Spark Streaming – Case Study

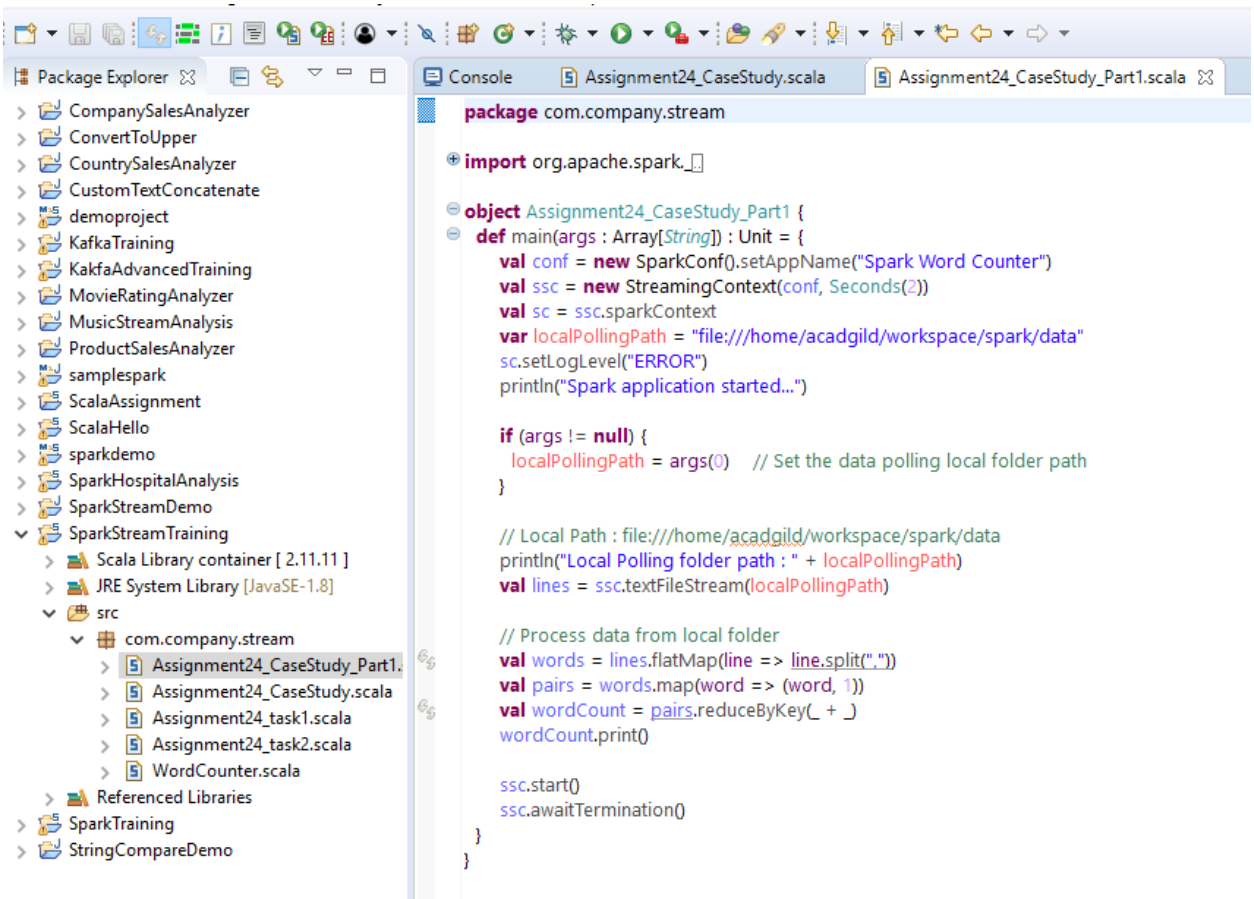
Date: 18-Mar-2019

Author: Saravanan Ponnaiah

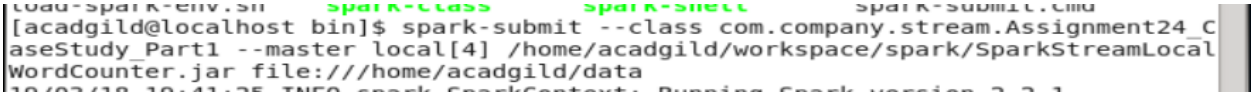
Case Study – Part 1:

You have to create a Spark Application which streams data from a file on local directory on your machine and does the word count on the fly. The word should be done by the spark application in such a way that as soon as you drop the file in your local directory, your spark application should immediately do the word count for you.

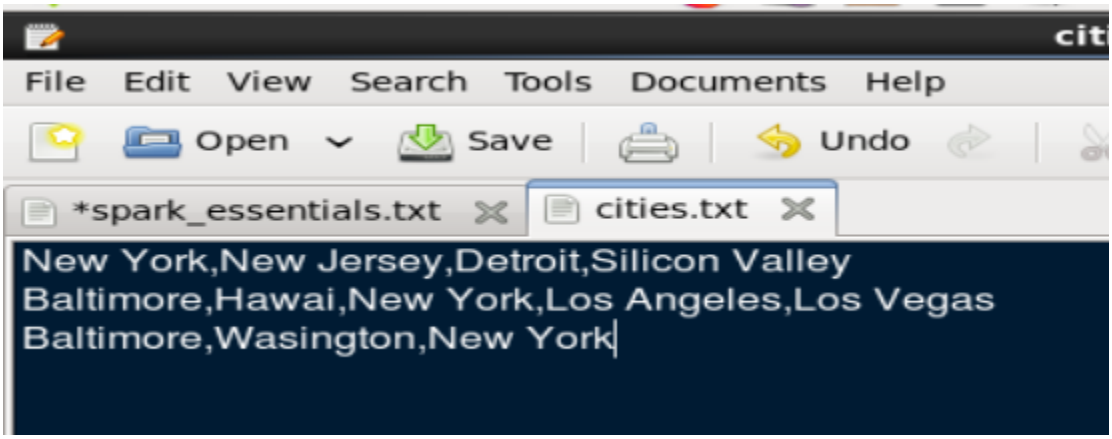
Program:



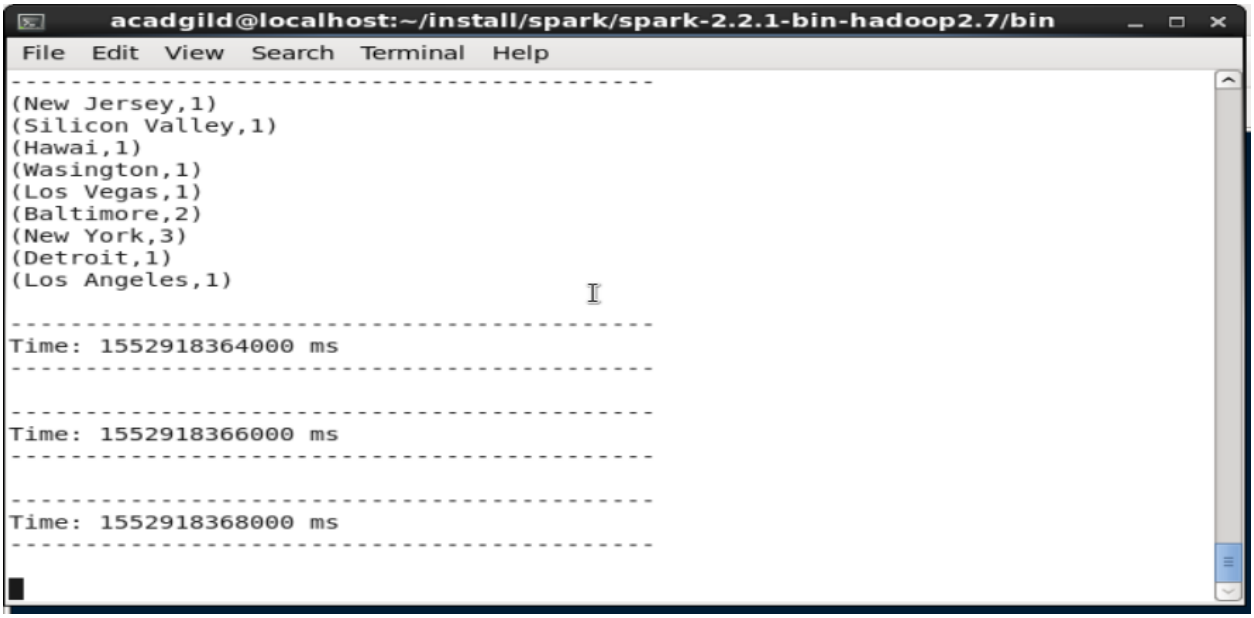
Execution:



At runtime, new file cities.txt is created with below data,



Spark streaming application that polls local folder path "/home/acadgild/data" picked up the file and started processing. The word count results are as below,



Case Study – Part 2:

In this part, you will have to create a Spark Application which should do the following

1. Pick up a file from the local directory and do the word count
2. Then in the same Spark Application, write the code to put the same file on HDFS.
3. Then in same Spark Application, do the word count of the file copied on HDFS in step 2
4. Lastly, compare the word count of step 1 and 2. Both should match, other throw an error

Program:

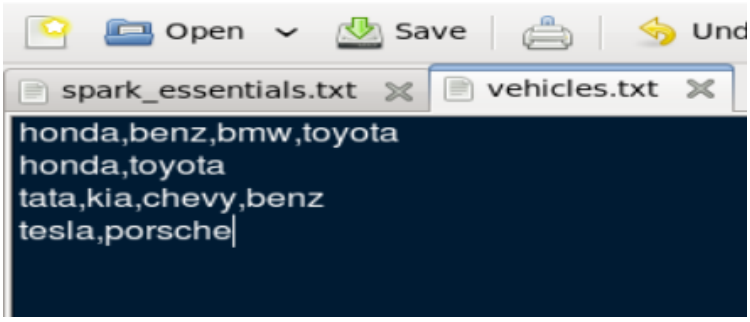
Console | Assignment24_CaseStudy_Part2.scala

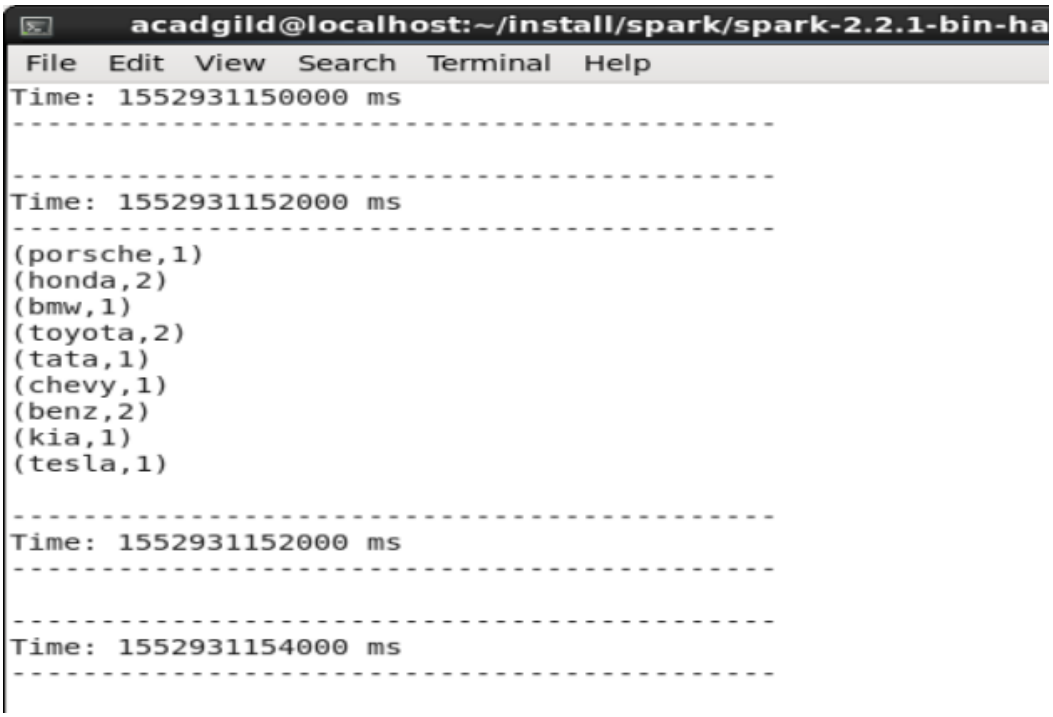
```scala
val conf = new SparkConf().setAppName("Spark Word Counter")
val ssc = new StreamingContext(conf, Seconds(2))
val sc = ssc.sparkContext
var localPollingPath = "file:///home/acadgild/workspace/spark/data"
var hdfsPollingPath = "hdfs:///home/spark/data"
sc.setLogLevel("ERROR")
println("Spark application started...")

if (args != null) {
  localPollingPath = args(0)    // Set the data polling local folder path
  hdfsPollingPath = args(1)    // Set the data polling hdfs folder path
}

// Local Path : file:///home/acadgild/workspace/spark/data
println("Local Polling folder path : " + localPollingPath)
val lines = ssc.textFileStream(localPollingPath)

// Copy file from local folder path to HDFS folder path
val sourcePath = new Path(localPollingPath)
val destPath = new Path(hdfsPollingPath)
val hadoopConf = sc.hadoopConfiguration
val fs = FileSystem.get(hadoopConf)
fs.copyFromLocalFile(false, true, sourcePath, destPath)

// Process data from local folder
val words = lines.flatMap(line => line.split(","))
val pairs = words.map(word => (word, 1))
val wordCount = pairs.reduceByKey(_ + _)
wordCount.print()

val hdfsLines = ssc.textFileStream(hdfsPollingPath)
val hdfsWords = hdfsLines.flatMap(line => line.split(","))
val hdfsPairs = hdfsWords.map(word => (word, 1))
val hdfsWordCount = hdfsPairs.reduceByKey(_ + _)
```

[2.11.11]
aSE-1.8]

am
CaseStudy_Part1.
CaseStudy_Part2.
CaseStudy.scala
task1.scala
task2.scala
cala

Execution:





Note: Though we have code to copy file from local folder path to HDFS folder path, during run time, it is not copying the file to HDFS path. I tried by specifically polling for a file instead of a folder (ex: /home/acadgild/spark/data/vehicles.txt) for the program to pick up vehicles.txt file whenever I update the file. But it didn't work. As per the hortonworks forum, it was given that Spark Streaming will not work picking the recently updated file and it will work only for newly created file. So, I am not sure how to copy file from local folder to HDFS path through spark streaming. It will be great if you could share the workable code snippet of this case study for my reference.