

CS5542 Big Data Apps and Analytics

LAB ASSIGNMENT #10

REPORT and SCREEN SHOTS

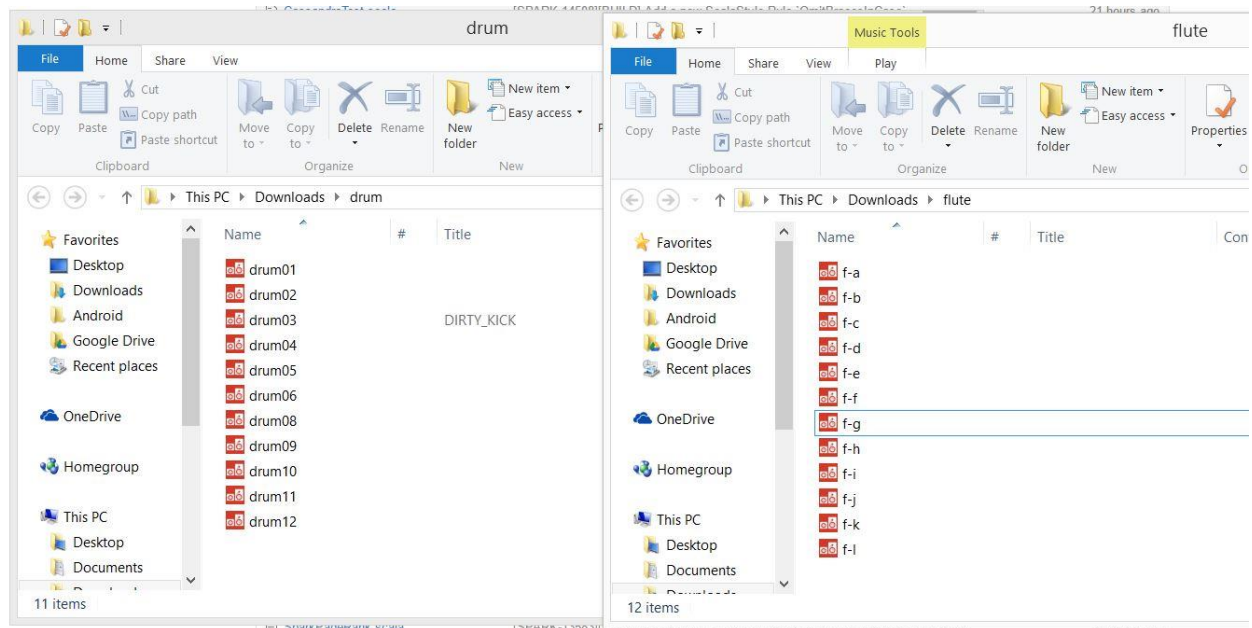
1. Audio Classification and Smart Phone Notification

Extend your lab 7, 8, 9 work for a complete workflow integrating the following features

