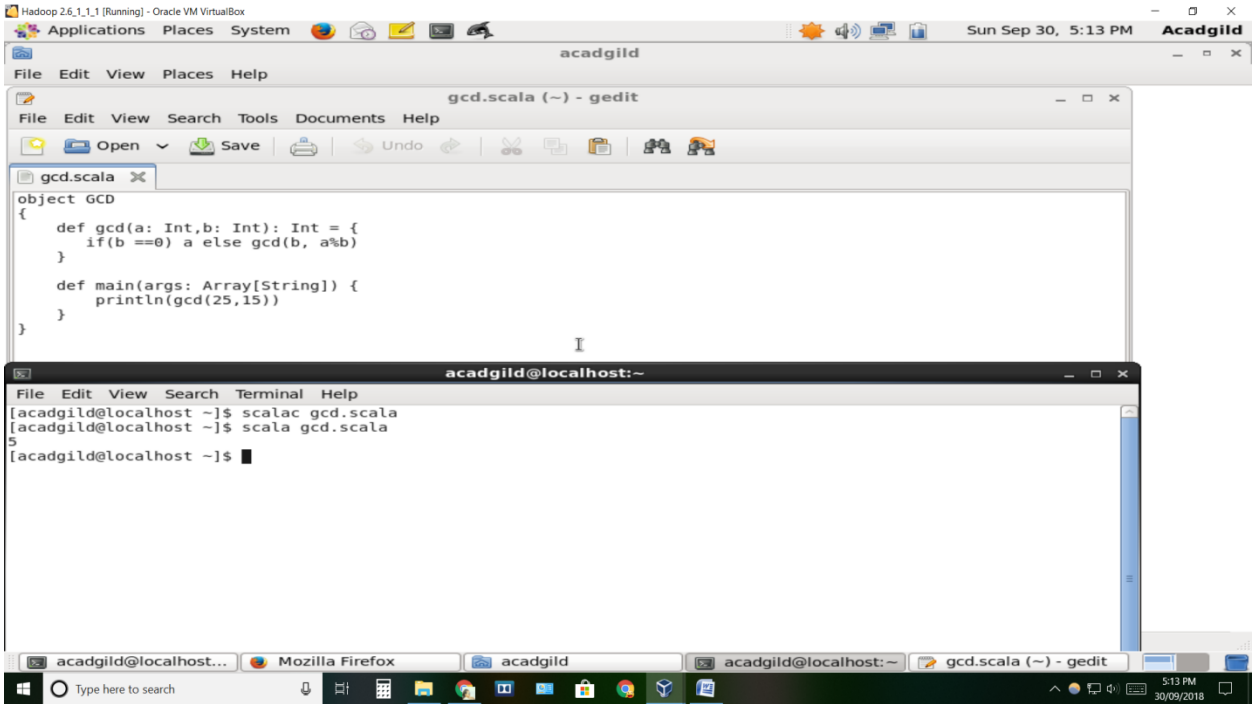
Session 15: SCALA BASICS 2 : Assignment 1

Task 1

- Create a Scala application to find the GCD of two numbers



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

```
package mutable_collet

object fib_new  extends  App {
   def fib(n:Int):Int ={
     def calfib(n:Int,pre :Int ,cur :Int) :Int = {
       if (n == 0)
         pre
       else
         calfib(n - 1, cur, cur + pre)
     }
     calfib(n, pre = 0, cur = 1)

   }
  for (i <- 1 to 10)
    println(fib(i))
}
```

```
"C:\Program Files\Java\jdk1.8.0_181\bin\java.exe" ...
1
1
2
3
5
8
13
21
34
55
```

➢Write the function using recursion

```
import scala.annotation.tailrec


object FibonacciTailRecursive extends App {

  println(fib(9))

  def fib(x: Int): BigInt = {
    @tailrec def fibHelper(x: Int, prev: BigInt = 0, next: BigInt = 1): BigInt = x match {
      case 0 => prev
      case 1 => next
      case _ => fibHelper(x - 1, next, (next + prev))
    }
    fibHelper(x)
  }

}
```

```
"C:\Program Files\Java\jdk1.8.0_181\bin\java.exe" ...
34

Process finished with exit code 0
```

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