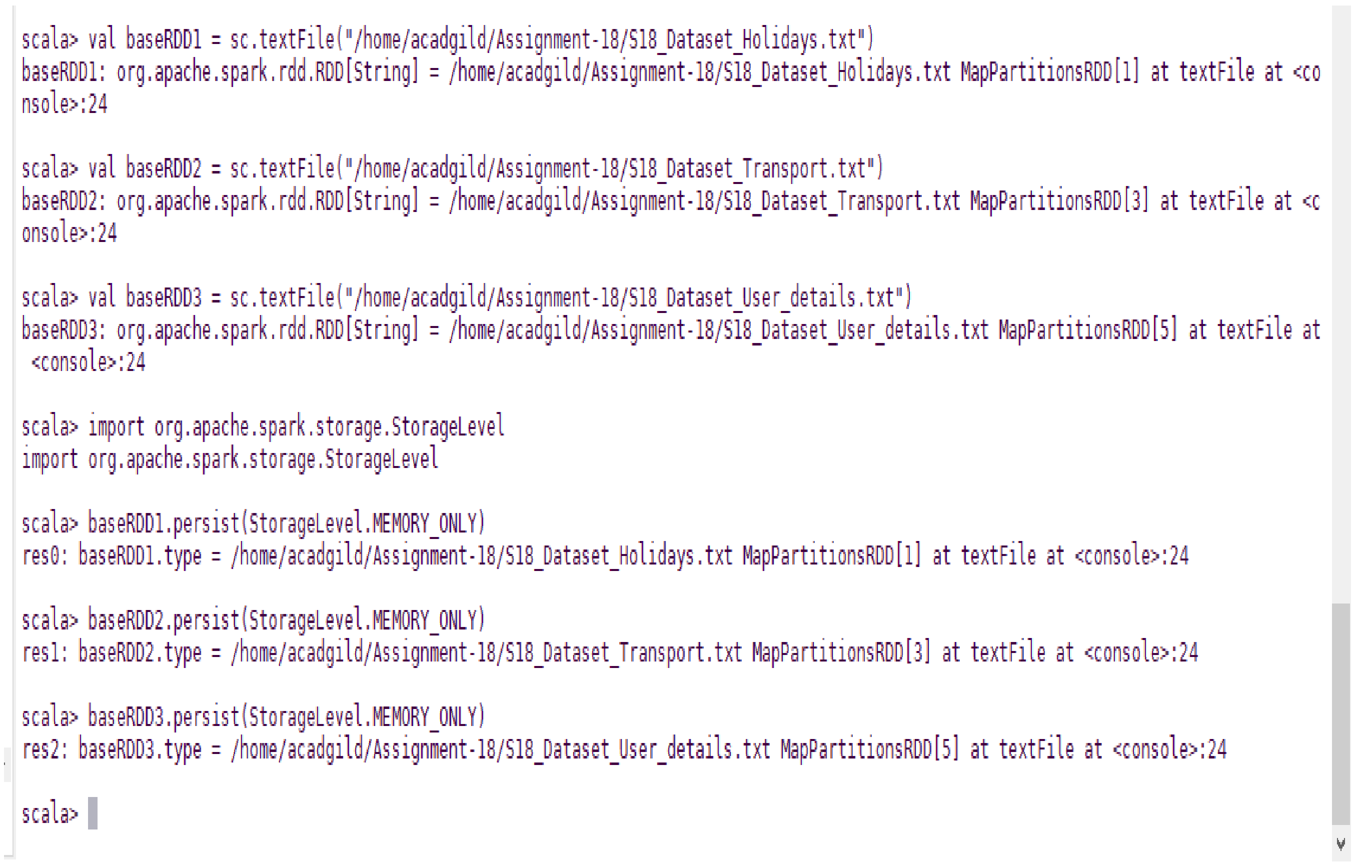
Accadgild_Session_18_Assignment_18.2_Solutions

Problem Statement

1) Which route is generating the most revenue per year
2) What is the total amount spent by every user on air-travel per year
3) Considering age groups of < 20 , 20-35, 35 > ,Which age group is travelling the most every year.

