Session 16:
SCALA BASICS 3
Assignment 1

TASK 1:

Create a calculator to work with rational numbers.

Requirements:

➢ It should provide capability to add, subtract, divide and multiply rational Numbers

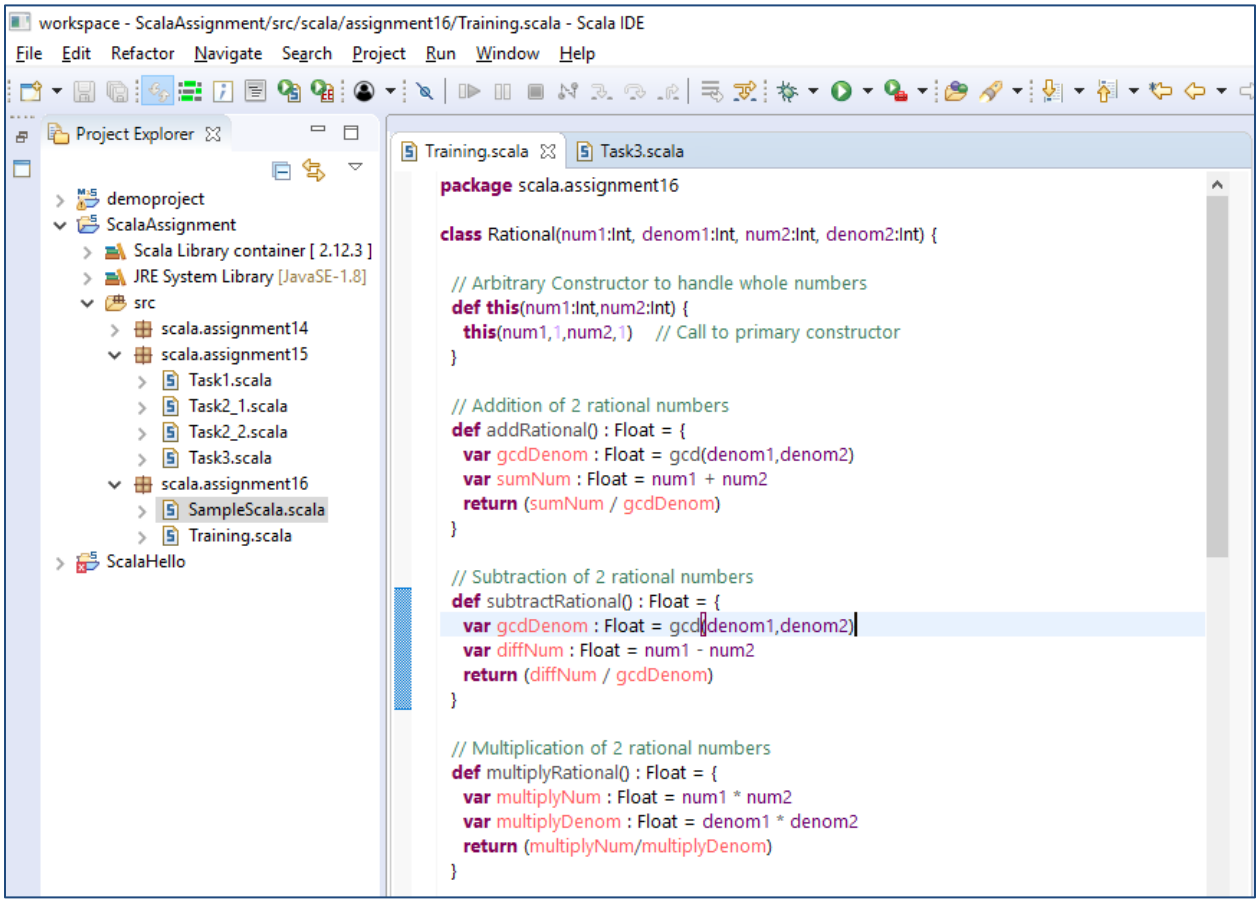
➢ Create a method to compute GCD (this will come in handy during operations on rational)

