Assignment 21.2

Aviation data analysis

Problem Statement 1

Find out the top 5 most visited destinations.

scala> val delayed_flights = sc.textFile("file:///home/kiran/Documents/datasets/Airline/DelayedFlights.csv")

delayed_flights: org.apache.spark.rdd.RDD[String] = MapPartitionsRDD[118] at textFile at <console>:27

scala> val delayed_flights = sc.textFile("file:///home/acadgild/DelayedFlights.csv")

delayed_flights: org.apache.spark.rdd.RDD[String] = MapPartitionsRDD[120] at textFile at <console>:27

scala> val mapping = delayed_flights.map(x => x.split(",")).map(x => (x(18),1)).filter(x => x._1!=null).reduceByKey(_+_).map(x => (x._2,x._1)).sortByKey(false).map(x => (x._2,x._1)).take(5)

mapping: Array[(String, Int)] = Array((ORD,108984), (ATL,106898), (DFW,70657), (DEN,63003), (LAX,59969))

```
scala> val delayed_flights = sc.textFile("file:///home/kiran/Documents/datasets/
Airline/DelayedFlights.csv")
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tFile at <console>:27

scala> val delayed_flights = sc.textFile("file:///home/acadgild/DelayedFlights.c
sv")
delayed_flights: org.apache.spark.rdd.RDD[String] = MapPartitionsRDD[120] at tex
tFile at <console>:27

scala> val mapping = delayed_flights.map(x => x.split(",")).map(x => (x(18),1)).
filter(x => x._1!=null).reduceByKey(_+_).map(x => (x._2,x._1)).sortByKey(false).
map(x => (x._2,x._1)).take(5)
mapping: Array[(String, Int)] = Array((ORD,108984), (ATL,106898), (DFW,70657), (
DEN,63003), (LAX,59969))
```
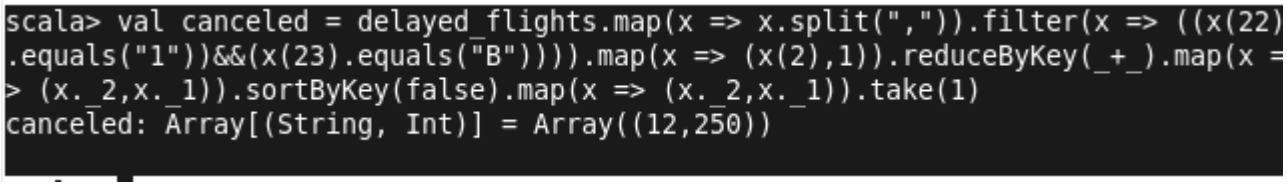

Problem Statement 2

Which month has seen the most number of cancellations due to bad weather?

scala> val canceled = delayed_flights.map(x => x.split(",")).filter(x => ((x(22).equals("1"))&&(x(23).equals("B")))).map(x => (x(2),1)).reduceByKey(_+_).map(x => (x._2,x._1)).sortByKey(false).map(x => (x._2,x._1)).take(1)

canceled: Array[(String, Int)] = Array((12,250))



Problem Statement 3

Top ten origins with the highest AVG departure delay

val avg = delayed_flights.map(x => x.split(",")).map(x => (x(17),x(16).toDouble)).mapValues((_, 1)).reduceByKey((x, y) => (x._1 + y._1, x._2 + y._2)).mapValues{ case (sum, count) => (1.0 * sum)/count}.map(x => (x._2,x._1)).sortByKey(false).map(x => (x._2,x._1)).take(10)

Problem Statement 4

Which route (origin & destination) has seen the maximum diversion?

val diversion = delayed_flights.map(x => x.split(",")).filter(x => ((x(24).equals("1")))).map(x => ((x(17)+","+x(18)),1)).reduceByKey(_+_).map(x => (x._2,x._1)).sortByKey(false).map(x => (x._2,x._1)).take(10).foreach(println)

```
scala> val diversion = delayed_flights.map(x => x.split(",")).filter(x => ((x(2
).equals("1")))).map(x => ((x(17)+","+x(18)),1)).reduceByKey(_+_).map(x => (x._
,x._1)).sortByKey(false).map(x => (x._2,x._1)).take(10).foreach(println)
(ORD,LGA,39)
(DAL,HOU,35)
(DFW,LGA,33)
(ATL,LGA,32)
(SLC,SUN,31)
(ORD,SNA,31)
(MIA,LGA,31)
(BUR,JFK,29)
(HRL,HOU,28)
(BUR,DFW,25)
```