

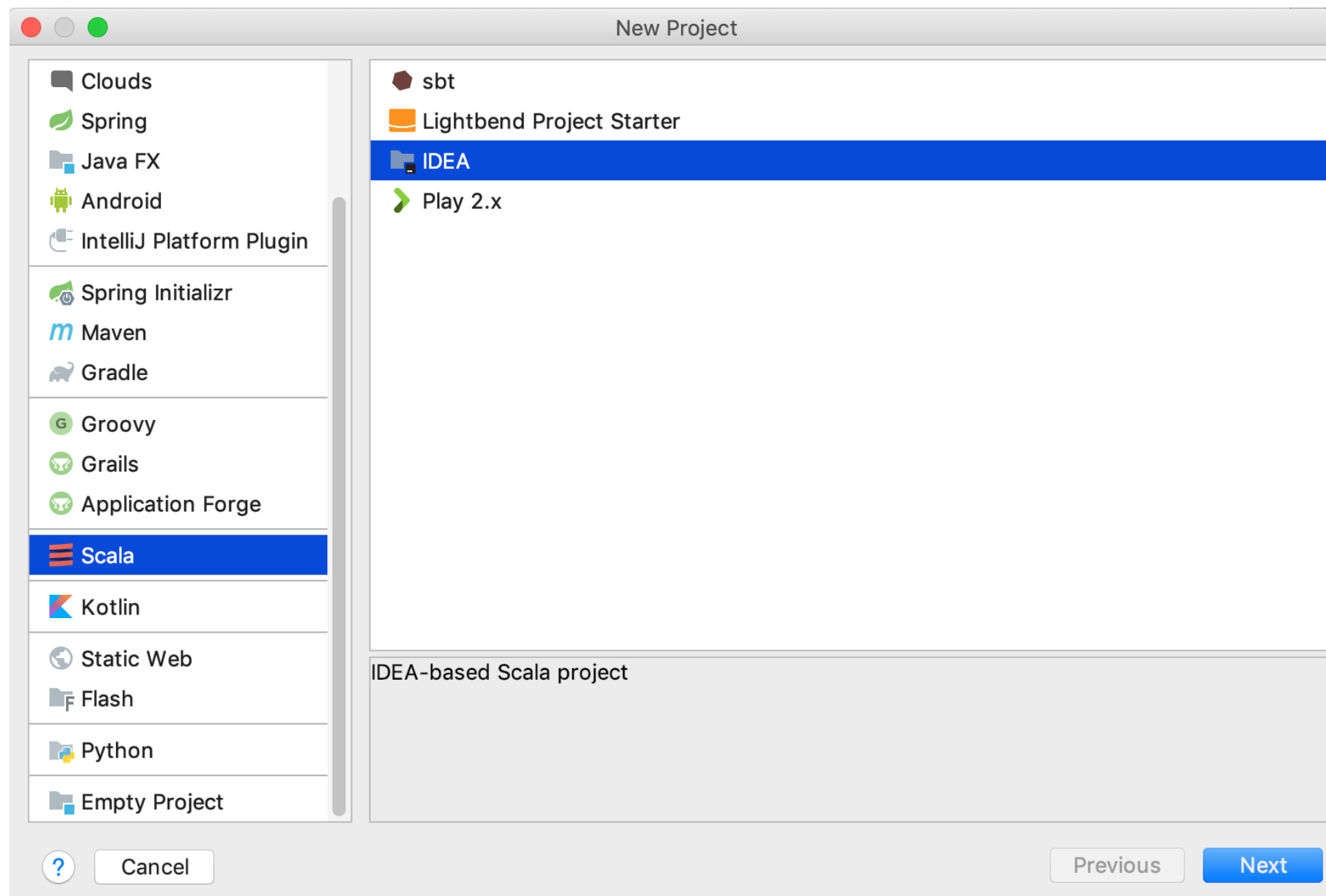
Scala Basics

Lecture Question

- In a package named "lecture" create an object named "FirstObject" with a method named "computeShippingCost" that takes a Double representing the weight of a package as a parameter and returns a Double representing the shipping cost of the package
- The shipping cost is (\$) $5 + 0.25$ for each pound over 30
 - Every package weighing 30 pounds or less will cost 5 to ship
 - A package weighing 31 pounds cost 5.25 to ship
 - A package weighing 40 pounds cost 7.50 to ship
- Submit a zip file of your project to AutoLab: File > Export to zip file

