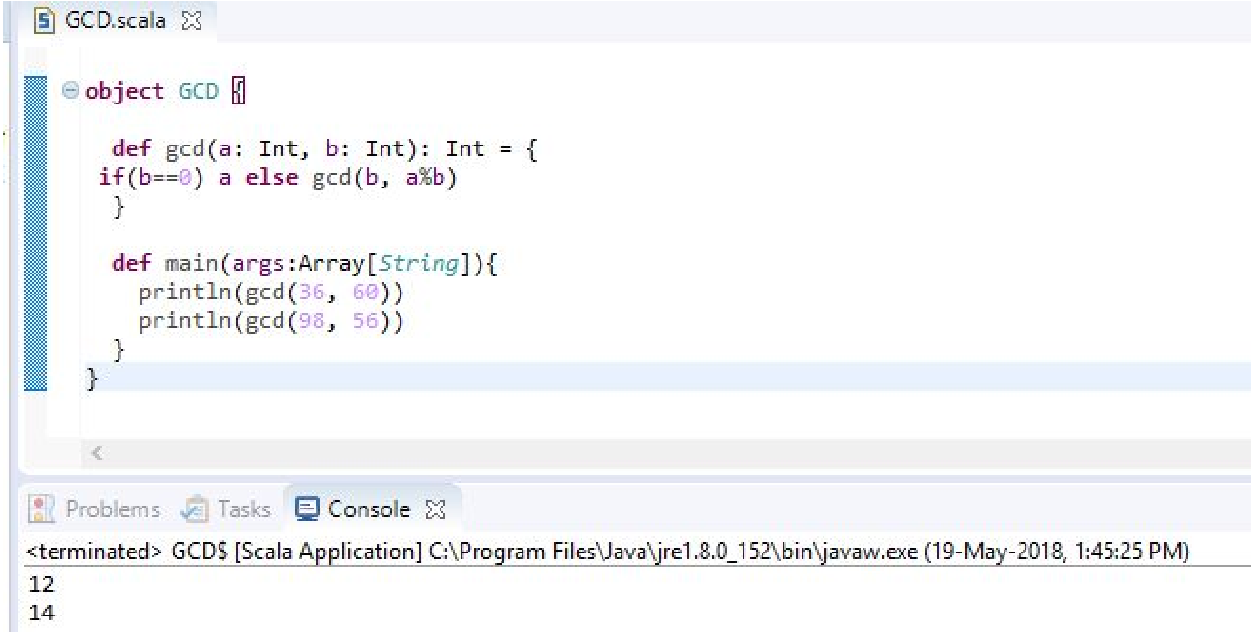
Assignment15:(Scala2)

Source code explaining the code is uploaded as separate file

Task 1 Create a Scala application to find the GCD of two numbers

Output:



```
object GCD {

  def gcd(a: Int, b: Int): Int = {
 if(b==0) a else gcd(b, a%b)
  }

  def main(args:Array[String]){
    println(gcd(36, 60))
    println(gcd(98, 56))
  }
}
```

