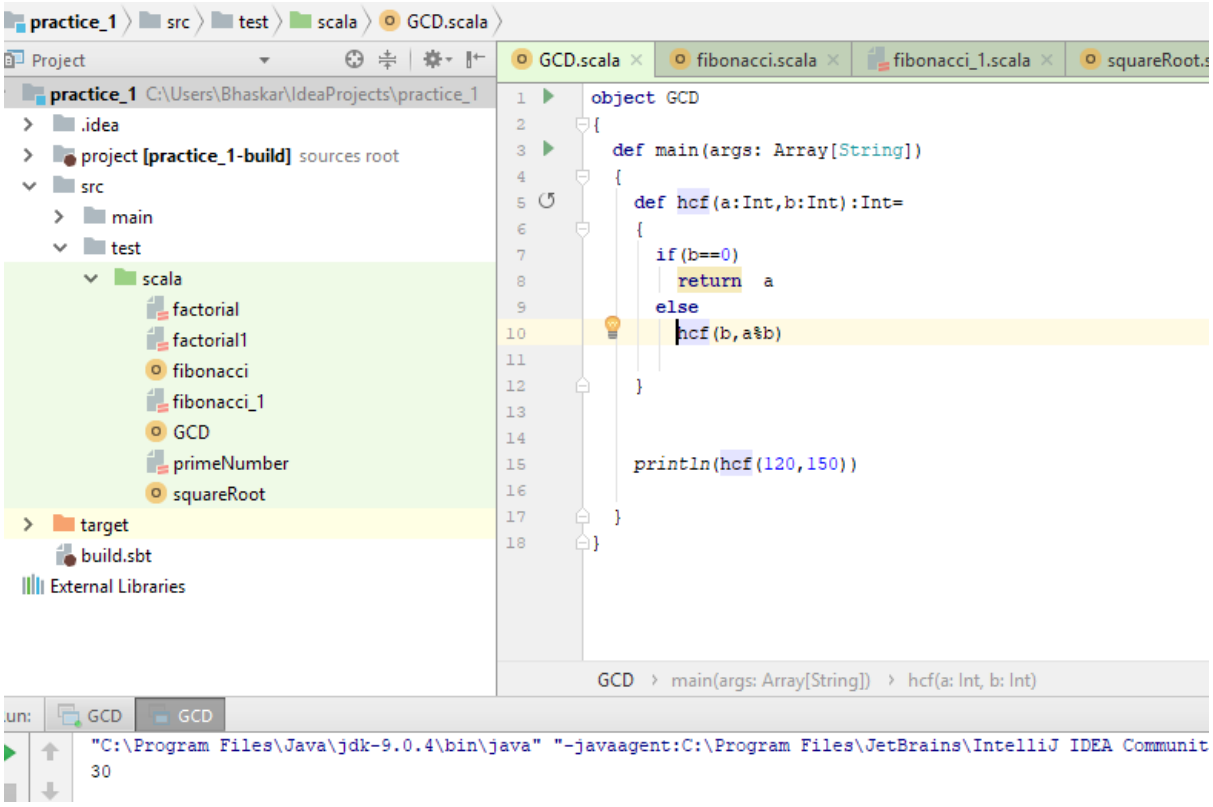
ASSIGNMENT 14.1

Task 1

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



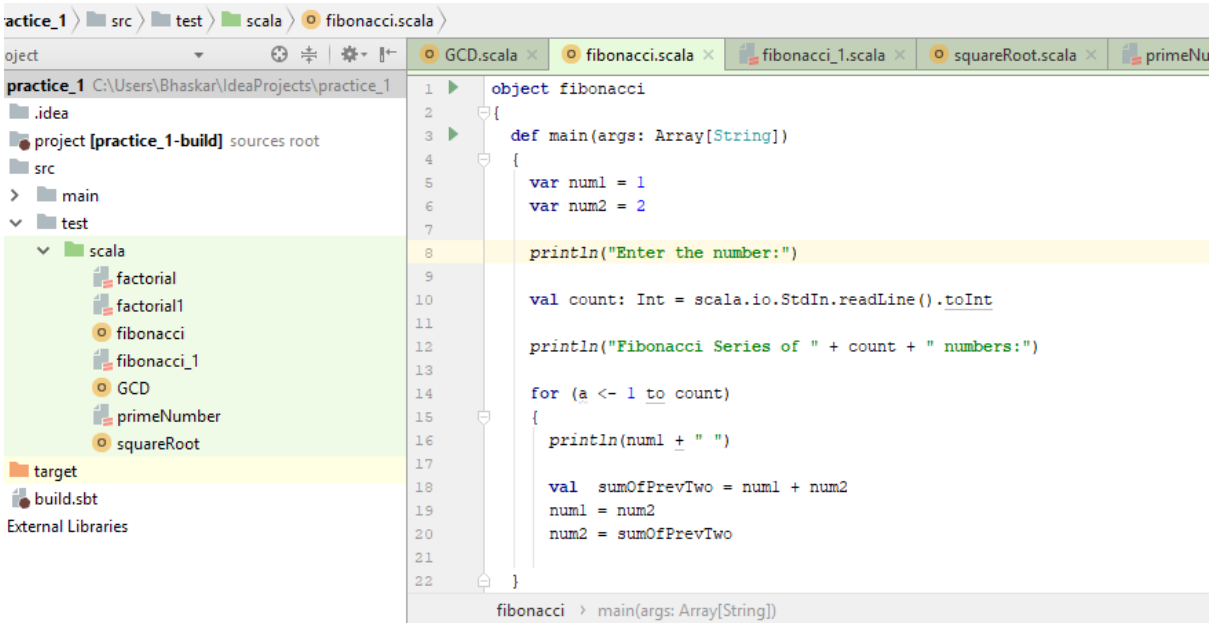

```
scala> def hcf(a:Int,b:Int):Int=
     |   {
     |     if(b==0)
     |       return  a
     |     else hcf(b,a%b)
     | }
hcf: (a: Int, b: Int)Int

scala> hcf(24,36)
res0: Int = 12

scala> hcf(27,63)
res1: Int = 9
```

