String
and  value name in class Person of type String
match expected type String
  def name :String =name
                    ^
Main.scala:25: ambiguous reference to overloaded definition,
both method age in class Person of type => Int
and  value age in class Person of type Int
match expected type Int
  def age:Int = age
                ^
```

In [6]:
```
class Person(name, age){
  def name():String =name
  def age() :Int = age
}
```

```
Failure(")":1:14 ..."name, age)")
```

In [6]:
```
class Person(name, age){
}
```

```
Failure(")":1:14 ..."name, age)")
```

In [11]:
```
class Person(name:String, age:Int){
  def name():Int =name
  def age() :Int = age
}
```

```
defined class Person
```

In [14]:
```
val p = new Person("b",30)
```

```
p: Person = cmd10$$user$Person@5a0661fa
```

In [15]:
```
p name
```

```
java.lang.reflect.InvocationTargetException
  sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)

sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl
.java:57)
```

```
sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAcce
ssorImpl.java:43)
  java.lang.reflect.Method.invoke(Method.java:606)

ammonite.Interpreter$$anonfun$evaluate$1$$anonfun$apply$9.apply(Inte
rpreter.scala:325)
  ammonite.Interpreter$.evaluating(Interpreter.scala:291)

ammonite.Interpreter$$anonfun$evaluate$1.apply(Interpreter.scala:325
)

ammonite.Interpreter$$anonfun$evaluate$1.apply(Interpreter.scala:324
)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.Interpreter$$anon$5$$anonfun$flatMap$5.apply(Interpreter.sc
ala:303)

ammonite.Interpreter$$anon$5$$anonfun$flatMap$5.apply(Interpreter.sc
ala:302)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)
```

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ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
```

```
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.Interpreter$$anon$4$$anonfun$flatMap$4.apply(Interpreter.sc
ala:246)

ammonite.Interpreter$$anon$4$$anonfun$flatMap$4.apply(Interpreter.sc
ala:240)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.Interpreter$$anon$3$$anonfun$flatMap$3$$anonfun$apply$7.app
ly(Interpreter.scala:232)

ammonite.Interpreter$$anon$3$$anonfun$flatMap$3$$anonfun$apply$7.app
ly(Interpreter.scala:232)

ammonite.util.Capture$$anonfun$ammonite$util$Capture$$withErr$1.appl
y(Capture.scala:46)
  scala.util.DynamicVariable.withValue(DynamicVariable.scala:58)
  scala.Console$.withErr(Console.scala:80)

ammonite.util.Capture$.ammonite$util$Capture$$withErr(Capture.scala:
42)
  ammonite.util.Capture$$anonfun$3.apply(Capture.scala:59)
  ammonite.util.Capture$$anonfun$withOut$1.apply(Capture.scala:37)
  scala.util.DynamicVariable.withValue(DynamicVariable.scala:58)
```

```
  scala.Console$.withOut(Console.scala:53)
  ammonite.util.Capture$.withOut(Capture.scala:33)
  ammonite.util.Capture$.withOutAndErr(Capture.scala:59)
  ammonite.util.Capture$.apply(Capture.scala:106)

ammonite.Interpreter$$anon$3$$anonfun$flatMap$3.apply(Interpreter.sc
ala:232)

ammonite.Interpreter$$anon$3$$anonfun$flatMap$3.apply(Interpreter.sc
ala:231)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.Interpreter$$anon$2$$anonfun$flatMap$2.apply(Interpreter.sc
ala:205)

ammonite.Interpreter$$anon$2$$anonfun$flatMap$2.apply(Interpreter.sc
ala:204)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)

ammonite.InterpreterAction$$anonfun$flatMap$1$$anonfun$apply$3.apply
(Interpreter.scala:44)
  scala.util.Either$RightProjection.flatMap(Either.scala:522)

ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:44)
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ammonite.InterpreterAction$$anonfun$flatMap$1.apply(Interpreter.scal
a:43)
  ammonite.InterpreterAction$$anon$1.apply(Interpreter.scala:57)

jupyter.scala.ScalaInterpreter$$anon$2.interpret(ScalaInterpreter.sc
ala:209)

jupyter.kernel.interpreter.InterpreterHandler$$anonfun$execute$1$$an
onfun$apply$6.apply(InterpreterHandler.scala:118)

jupyter.kernel.interpreter.InterpreterHandler$$anonfun$execute$1$$an
onfun$apply$6.apply(InterpreterHandler.scala:100)

jupyter.kernel.interpreter.InterpreterHandler$$anonfun$jupyter$kerne
l$interpreter$InterpreterHandler$$publishing$1$$anonfun$2.apply(Inte
rpreterHandler.scala:68)

jupyter.kernel.interpreter.InterpreterHandler$$anonfun$jupyter$kerne
l$interpreter$InterpreterHandler$$publishing$1$$anonfun$2.apply(Inte
rpreterHandler.scala:68)
  scalaz.concurrent.Task$.Try(Task.scala:386)

scalaz.concurrent.Task$$anonfun$unsafeStart$1.apply(Task.scala:295)

scalaz.concurrent.Task$$anonfun$unsafeStart$1.apply(Task.scala:295)

scalaz.concurrent.Future$$anonfun$apply$15$$anon$4.call(Future.scala
:380)

scalaz.concurrent.Future$$anonfun$apply$15$$anon$4.call(Future.scala
:380)
  java.util.concurrent.FutureTask.run(FutureTask.java:262)

java.util.concurrent.ThreadPoolExecutor.runWorker(ThreadPoolExecutor
.java:1145)

java.util.concurrent.ThreadPoolExecutor$Worker.run(ThreadPoolExecuto
r.java:615)
  java.lang.Thread.run(Thread.java:745)
java.lang.StackOverflowError
  cmd10$$user$Person.name(Main.scala:24)
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```

In [10]:
```
p age
```