Question 1 Solutions:



```
scala> val baseRDD1 = sc.textFile("/home/acadgild/Assignment-18/S18_Dataset_Holidays.txt")
baseRDD1: org.apache.spark.rdd.RDD[String] = /home/acadgild/Assignment-18/S18_Dataset_Holidays.txt MapPartitionsRDD[1] at textFile at <co
nsole>:24

scala> val baseRDD2 = sc.textFile("/home/acadgild/Assignment-18/S18_Dataset_Transport.txt")
baseRDD2: org.apache.spark.rdd.RDD[String] = /home/acadgild/Assignment-18/S18_Dataset_Transport.txt MapPartitionsRDD[3] at textFile at <c
onsole>:24

scala> val baseRDD3 = sc.textFile("/home/acadgild/Assignment-18/S18_Dataset_User_details.txt")
baseRDD3: org.apache.spark.rdd.RDD[String] = /home/acadgild/Assignment-18/S18_Dataset_User_details.txt MapPartitionsRDD[5] at textFile at
 <console>:24

scala> import org.apache.spark.storage.StorageLevel
import org.apache.spark.storage.StorageLevel

scala> baseRDD1.persist(StorageLevel.MEMORY_ONLY)
res0: baseRDD1.type = /home/acadgild/Assignment-18/S18_Dataset_Holidays.txt MapPartitionsRDD[1] at textFile at <console>:24

scala> baseRDD2.persist(StorageLevel.MEMORY_ONLY)
res1: baseRDD2.type = /home/acadgild/Assignment-18/S18_Dataset_Transport.txt MapPartitionsRDD[3] at textFile at <console>:24

scala> baseRDD3.persist(StorageLevel.MEMORY_ONLY)
res2: baseRDD3.type = /home/acadgild/Assignment-18/S18_Dataset_User_details.txt MapPartitionsRDD[5] at textFile at <console>:24

scala>
```