Task 2

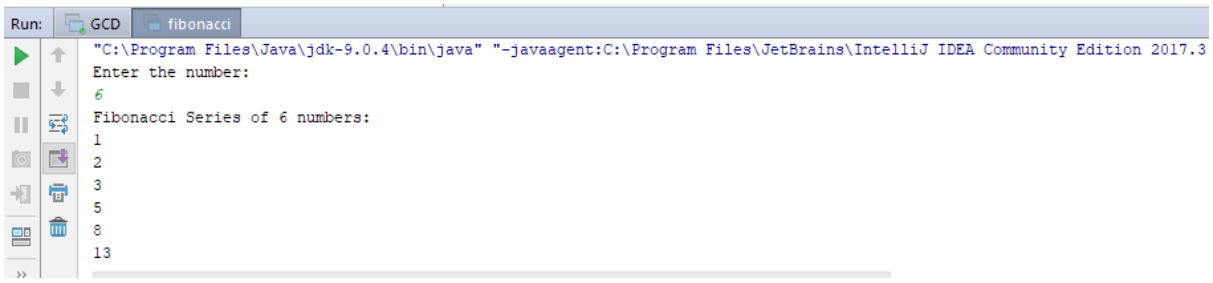
Fibonacci series (starting from 1) written in order without any spaces in between, thus producing a sequence of digits.

Write a Scala application to find the Nth digit in the sequence.

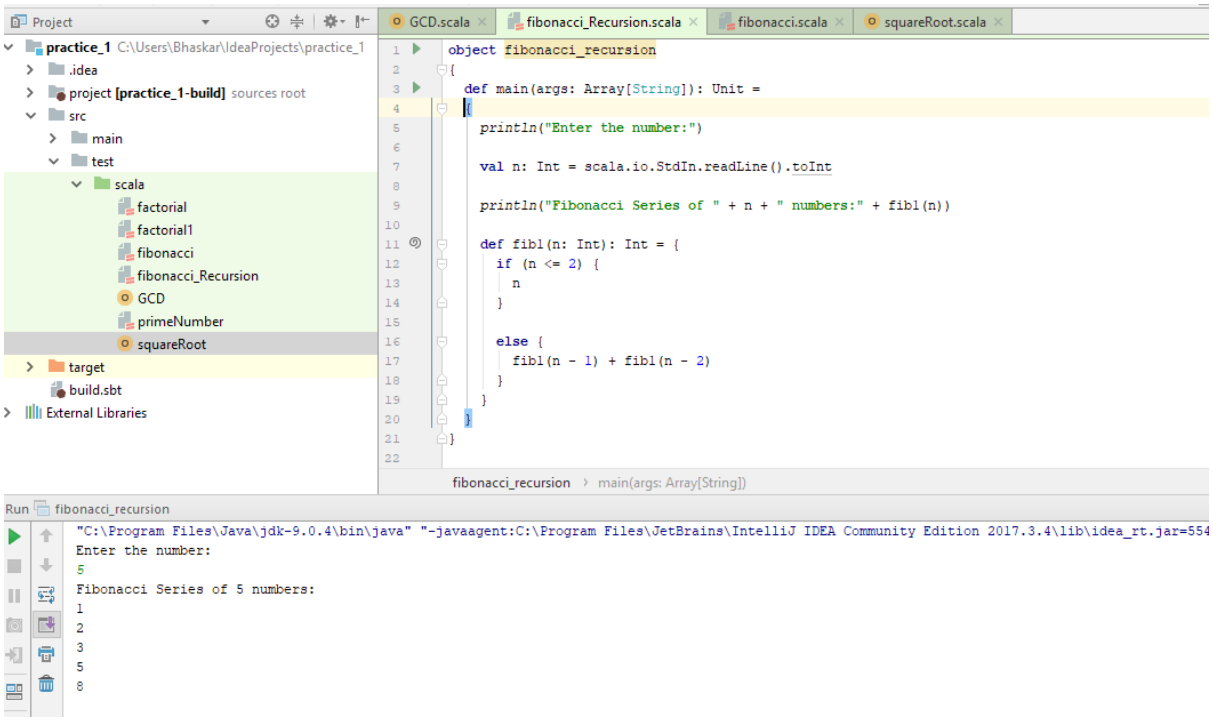
1. Write the function using standard for loop



Sample output:



2. Write the function using recursion




```
scala> def fib1(n: Int): Int = {
     |         if (n <= 2) {
     |           n
     |         }
     |
     |         else {
     |           fib1(n - 1) + fib1(n - 2)
     |         }
     |       }
fib1: (n: Int)Int

scala> println(fib1(6))
13

scala> println(fib1(5))
8
```

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