SPARK-LAB

```
(base) [bigdata@localhost ~]$ spark-shell

Spark context Web UI available at http://192.168.150.128:4040
Spark context available as 'sc' (master = local[*], app id = local-1629625151951).
Spark session available as 'spark'.
Welcome to
      ____              __
     / __/__  ___ _____/ /__
    _\ \/ _ \/ _ `/ __/  '_/
   /___/ .__/\_,_/_/ /_/\_\   version 3.0.1
      /_/
Using Scala version 2.12.10 (OpenJDK 64-Bit Server VM, Java 1.8.0_252)
Type in expressions to have them evaluated.
Type :help for more information.
scala> val a=sc.parallelize(1 to 120)
a: org.apache.spark.rdd.RDD[Int] = ParallelCollectionRDD[0] at parallelize at <console>:24
scala> a.collect
res0: Array[Int] = Array(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25,
26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53,
54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81,
82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106,
107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120)
scala> val a=sc.parallelize(1 to 120,10)
a: org.apache.spark.rdd.RDD[Int] = ParallelCollectionRDD[1] at parallelize at <console>:24
scala> a.collect
res1: Array[Int] = Array(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25,
26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53,
54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81,
82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106,
107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120)
scala> a.distinct
res2: org.apache.spark.rdd.RDD[Int] = MapPartitionsRDD[4] at distinct at <console>:26
scala> a.partitions.length
res3: Int = 10
scala> val mydata = Array(1,2,3,4,5,6,7,8,9,10)
mydata: Array[Int] = Array(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
scala> val rdd1 = sc.parallelize(mydata)
rdd1: org.apache.spark.rdd.RDD[Int] = ParallelCollectionRDD[5] at parallelize at <console>:26
```

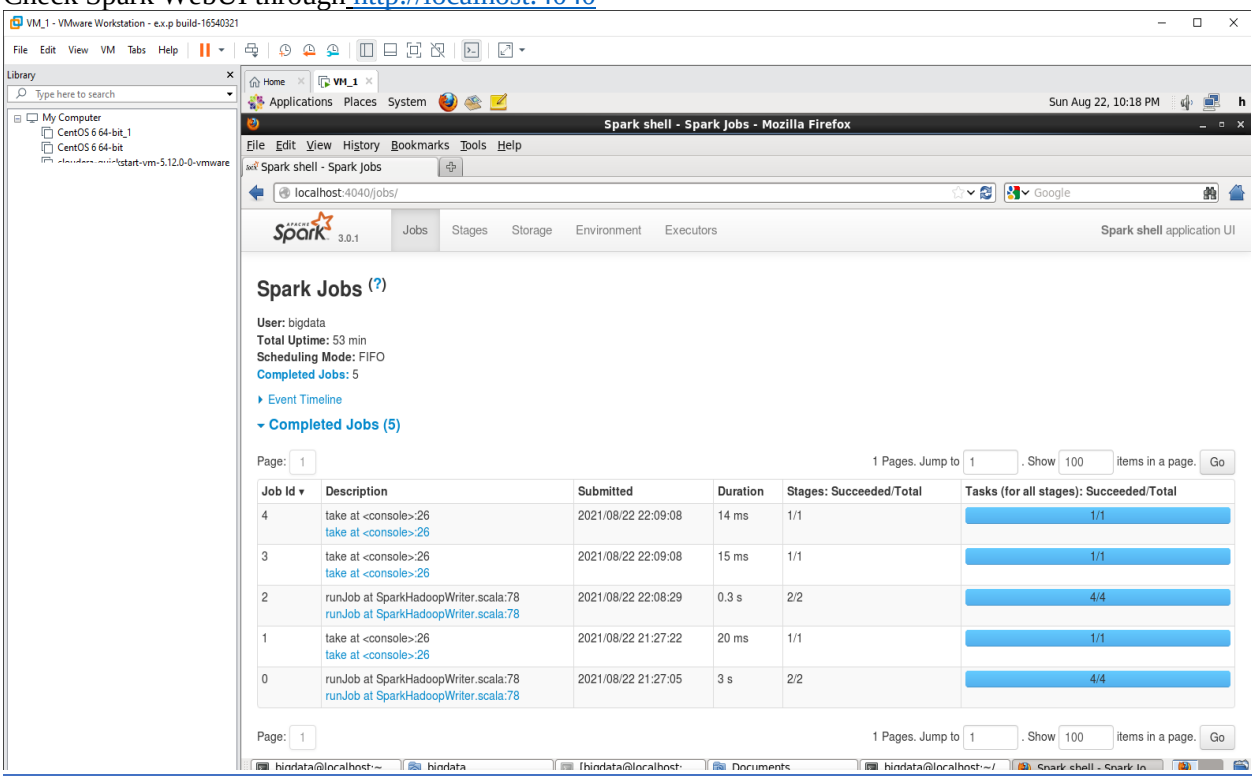
```
scala> rdd1.foreach{x=>println(x)}
1
2
3
4
5
6
7
8
9
10
scala> val dataSeq = Seq(("Java", 20000), ("Python", 100000), ("Scala", 3000))
dataSeq: Seq[(String, Int)] = List((Java,20000), (Python,100000), (Scala,3000))
scala> val rdd=spark.sparkContext.parallelize(dataSeq)
rdd: org.apache.spark.rdd.RDD[(String, Int)] = ParallelCollectionRDD[6] at parallelize at <console>:25
scala> val rdd=spark.sparkContext.parallelize(Seq(("Java", 20000),
| | ("Python", 100000), ("Scala", 3000)))
rdd: org.apache.spark.rdd.RDD[(String, Int)] = ParallelCollectionRDD[7] at parallelize at <console>:23
scala> rdd.foreach(println)
(Java,20000)
(Python,100000)
(Scala,3000)
scala> val data = 1 to 10000
data: scala.collection.immutable.Range.Inclusive = Range 1 to 10000
scala> val distData = sc.parallelize(data)
distData: org.apache.spark.rdd.RDD[Int] = ParallelCollectionRDD[8] at parallelize at <console>:26
scala> distData.filter(_ < 10).collect()
res6: Array[Int] = Array(1, 2, 3, 4, 5, 6, 7, 8, 9)
```