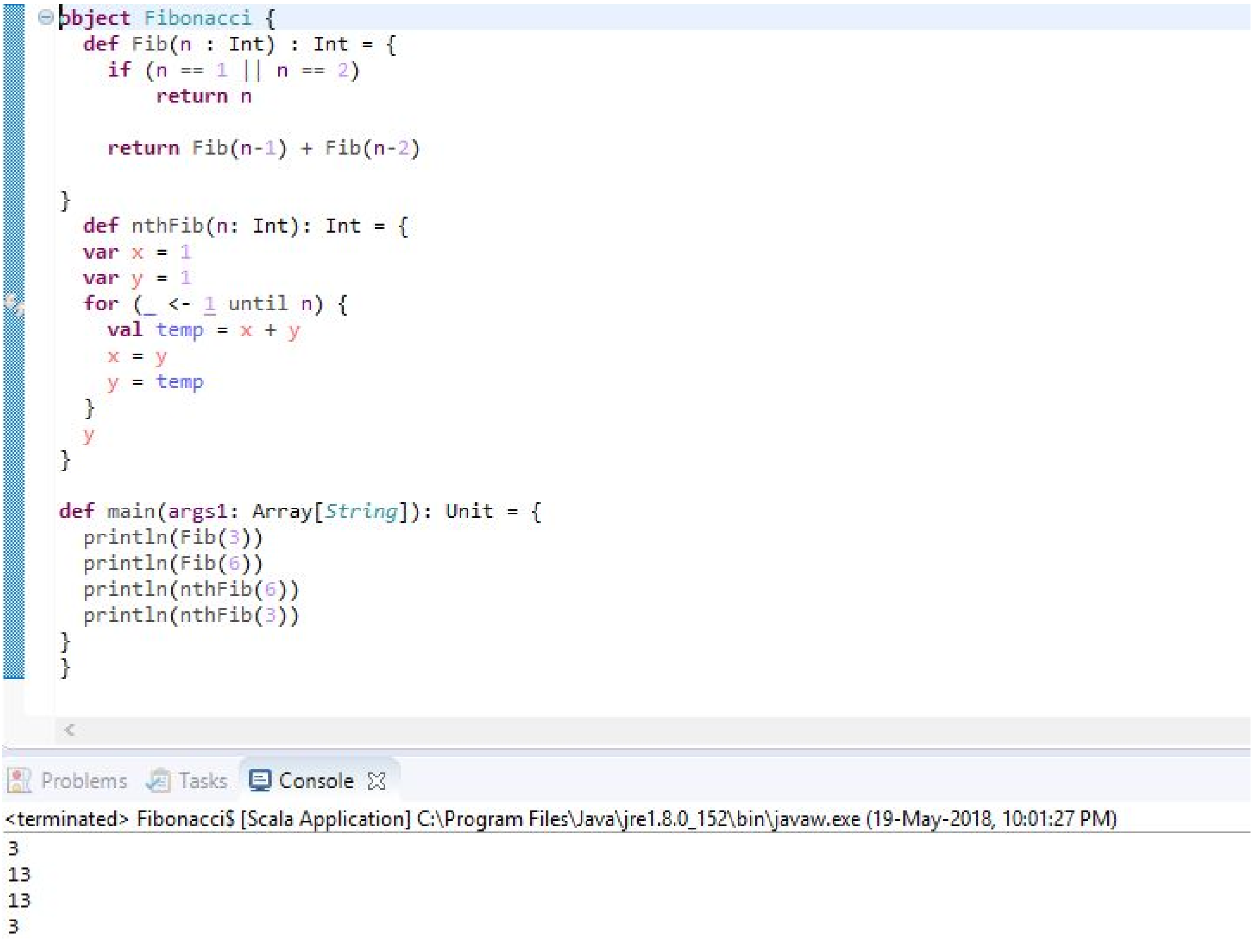
```
<terminated> GCD$ [Scala Application] C:\Program Files\Java\jre1.8.0_152\bin\javaw.exe (19-May-2018, 1:45:25 PM)
12
14
```

Task 2 Fibonacci series (starting from 1) written in order without any spaces in between, thus producing a sequence of digits. Write a Scala application to find the Nth digit in the sequence.

➢ Write the function using standard for loop

➢ Write the function using recursion

Output:



```
object Fibonacci {
  def Fib(n : Int) : Int = {
    if (n == 1 || n == 2)
        return n

    return Fib(n-1) + Fib(n-2)

}
  def nthFib(n: Int): Int = {
  var x = 1
  var y = 1
  for (_ <- 1 until n) {
    val temp = x + y
    x = y
    y = temp
  }
  y
}

def main(args1: Array[String]): Unit = {
  println(Fib(3))
  println(Fib(6))
  println(nthFib(6))
  println(nthFib(3))
}
}
```

```
<terminated> Fibonacci$ [Scala Application] C:\Program Files\Java\jre1.8.0_152\bin\javaw.exe (19-May-2018, 10:01:27 PM)
3
13
13
3
```

Task 3 Find square root of number using Babylonian method.