```
res9: Int = 30
```

In [24]:
```
class Person(name:String, age:Int){
  val _name = name
  def name():String =name
  def age() :Int = age
}
```

```
defined class Person
```

In [20]:
```
val p = new Person("buddy",30)
```

```
p: Person = cmd18$$user$Person@7b435b90
```

In [21]:
```
p name
```

```
res20: String = "buddy"
```

In [22]:
```
p _name
```

```
res21: String = "buddy"
```

In [28]:
```
//anything under {} primary constructor
```

In [29]:
```
println(p)
```

```
cmd18$$user$Person@7b435b90
```

In [29]:
```
class Person(name:String, age:Int)
val p = new Person("buddy",30)
p.name //variable
```

```
Main.scala:30: value name is not a member of $user.this.Person
p.name //variable
  ^
```

In [30]:
```
case class Person(name:String, age:Int)//automatic obj class - static singleton class, instantiating class
val p = new Person("buddy",30)
p.name //variable
```

```
defined class Person
p: $user.Person = Person("buddy", 30)
res29_2: String = "buddy"
```

In [31]:
```
println(p)
```

```
Person(buddy,30)
```

In [33]:
```
case class Person(name:String, age:Int)//getter setter already impleme nted
val p = Person("buddy",30)//new not reqd, Person.Apply() method instea d
p.name //variable
println(p)
```

```
Person(buddy,30)
```

```
defined class Person
p: $user.Person = Person("buddy", 30)
res32_2: String = "buddy"
```

In [34]:
```
class Person(name:String, age:Int){
  def name():String =name
  def age() :Int = age
  override def toString()={
    "Person with name "+name+" at an age of "+age
  }
}
val p=new Person("ABC",45)
```

```
defined class Person
p: $user.Person = Person with name ABC at an age of 45
```

Pattern Matching / Decomposition

pattern maching - crieteria -type,vale, reg expn, decomposition itself

In [35]:
```
abstract class Shape
case class Square(s:Int) extends Shape
case class Rectangle(l:Int,b:Int) extends Shape
def printObj(x:Shape) = x match{
  case Square(s) => println("Square: "+s)
  case Rectangle(x,y)=>println("Rectangle: "+x+"::"+y)
}
```

```
defined class Shape
defined class Square
defined class Rectangle
defined function printObj
```

In [36]:
```
printObj(Square(3)) //type cast down to Square from Shape and assign 3 to s
printObj(Rectangle(4,5))//para are decomposed, accessing the variable. Polymorphism - which class it belongs to
```

```
Square: 3
Rectangle: 4::5
```

In [39]:
```
abstract class Shape
case class Square(s:Int,t:Int) extends Shape
case class Rectangle(l:Int,b:Int) extends Shape
def printObj(x:Shape) = x match{
  case Square(s,t) => println("Square: "+s+" and t: "+t)
  case Rectangle(x,y)=>println("Rectangle: "+x+"::"+y)
}
```

```
defined class Shape
defined class Square
defined class Rectangle
defined function printObj
```

In [40]:
```
printObj(Square(3,6))
printObj(Rectangle(4,5))
```

```
Square: 3 and t: 6
Rectangle: 4::5
```

In [40]:
```
abstract class Shape
case class Square(s:Int) extends Shape
case class Square(s:Int,t:Int) extends Shape
case class Rectangle(l:Int,b:Int) extends Shape
def printObj(x:Shape) = x match{
  case Square(s) => println("Square: "+s)
  case Square(s,t) => println("Square: "+s+" and t: "+t)
  case Rectangle(x,y)=>println("Rectangle: "+x+"::"+y)
}
```

```
Main.scala:28: Square is already defined as case class Square
              abstract class Shape ; case class Square(s:Int) extend
s Shape ; case class Square(s:Int,t:Int) extends Shape ; case class
Rectangle(l:Int,b:Int) extends Shape ; def printObj(x:Shape) = x mat
ch{

^
Main.scala:29: wrong number of arguments for pattern $user.this.Squa
re(s: Int,t: Int)
  case Square(s) => println("Square: "+s)
             ^
```

In [ ]: