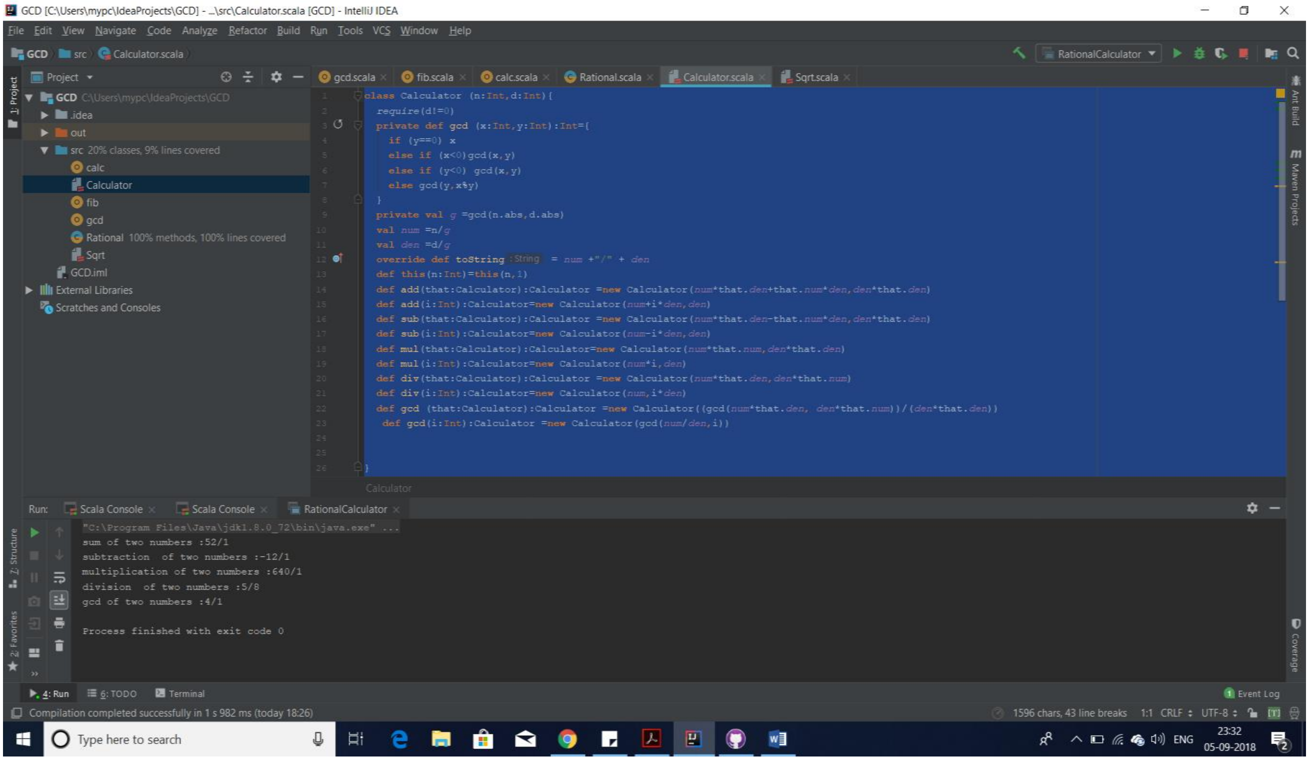
Assignment 16

```
class Calculator (n:Int,d:Int){
  require(d!=0)
  private def gcd (x:Int,y:Int):Int={
    if (y==0) x
    else if (x<0)gcd(x,y)
    else if (y<0) gcd(x,y)
    else gcd(y,x%y)
  }
  private val g =gcd(n.abs,d.abs)
  val num =n/g
  val den =d/g
  override def toString = num +"/" + den
  def this(n:Int)=this(n,1)
  def add(that:Calculator):Calculator =new Calculator(num*that.den+that.num*den,den*that.den)
  def add(i:Int):Calculator=new Calculator(num+i*den,den)
  def sub(that:Calculator):Calculator =new Calculator(num*that.den-that.num*den,den*that.den)
  def sub(i:Int):Calculator=new Calculator(num-i*den,den)
  def mul(that:Calculator):Calculator=new Calculator(num*that.num,den*that.den)
  def mul(i:Int):Calculator=new Calculator(num*i,den)
  def div(that:Calculator):Calculator =new Calculator(num*that.den,den*that.num)
  def div(i:Int):Calculator=new Calculator(num,i*den)
  def gcd (that:Calculator):Calculator =new Calculator((gcd(num*that.den,
den*that.num))/(den*that.den))
   def gcd(i:Int):Calculator =new Calculator(gcd(num/den,i))



}
```

```
object RationalCalculator {
 def main(args:Array[String]):Unit= {
  val num1 = new Calculator(20)
  val num2 = new Calculator(32)
  val sum = num1.add(num2)
  val sub_1 = num1.sub(num2)
  val mul_1 = num1.mul(num2)
  val div_1 = num1.div(num2)
  val gcd_1 = num1.gcd(num2)
  println("sum of two numbers :" + sum)
  println("subtraction  of two numbers :" + sub_1)
  println("multiplication of two numbers :" + mul_1)
  println("division  of two numbers :" + div_1)
  println("gcd of two numbers :" + gcd_1)
 }
 }
```



```scala
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  private val g =gcd(n.abs,d.abs)
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  def mul(i:Int):Calculator=new Calculator(num*i,den)
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  def div(i:Int):Calculator=new Calculator(num,i*den)
  def gcd (that:Calculator):Calculator =new Calculator((gcd(num*that.den, den*that.num))/(den*that.den))
   def gcd(i:Int):Calculator =new Calculator(gcd(num/den,i))



}
```

```
"C:\Program Files\Java\jdk1.8.0_72\bin\java.exe" ...
sum of two numbers :52/1
subtraction  of two numbers :-12/1
multiplication of two numbers :640/1
division  of two numbers :5/8
gcd of two numbers :4/1

Process finished with exit code 0
```

Compilation completed successfully in 1 s 982 ms (today 18:26)