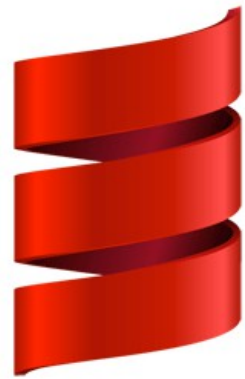


Scala Fundamentals



Scala

Introduction

What is Scala?

- ❖ Scala is an open source software programming language developed based on Java.
- ❖ The name 'Scala' stands for its scalability to grow and evolve in accordance with the developers expectations.
- ❖ Scala fits a wide range of cases, including large server side systems development.

What is Scala?

- ❖ Scala is a blend of object oriented programming and a functional one. This mixture is the source of its strength.

Scala Advantages

- ❖ The Scala programming language includes constructs that allow us easily adjust our code to changes over time (e.g. mixing in types, developing our own control structures).

Scala Advantages

- ❖ Scala is an object oriented programming language. Every value is an object. Using Scala we can enjoy all benefits we are familiar with when using other OOP languages.
- ❖ Scala is a functional programming language. We can enjoy the benefits of functional programming.

Scala Advantages

- ❖ Scala is compatible with Java. The two languages are interoperable with each other. We can integrate the code we write in Scala with our code in Java and vice versa.

Scala Advantages

- ❖ Comparing with Java, when using Scala our code becomes significantly shorter.

Java Source Code

```
class Rectangle
{
    private double width;
    private double height;
    public Rectangle (double width, double height)
    {
        this.width = width;
        this.height = height;
    }
}
```

Scala Source Code

```
class Rectangle(var width: Double, var height: Double)
```


Scala History

- ❖ The design of Scala started in 2001 at EPFL by Martin Odersky, who had previously worked on the 'java' and 'javac' compilers.
- ❖ Large part of Scala's syntax reminds capabilities we know from Java and C#. Many of its features were already applied in one way or another in other software programming languages.

Scala Standard Installation

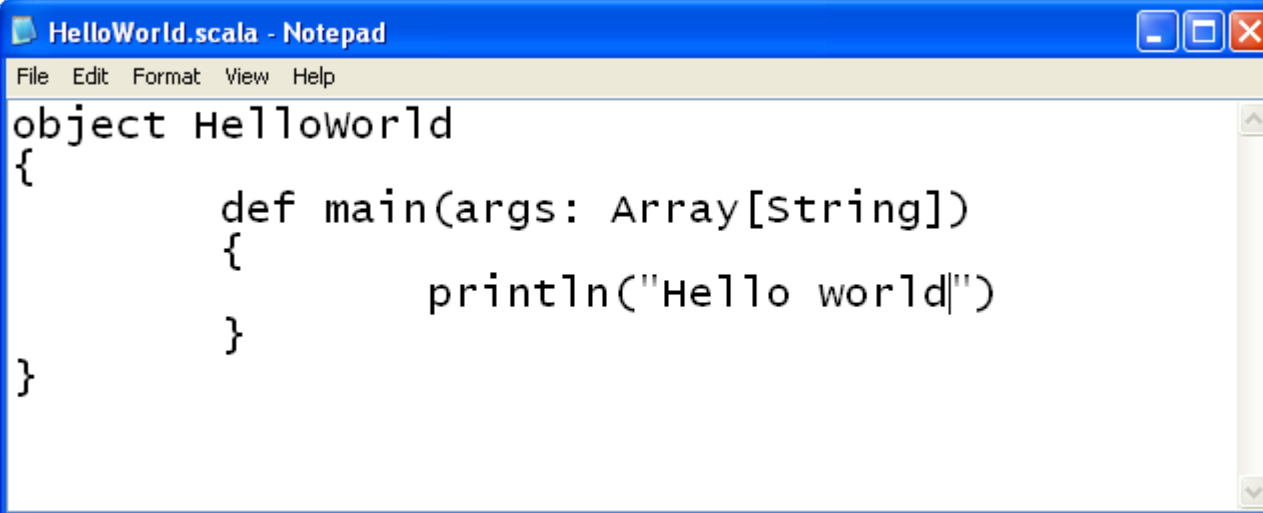
- ❖ The simplest start would be to use Scala's standard installation. You can find it at www.scala-lang.org/downloads. You can write your code using any text editor.