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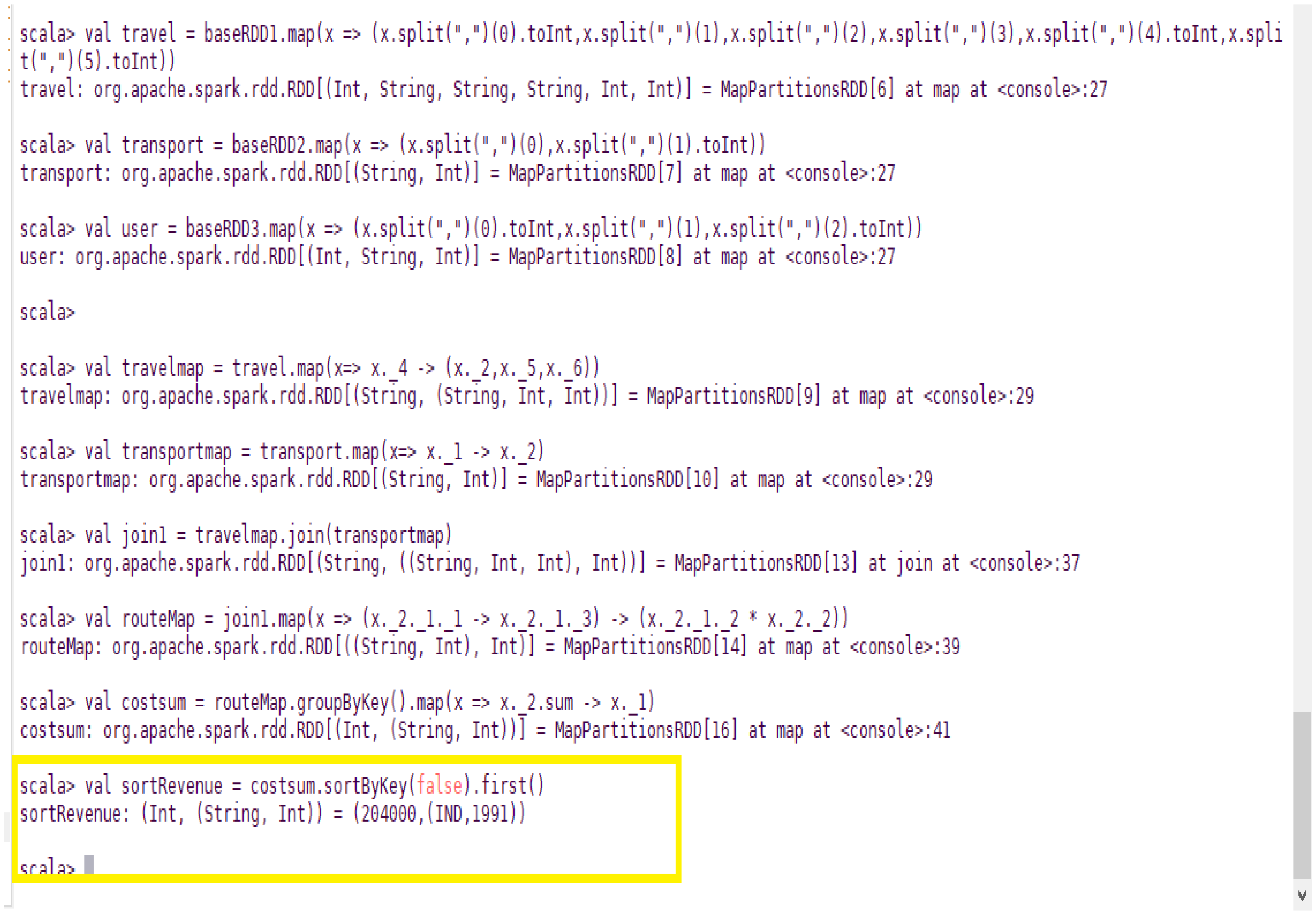
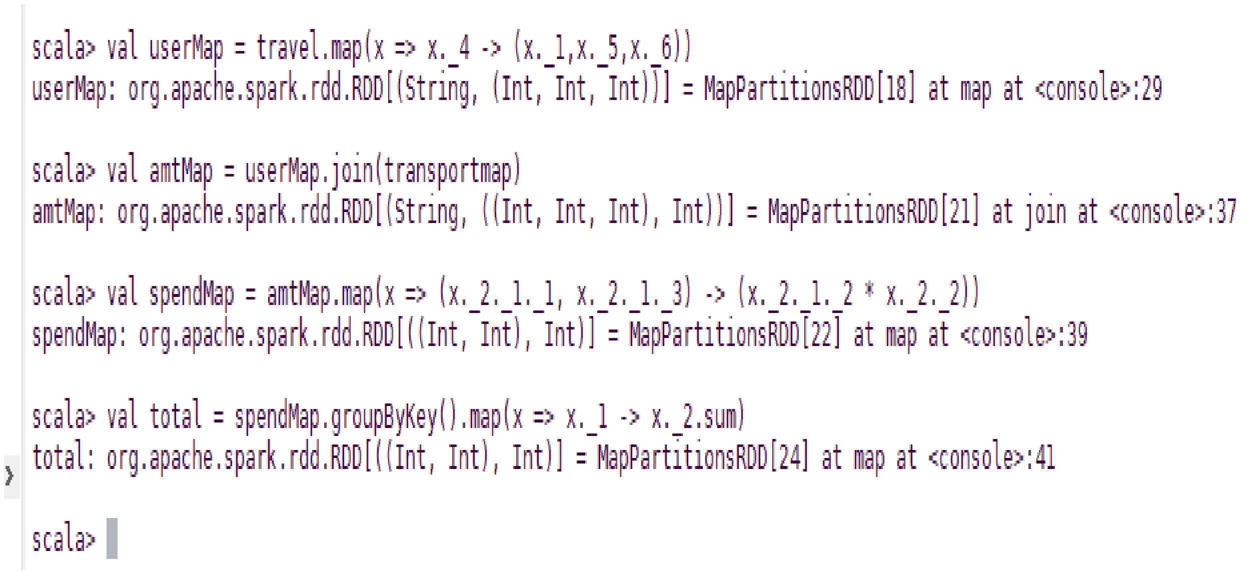