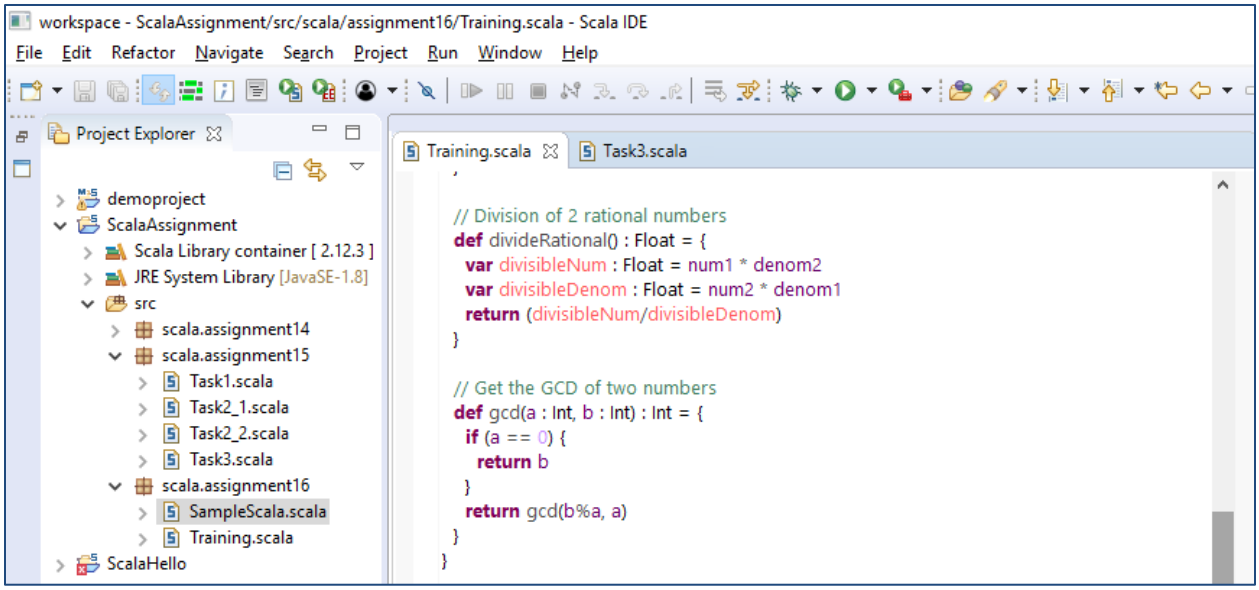
Add option to work with whole numbers which are also rational numbers i.e. (n/1)

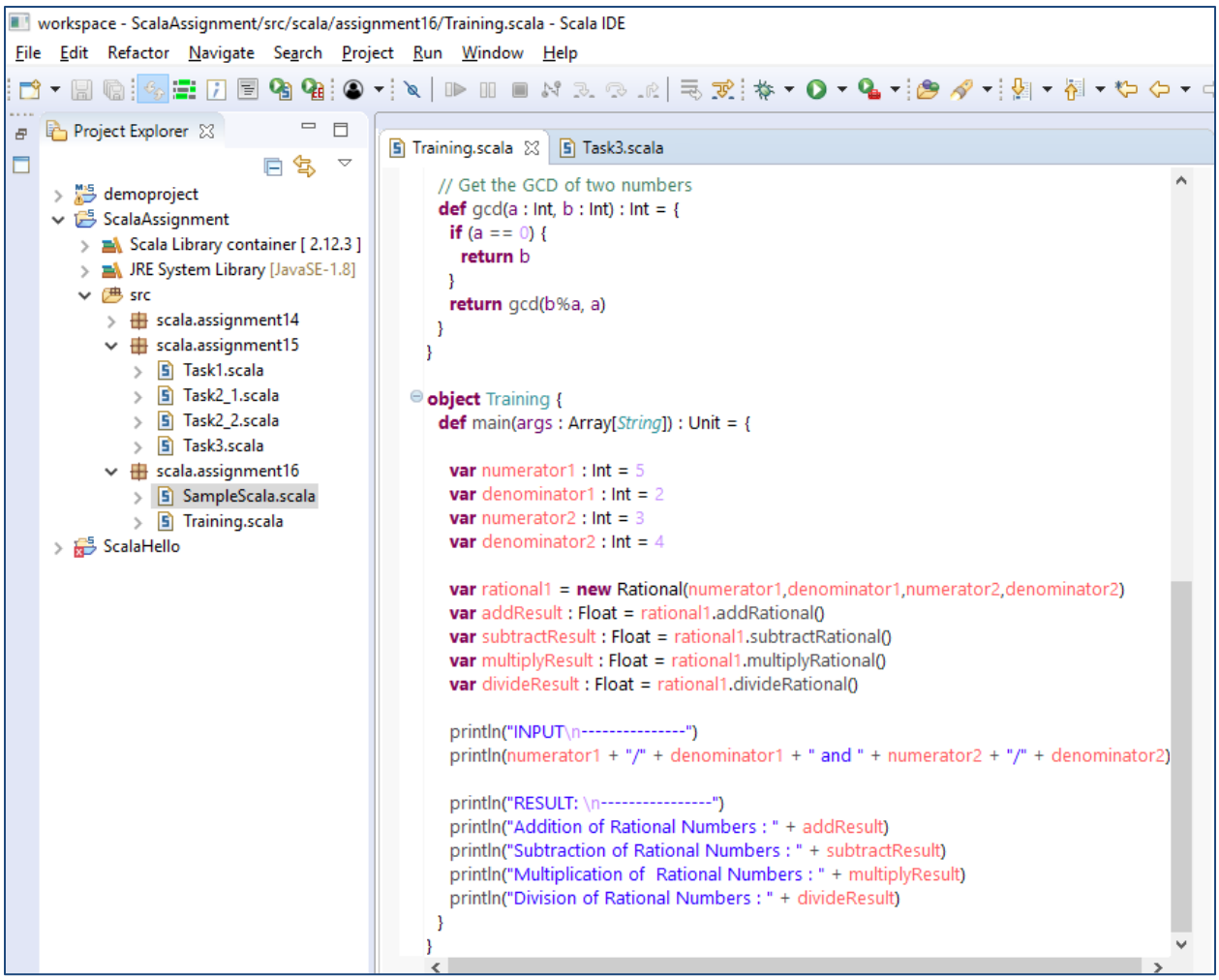
➢ achieve the above using auxiliary constructors

➢ enable method overloading to enable each function to work with numbers and rational.