Hello World

- ❖ Using the command line, the 'scalac' utility will compile our code and the 'scala' utility will execute it. The source code file should be saved with the '.scala' extension.

Hello World

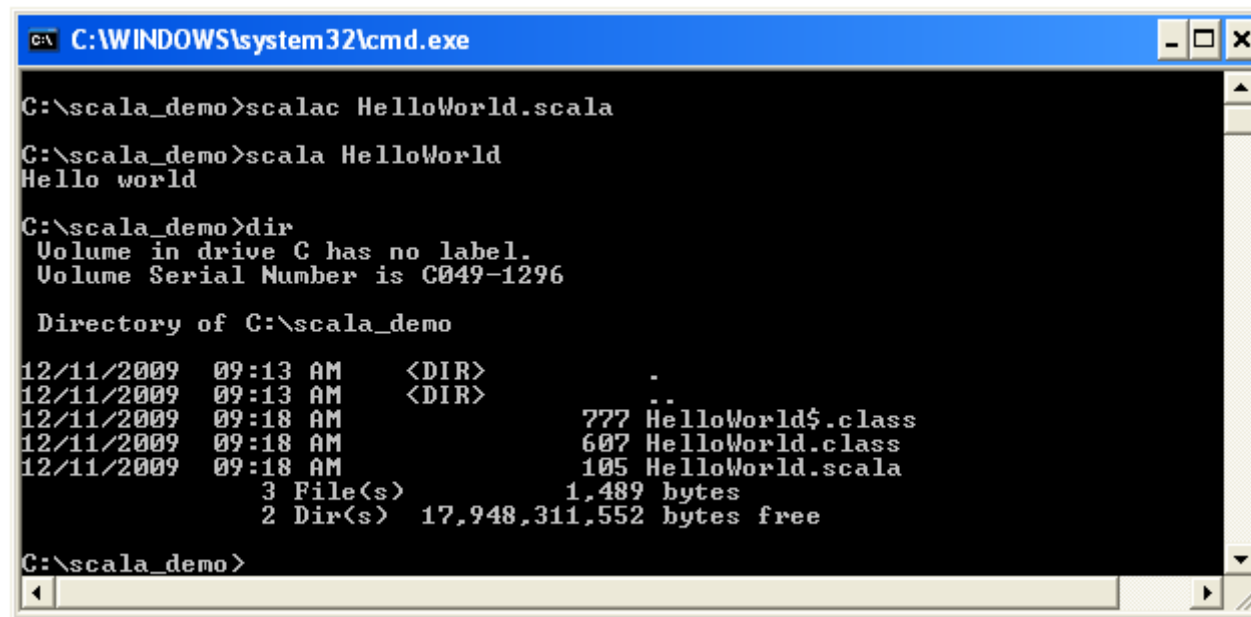


```
object HelloWorld
{
    def main(args: Array[String])
    {
        println("Hello world")
    }
}
```