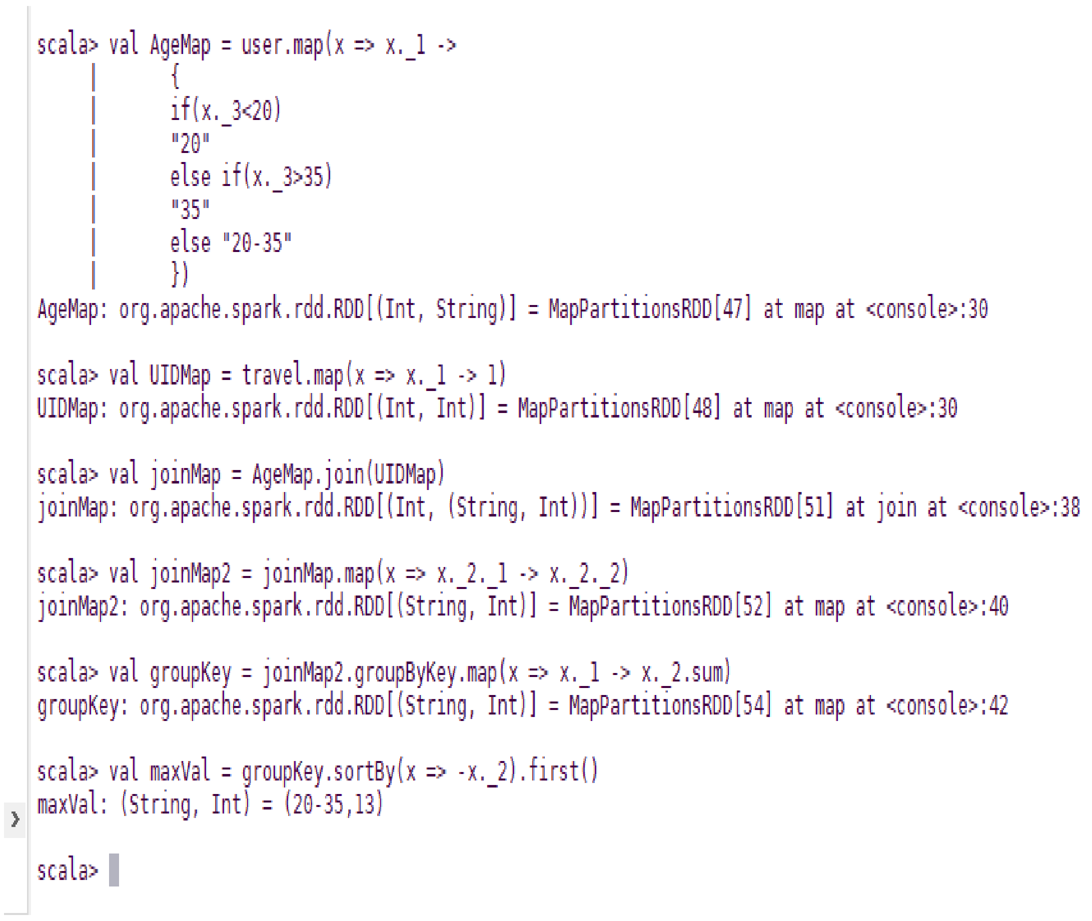
```
scala> val travel = baseRDD1.map(x => (x.split(",")(0).toInt,x.split(",")(1),x.split(",")(2),x.split(",")(3),x.split(",")(4).toInt,x.spli
t(",")(5).toInt))
travel: org.apache.spark.rdd.RDD[(Int, String, String, String, Int, Int)] = MapPartitionsRDD[6] at map at <console>:27

scala> val transport = baseRDD2.map(x => (x.split(",")(0),x.split(",")(1).toInt))
transport: org.apache.spark.rdd.RDD[(String, Int)] = MapPartitionsRDD[7] at map at <console>:27

scala> val user = baseRDD3.map(x => (x.split(",")(0).toInt,x.split(",")(1),x.split(",")(2).toInt))
user: org.apache.spark.rdd.RDD[(Int, String, Int)] = MapPartitionsRDD[8] at map at <console>:27

scala>

scala> val travelmap = travel.map(x=> x._4 -> (x._2,x._5,x._6))
travelmap: org.apache.spark.rdd.RDD[(String, (String, Int, Int))] = MapPartitionsRDD[9] at map at <console>:29

scala> val transportmap = transport.map(x=> x._1 -> x._2)
transportmap: org.apache.spark.rdd.RDD[(String, Int)] = MapPartitionsRDD[10] at map at <console>:29

scala> val join1 = travelmap.join(transportmap)
join1: org.apache.spark.rdd.RDD[(String, ((String, Int, Int), Int))] = MapPartitionsRDD[13] at join at <console>:37

scala> val routeMap = join1.map(x => (x._2._1._1 -> x._2._1._3) -> (x._2._1._2 * x._2._2))
routeMap: org.apache.spark.rdd.RDD[((String, Int), Int)] = MapPartitionsRDD[14] at map at <console>:39

scala> val costsum = routeMap.groupByKey().map(x => x._2.sum -> x._1)
costsum: org.apache.spark.rdd.RDD[(Int, (String, Int))] = MapPartitionsRDD[16] at map at <console>:41

scala> val sortRevenue = costsum.sortByKey(false).first()
sortRevenue: (Int, (String, Int)) = (204000,(IND,1991))

scala>
```