Hello World

Scala Basics



Project setup

Create new IDEA Scala project in IntelliJ

Scala Basics

```
package example
```

```
object Hello {
```

```
  def main(args: Array[String]): Unit = {  
    println("Hello Scala!")  
  }
```

```
}
```

A first example in Scala

Prints "Hello Scala!" to the screen

Scala Basics

```
package week1.basics
```

```
object Hello {
```

```
  def main(args: Array[String]): Unit = {  
    println("Hello Scala!")  
  }
```

```
}
```

Package declaration

Must match the directory structure in the src directory

This file is saved in the directory "src/week1/basics"

To create a package, right click the src directory > new > package

Scala Basics

```
package week1.basics
```

```
object Hello {
```

```
  def main(args: Array[String]): Unit = {  
    println("Hello Scala!")  
  }
```

```
}
```

Objects

Objects can store variables and functions*

Name must match its filename

This code is in the file "src/week1/basics/Hello.scala"

*We call them methods when they are declared using the "def" keyword

Scala Basics

```
package week1.basics
```

```
object Hello {
```

```
  def main(args: Array[String]): Unit = {  
    println("Hello Scala!")  
  }
```

```
}
```

Main Method

The method that executes when you run your object/program

Will always have the header "**def** main(args: Array[String]): Unit"

Scala Basics

```
package week1.basics
```

```
object Hello {
```

```
  def main(args: Array[String]): Unit = {  
    println("Hello Scala!")  
  }
```

```
}
```

Print Line

Prints "Hello Scala!" to the screen

Functions
Variables
Objects

```
package week1.basics
```

```
object FirstObject {
```

```
  def multiplyByTwo(input: Double): Double = {  
    input * 2.0  
  }
```

```
  def main(args: Array[String]): Unit = {  
    var x: Double = 7.0  
    var result = multiplyByTwo(x)  
    println(result)  
  }
```

```
}
```

Prints 14.0 to the screen

```
package week1.basics
```

```
object FirstObject {
```

```
  def multiplyByTwo(input: Double): Double = {  
    input * 2.0  
  }
```

```
  def main(args: Array[String]): Unit = {  
    var x: Double = 7.0  
    var result = multiplyByTwo(x)  
    println(result)  
  }
```

```
}
```

Functions

Must declare types!

This function takes a Double as a parameter and returns a Double

Returned value is the last expression that's evaluated

```
package week1.basics

object FirstObject {

  def multiplyByTwo(input: Double): Double = {
    input * 2.0
  }

  def main(args: Array[String]): Unit = {
    var x: Double = 7.0
    var result = multiplyByTwo(x)
    println(result)
  }

}
```

Variables

Type declaration optional, but helpful

Creates a mutable* variable named **x** of type Double and initializes it to the value 7.0

*Value can change

```
package week1.basics

object FirstObject {

  def multiplyByTwo(input: Double): Double = {
    input * 2.0
  }

  def main(args: Array[String]): Unit = {
    var x: Double = 7.0
    var result = multiplyByTwo(x)
    println(result)
  }

}
```

Variables

Variable declaration without a type

Type is inferred by the return type of the function

Conditionals

```
package week1.basics
```

```
object Conditional {
```

```
  def computeSize(input: Double): String = {  
    val large: Double = 60.0  
    val medium: Double = 30.0  
    if (input >= large) {  
      "large"  
    } else if (input >= medium) {  
      "medium"  
    } else {  
      "small"  
    }  
  }  
}
```

```
  def main(args: Array[String]): Unit = {  
    println(computeSize(70.0))  
    println(computeSize(50.0))  
    println(computeSize(10.0))  
  }
```

```
}
```

Prints:

large

medium

small


```
package week1.basics
```

```
object Conditional {
```

```
  def computeSize(input: Double): String = {  
    val large: Double = 60.0  
    val medium: Double = 30.0
```

```
    if (input >= large) {  
      "large"  
    } else if (input >= medium) {  
      "medium"  
    } else {  
      "small"  
    }  
  }
```

```
  def main(args: Array[String]): Unit = {  
    println(computeSize(70.0))  
    println(computeSize(50.0))  
    println(computeSize(10.0))  
  }
```

```
}
```

Conditional

No return statements

The conditional determines which expression evaluates last
-Any code after the conditional would break this example

Project Setup Demo

Lecture Question

- In a package named "lecture" create an object named "FirstObject" with a method named "computeShippingCost" that takes a Double representing the weight of a package as a parameter and returns a Double representing the shipping cost of the package
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