Wordcount example

```
scala> val book2=sc.textFile("inputfile.txt")
book2: org.apache.spark.rdd.RDD[String] = inputfile.txt MapPartitionsRDD[8] at textFile at
<console>:24
scala> val a=book2.map(x=>x.split(" "))
a: org.apache.spark.rdd.RDD[Array[String]] = MapPartitionsRDD[9] at map at <console>:25
scala> val counts = book2.flatMap(line => line.split(" ")).map(word => (word, 1)).reduceByKey(_+_);
counts: org.apache.spark.rdd.RDD[(String, Int)] = ShuffledRDD[12] at reduceByKey at <console>:25
scala> counts.toDebugString
res4: String =
(2) ShuffledRDD[12] at reduceByKey at <console>:25 []
 +-(2) MapPartitionsRDD[11] at map at <console>:25 []
    |  MapPartitionsRDD[10] at flatMap at <console>:25 []
    |  inputfile.txt MapPartitionsRDD[8] at textFile at <console>:24 []
    |  inputfile.txt HadoopRDD[7] at textFile at <console>:24 []
scala> counts.cache()
res5: counts.type = ShuffledRDD[12] at reduceByKey at <console>:25
scala> counts.saveAsTextFile ("output1")
```

```
scala>book2.take(5)
res8: Array[String] = Array("people are not as beautiful as they look, ", as they walk or as they talk.,
"they are only as beautiful  as they love, ", as they care as they share.)
(base) [bigdata@localhost ~]$ cd output1/
(base) [bigdata@localhost output1]$ ls -1
part-00000
part-00001
_SUCCESS
(base) [bigdata@localhost output1]$ cat part-00000
(talk.,1)
(are,2)
(only,1)
(as,8)
(,1)
(they,7)
(love,,1)
(base) [bigdata@localhost output1]$ cat part-00001
(not,1)
(people,1)
(share.,1)
(or,1)
(care,1)
(beautiful,2)
(walk,1)
(look,,1)
```

Check Spark WebUI through http://localhost:4040



The storage space used for the application, which are running on the Spark shell.