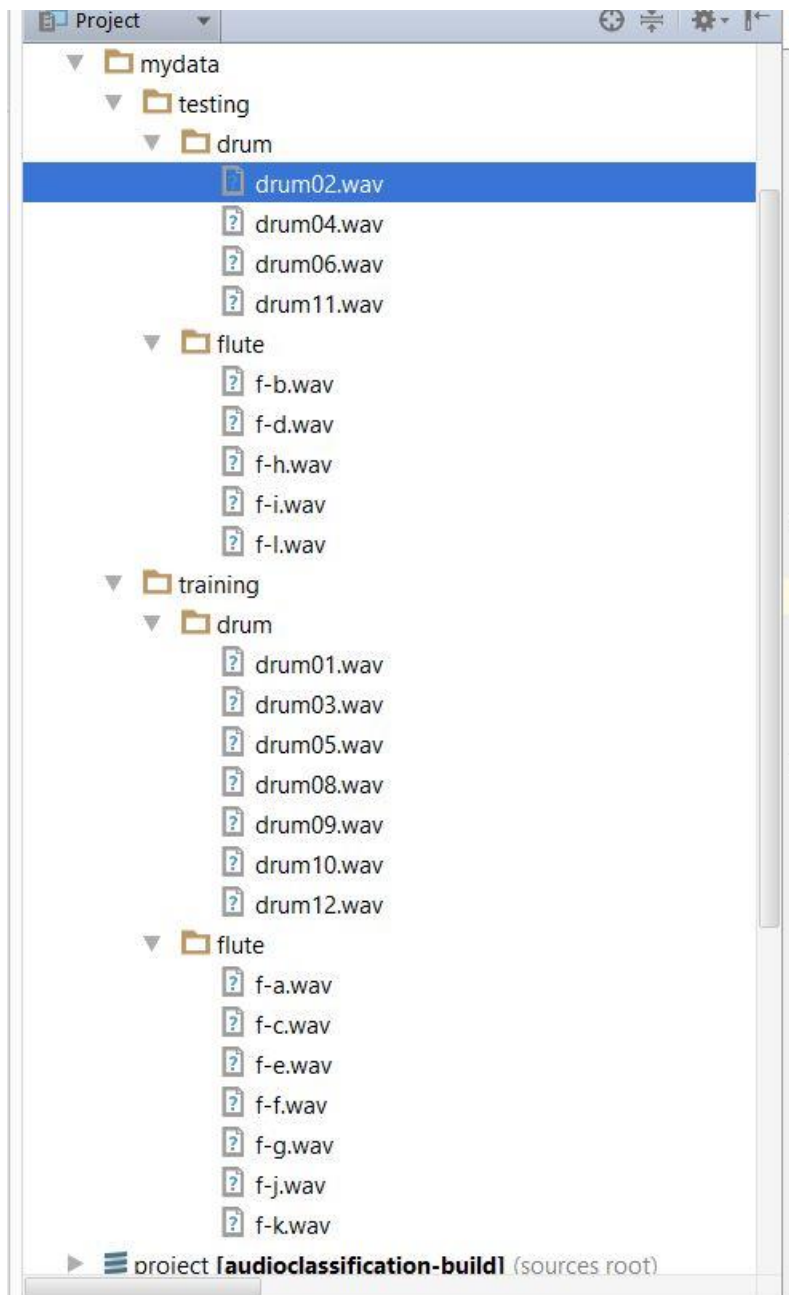
- 1) Audio collection based on the tags (related to your project)
 - a. Training Datasets (audio data from smart devices or online sound repositories such as <https://www.freesound.org/>)
 - b. Testing Datasets (audio data from smart devices)
- 2) Audio Classification based on the categories related to your project
- 3) Notification to smartphone/smartwatch
- 4) Bonus points: Music Recommendation system (related to your own project)
 - a. make a recommendation based on user profile (e.g., preferences, location, gender, age)
 - b. Recommendation through smartphone/smartwatch using your ML application

1) Audio Collection

Collected drum and flute data .



And divided into training and testing data



2. Audio Classification based on the categories related to your project

Training the drum and flute data

Generating features from Training audio data.

```

AudioClassification
2-Tutorial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/drum/drum03.wav
2-Tutorial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/drum/drum10.wav
rial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/drum/drum03.wav41.07.789436682179243E-6;0.005126953125;0.56;0.00115455497889878093
rial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/drum/drum10.wav98.0;3.109450843003122E-5;0.0029296875;0.64;0.004747480043887982
netlib.NativeSystemBLAS
netlib.NativeRefBLAS
2-Tutorial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/drum/drum12.wav
2-Tutorial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/drum/drum05.wav
rial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/drum/drum12.wav124.0;6.120743094569589E-9;0.006103515625;0.72;0.00584148293876981
2-Tutorial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/flute/f-a.wav328.0;1.1099993699540614E-7;0.063720703125;0.6533333333333333;0.06426921284782502
rial10-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/training/flute/f-a.wav328.0;1.1099993699540614E-7;0.063720703125;0.6533333333333333;0.06426921284782502
Compilation completed successfully in 49.93ms (4 minutes ago)