1. Start with an arbitrary positive start value x (the closer to the root, the better).

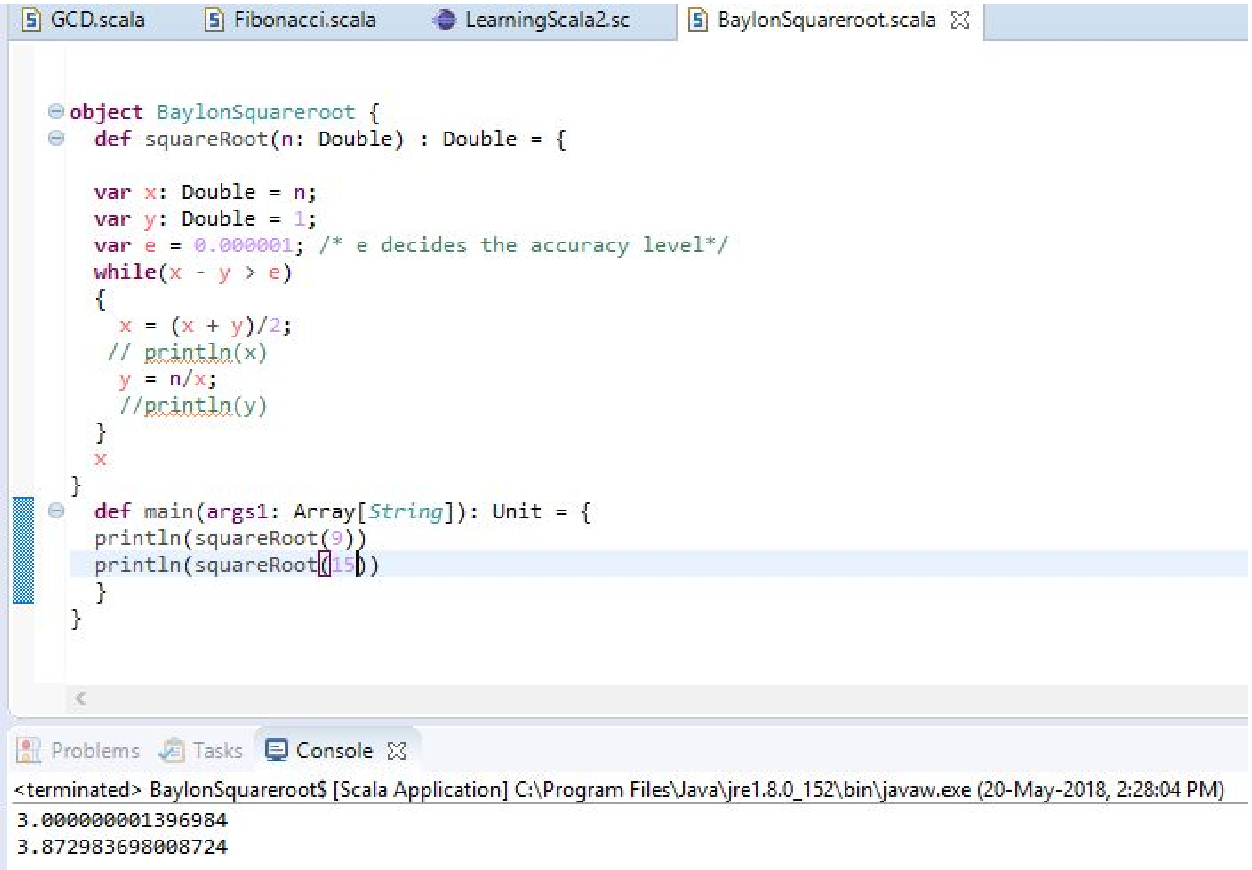
2.Initialize y = 1.

3. Do following until desired approximation is achieved.

a) Get the next approximation for root using average of x and y

b) Set y = n/x

Output:



```
object BaylonSquareroot {
  def squareRoot(n: Double) : Double = {

  var x: Double = n;
  var y: Double = 1;
  var e = 0.000001; /* e decides the accuracy level*/
  while(x - y > e)
  {
    x = (x + y)/2;
   // println(x)
    y = n/x;
    //println(y)
  }
  x
}
  def main(args1: Array[String]): Unit = {
  println(squareRoot(9))
  println(squareRoot(15))
  }
}
```

```
<terminated> BaylonSquareroot$ [Scala Application] C:\Program Files\Java\jre1.8.0_152\bin\javaw.exe (20-May-2018, 2:28:04 PM)
3.000000001396984
3.872983698008724
```