Question 2 Solutions:



```
scala> val userMap = travel.map(x => x._4 -> (x._1,x._5,x._6))
userMap: org.apache.spark.rdd.RDD[(String, (Int, Int, Int))] = MapPartitionsRDD[18] at map at <console>:29

scala> val amtMap = userMap.join(transportmap)
amtMap: org.apache.spark.rdd.RDD[(String, ((Int, Int, Int), Int))] = MapPartitionsRDD[21] at join at <console>:37

scala> val spendMap = amtMap.map(x => (x._2._1._1, x._2._1._3) -> (x._2._1._2 * x._2._2))
spendMap: org.apache.spark.rdd.RDD[((Int, Int), Int)] = MapPartitionsRDD[22] at map at <console>:39

scala> val total = spendMap.groupByKey().map(x => x._1 -> x._2.sum)
total: org.apache.spark.rdd.RDD[((Int, Int), Int)] = MapPartitionsRDD[24] at map at <console>:41

scala>
```

Question 3_Solutions:



```
scala> val AgeMap = user.map(x => x._1 ->
     |       {
     |       if(x._3<20)
     |       "20"
     |       else if(x._3>35)
     |       "35"
     |       else "20-35"
     |       })
AgeMap: org.apache.spark.rdd.RDD[(Int, String)] = MapPartitionsRDD[47] at map at <console>:30

scala> val UIDMap = travel.map(x => x._1 -> 1)
UIDMap: org.apache.spark.rdd.RDD[(Int, Int)] = MapPartitionsRDD[48] at map at <console>:30

scala> val joinMap = AgeMap.join(UIDMap)
joinMap: org.apache.spark.rdd.RDD[(Int, (String, Int))] = MapPartitionsRDD[51] at join at <console>:38

scala> val joinMap2 = joinMap.map(x => x._2._1 -> x._2._2)
joinMap2: org.apache.spark.rdd.RDD[(String, Int)] = MapPartitionsRDD[52] at map at <console>:40

scala> val groupKey = joinMap2.groupByKey.map(x => x._1 -> x._2.sum)
groupKey: org.apache.spark.rdd.RDD[(String, Int)] = MapPartitionsRDD[54] at map at <console>:42

scala> val maxVal = groupKey.sortBy(x => -x._2).first()
maxVal: (String, Int) = (20-35,13)

scala>
```

Submitted By

Shishir