```

Generating features from Testing audio data.

```

-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/testing/f1ute/f-h.wav196.0;7.10031352297439E-9;0.053466796875;0.6866666666666666;0.07742406007963765
-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/testing/drum/drum02.wav3969.0;8.750309672170062E-11;0.007537841796875;0.5333333333333333;0.029367671733856116
-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/testing/f1ute/f-l.wav266.0;9.51695255351321E-9;0.058884765625;0.6866666666666666;0.06259847626162264
-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/testing/f1ute/f-l.wav206.0;2.747453800345668E-9;0.048921875;0.66;0.0534332860897331
it sent to driver
on localhost (3/2)
-SourceCode/C85542-Tutorial10-SourceCode/AudioClassification/mydata/testing/drum/drum04.wav6639.0;3.1838821042790554E-6;0.016448974609375;0.5333333333333334;9.419935077606476E-4
r-4))
it sent to driver

```

Accuracy

77 percent

```
Run AudioClassification
16/04/13 00:00:14 INFO Executor: Running task 1.0 in stage 5.0 (TID 11)
16/04/13 00:00:14 INFO WholeTextFileRDD: Input split: Paths: C:/Users/Rakesh/Desktop/Big Data Analytics and apps/Tutorial Labs/Lab10/CS5542-Tutorial10-SourceCode/CS5542-Tutorial10-SourceCode/WholeTextFileRDD/
16/04/13 00:00:14 INFO WholeTextFileRDD: Input split: Paths: C:/Users/Rakesh/Desktop/Big Data Analytics and apps/Tutorial Labs/Lab10/CS5542-Tutorial10-SourceCode/CS5542-Tutorial10-SourceCode/WholeTextFileRDD/
16/04/13 00:00:14 INFO Executor: Finished task 0.0 in stage 5.0 (TID 10). 2082 bytes result sent to driver
16/04/13 00:00:14 INFO TaskSetManager: Finished task 0.0 in stage 5.0 (TID 10) in 87 ms on localhost (1/2)
Accuracy : 0.7777777777777778
16/04/13 00:00:14 INFO Executor: Finished task 1.0 in stage 5.0 (TID 11). 2082 bytes result sent to driver
16/04/13 00:00:14 INFO TaskSetManager: Finished task 1.0 in stage 5.0 (TID 11) in 99 ms on localhost (2/2)
16/04/13 00:00:14 INFO DAGScheduler: ResultStage 5 (count at AudioClassification.scala:68) finished in 0.101 s
16/04/13 00:00:14 INFO TaskSchedulerImpl: Removed TaskSet 5.0, whose tasks have all completed, from pool
16/04/13 00:00:14 INFO DAGScheduler: Job 4 finished: count at AudioClassification.scala:68, took 0.110300 s
16/04/13 00:00:14 INFO SparkContext: Starting job: collectAsMap at MulticlassMetrics.scala:49
16/04/13 00:00:14 INFO DAGScheduler: Registering RDD 10 (map at MulticlassMetrics.scala:46)
16/04/13 00:00:14 INFO DAGScheduler: Got job 5 (collectAsMap at MulticlassMetrics.scala:49) with 2 output partitions
Compilation completed successfully in 45.93ms (4 minutes ago)
```

Confusion matrix

$$(5+2)/(5+2+2+0)=7/9=77.77\%$$

```
Run AutoClassification
16/04/13 00:00:41 INFO DAGScheduler: Job 6 finished: collectAsMap at MulticlassMetrics.scala:59, took 0.410732 s
16/04/13 00:00:41 INFO SparkContext: Invoking stop() from shutdown hook
Confusion Matrix
: 2.0 2.0
0.0 5.0
16/04/13 00:00:42 INFO SparkUI: Stopped Spark web UI at http://192.168.56.1:4040
16/04/13 00:00:42 INFO MapOutputTrackerMasterEndpoint: MapOutputTrackerMasterEndpoint stopped!
16/04/13 00:00:42 INFO MemoryStore: MemoryStore cleared
16/04/13 00:00:42 INFO BlockManager: BlockManager stopped
16/04/13 00:00:42 INFO BlockManagerMaster: BlockManagerMaster stopped
16/04/13 00:00:42 INFO OutputCommitCoordinator$OutputCommitCoordinatorEndpoint: OutputCommitCoordinator stopped!
16/04/13 00:00:42 INFO SparkContext: Successfully stopped SparkContext
16/04/13 00:00:42 INFO ShutdownHookManager: Shutdown hook called
Compilation completed successfully in 4s 93ms (a minute ago)
```

3. Recommendation

Recommended when passed the flute Audio