Hello World

- ❖ The result of compiling our code is a new file with the '.class' extension. The same as happens when compiling a Java source code file.



```
C:\WINDOWS\system32\cmd.exe

C:\scala_demo>scalac HelloWorld.scala

C:\scala_demo>scala HelloWorld
Hello world

C:\scala_demo>dir
Volume in drive C has no label.
Volume Serial Number is C049-1296

Directory of C:\scala_demo

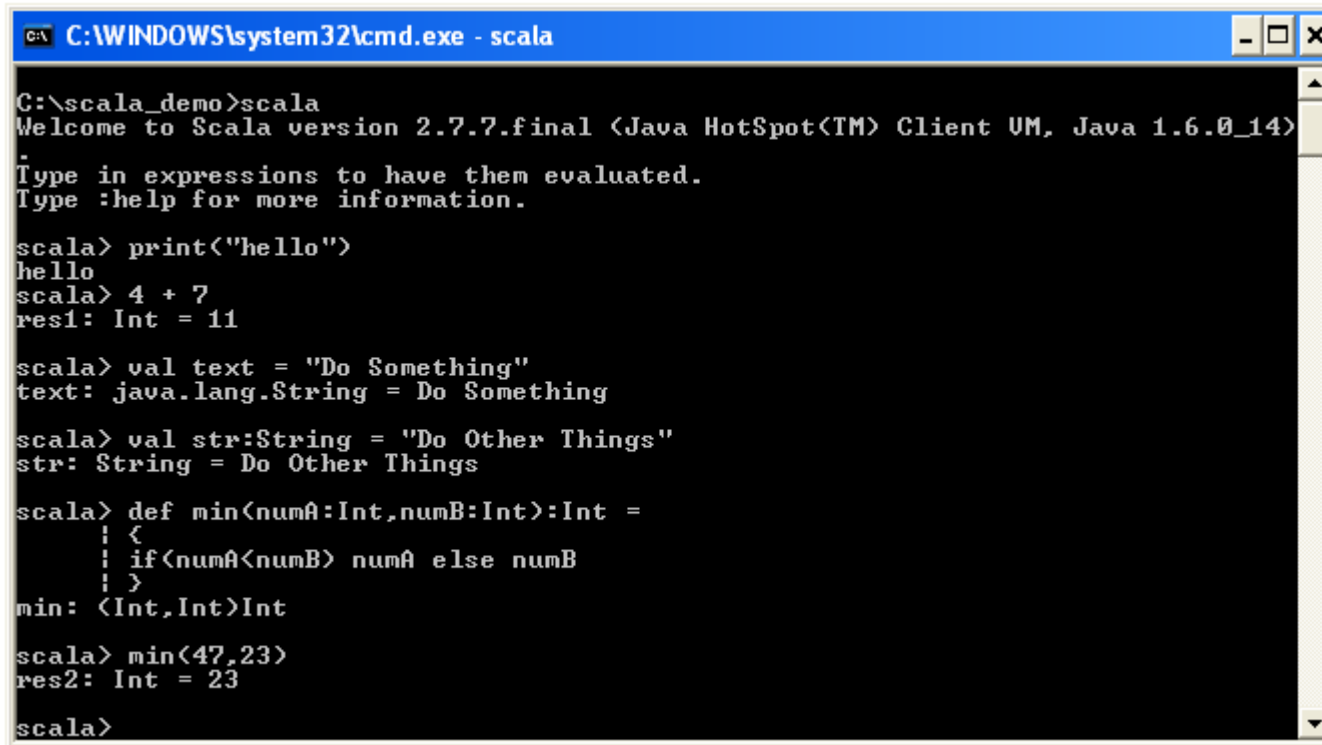
12/11/2009  09:13 AM    <DIR>          .
12/11/2009  09:13 AM    <DIR>          ..
12/11/2009  09:18 AM                777 HelloWorld$.class
12/11/2009  09:18 AM                607 HelloWorld.class
12/11/2009  09:18 AM                105 HelloWorld.scala
               3 File(s)                1,489 bytes
               2 Dir(s)  17,948,311,552 bytes free

C:\scala_demo>
```

The Scala Interpreter

- ❖ Calling the 'scala' utility without passing over a name of a Scala source code file will open an interpreter command line window through which we will can write our code and get its immediate evaluation.

The Scala Interpreter



```
C:\WINDOWS\system32\cmd.exe - scala
C:\scala_demo>scala
Welcome to Scala version 2.7.7.final (Java HotSpot(TM) Client VM, Java 1.6.0_14)
Type in expressions to have them evaluated.
Type :help for more information.

scala> print("hello")
hello
scala> 4 + 7
res1: Int = 11

scala> val text = "Do Something"
text: java.lang.String = Do Something

scala> val str:String = "Do Other Things"
str: String = Do Other Things

scala> def min(numA:Int,numB:Int):Int =
  | {
  |   if(numA<numB) numA else numB
  | }
min: (Int,Int)Int

scala> min(47,23)
res2: Int = 23

scala>
```

Installing Scala Plugin for Eclipse

- ❖ We can develop Scala applications using an IDE as well.
Scala plugins are available for Eclipse, Netbeans and IntelliJ.



Scala Development in Eclipse

- ❖ Once the Scala plugin for the Eclipse IDE was installed we can start using the Eclipse IDE for developing code in Scala.
- ❖ You should first create a new Scala Project and then you can add into that project the code you write in Scala.



Scala Development in Eclipse

