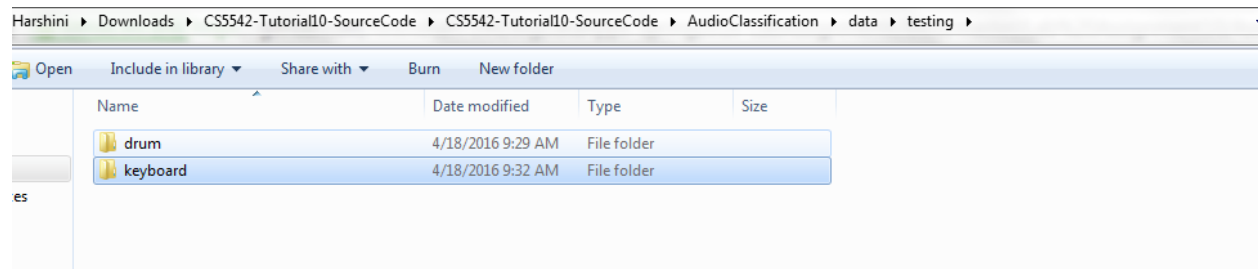


Report for Lab 10

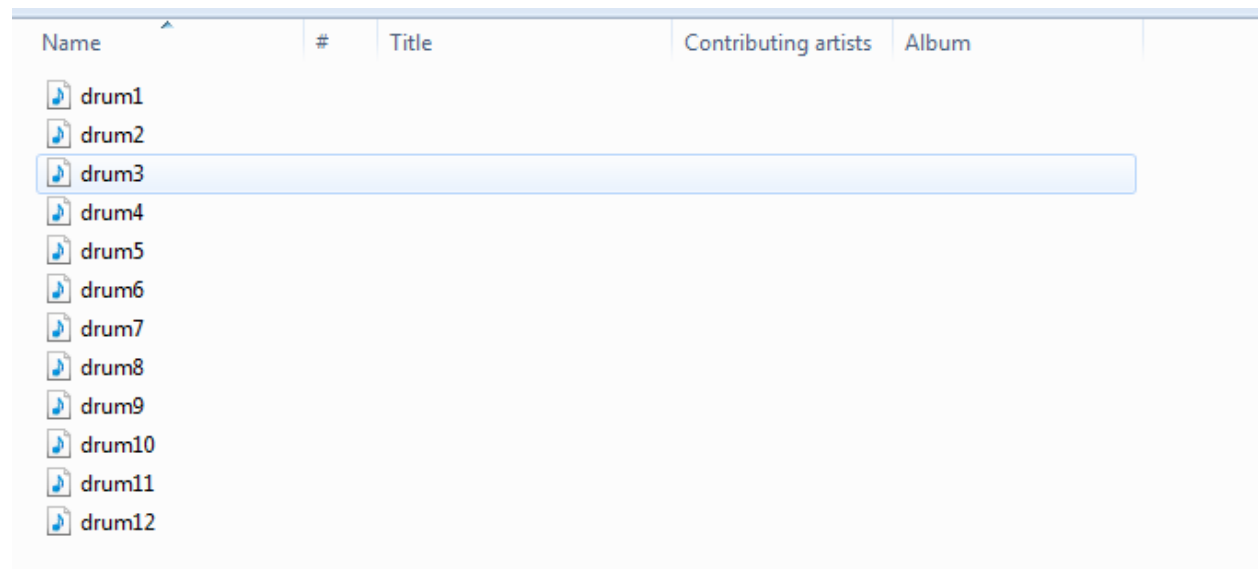
1. Audio collection

The below are the screenshots of testing and training datasets:

Testing data:



Training data:



Name	#	Title	Contributing artists	Album
keyboard1				
keyboard2				
keyboard3				
keyboard4				
keyboard5				
keyboard6				
keyboard7				
keyboard8				
keyboard9				
keyboard10				
keyboard11				
keyboard12				
keyboard13				
keyboard14				

- Audio classification based on the categories related to project:
We can get the accuracy as well from this along with classified data.

AudioClassification - [C:\Users\Sri Divya\Downloads\CS5542-Tutorial10-SourceCode\CS5542-Tutorial10-SourceCode\AudioClassification] - AudioClassification.scala - IntelliJ IDEA 15.0.4

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AudioClassification

Project Packages AudioClassification.scala x Iterator.scala x SpectralCentroid.class x build.sbt x

Project Structure

- AudioClassification [audioclassification] (C:\Users\Sri Divya\Downloads\CS5542-Tutorial10-SourceCode\CS5542-Tutorial10-SourceCode\AudioClassification)
 - data
 - testing
 - drum
 - keyboard
 - training
 - drum
 - drum1.wav
 - drum2.wav
 - drum3.wav
 - drum4.wav
 - drum5.wav
 - drum6.wav
 - drum7.wav
 - drum8.wav
 - drum9.wav
 - drum10.wav
 - drum11.wav
 - drum12.wav
 - keyboard

```

val test = sc.wholeTextFiles(TESTING_PATH)
val X_test = test.map(f => {
  val filename = f._1.split("file:/")
  val features = AudioFeatureExtraction(filename(1))
  val cat = f._1.split("/")
  val cate = cat(cat.length - 2)

  println(AUDIO_CATEGORIES.indexOf(cate).toDouble, Vectors.dense(features.split(' ').map(_.toDouble)))
  LabeledPoint(AUDIO_CATEGORIES.indexOf(cate).toDouble, Vectors.dense(features.split(' ').map(_.toDouble)))
})

X_test.foreach(f => {
  println(f.label + " " + f.features)
})

val model = NaiveBayes.train(X_train, lambda = 1.0)

val predictionAndLabel = X_test.map(p => (model.predict(p.features), p.label))
val accuracy = 1.0 * predictionAndLabel.filter(x => x._1 == x._2).count() / test.count()

println("Accuracy : " + accuracy)

val metrics = new MulticlassMetrics(predictionAndLabel)
println("Confusion Matrix \n \n : " + metrics.confusionMatrix)

```

Run AudioClassification

```

16/04/18 08:48:22 INFO MemoryStore: MemoryStore cleared
16/04/18 08:48:22 INFO BlockManager: BlockManager stopped
16/04/18 08:48:22 INFO BlockManagerMaster: BlockManagerMaster stopped
16/04/18 08:48:22 INFO OutputCommitCoordinator$OutputCommitCoordinatorEndpoint: OutputCommitCoordinator stopped!
16/04/18 08:48:22 INFO SparkContext: Successfully stopped SparkContext
16/04/18 08:48:22 INFO ShutdownHookManager: Shutdown hook called
16/04/18 08:48:22 INFO RemoteActorRefProviders$RemoteTerminator: Shutting down remote daemon.

```

60.7 CRLF UTF-8 9:37 AM 4/18/2016

3. Notification to smart watch /smart phone



9:18 AM
Monday, April 18



Audio Trend notification
Recieved an audio file

9:17 AM

Keyboard
Hello Android you are #1