EXECUTION:




workspace - ScalaAssignment/src/scala/assignment16/Training.scala - Scala IDE
File Edit Refactor Navigate Search Project Run Window Help
Project Explorer
demoproject
ScalaAssignment
Scala Library container [2.12.3]
JRE System Library [JavaSE-1.8]
src
scala.assignment14
scala.assignment15
Task1.scala
Task2_1.scala
Task2_2.scala
Task3.scala
scala.assignment16
SampleScala.scala
Training.scala
ScalaHello
Training.scala
Task3.scala
// Division of 2 rational numbers
def divideRational() : Float = {
var divisibleNum : Float = num1 * denom2
var divisibleDenom : Float = num2 * denom1
return (divisibleNum/divisibleDenom)
}
// Get the GCD of two numbers
def gcd(a : Int, b : Int) : Int = {
if (a == 0) {
return b
}
return gcd(b%a, a)
}
}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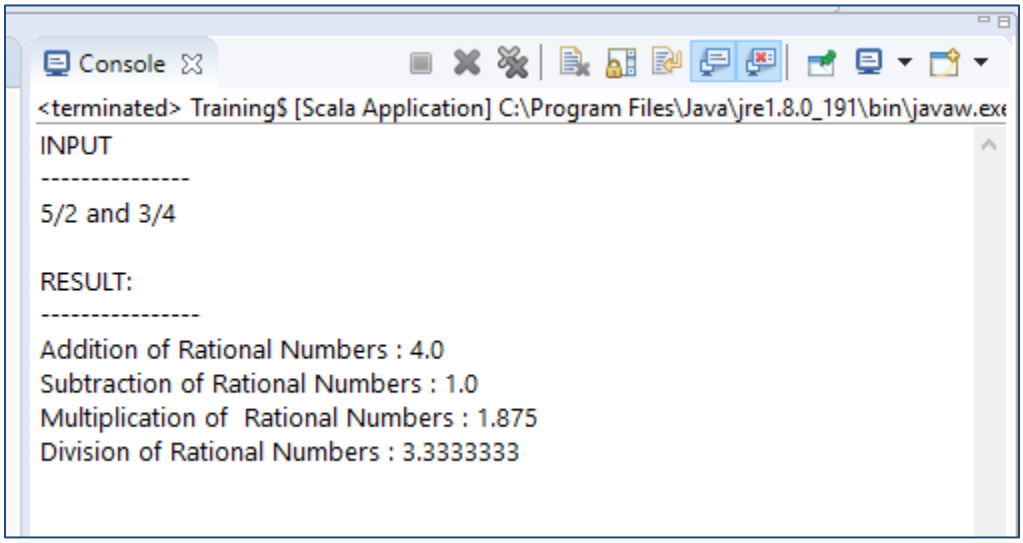
// Get the GCD of two numbers
def gcd(a : Int, b : Int) : Int = {
if (a == 0) {
return b
}
return gcd(b%a, a)
}
}
object Training {
def main(args : Array[String]) : Unit = {
var numerator1 : Int = 5
var denominator1 : Int = 2
var numerator2 : Int = 3
var denominator2 : Int = 4
var rational1 = new Rational(numerator1,denominator1,numerator2,denominator2)
var addResult : Float = rational1.addRational()
var subtractResult : Float = rational1.subtractRational()
var multiplyResult : Float = rational1.multiplyRational()
var divideResult : Float = rational1.divideRational()
println("INPUT\n----------")
println(numerator1 + "/" + denominator1 + " and " + numerator2 + "/" + denominator2)
println("RESULT: \n----------")
println("Addition of Rational Numbers : " + addResult)
println("Subtraction of Rational Numbers : " + subtractResult)
println("Multiplication of Rational Numbers : " + multiplyResult)
println("Division of Rational Numbers : " + divideResult)
}
}

RESULT:


Console
<terminated> Training$ [Scala Application] C:\Program Files\Java\jre1.8.0_191\bin\javaw.exe
INPUT

5/2 and 3/4
RESULT:

Addition of Rational Numbers : 4.0
Subtraction of Rational Numbers : 1.0
Multiplication of Rational Numbers : 1.875
Division of Rational Numbers : 3.3333333