CS5542 Big Data Apps and Analytics
LAB ASSIGNMENT-9
REPORT and SCREEN SHOTS

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Spark ML Lib (with Instagram streaming and data from smart devices) and Smart Application

1) Image collection and sentimental analysis based on the image tags using Instagram streaming (related to your project)

a. Training Datasets: Instagram Streaming/Categorized Image (e.g., Static UEC Food Dataset) and metadata

b. Testing Datasets e.g., Image, UserGroup, Category, Rating (Instagram streaming)

2) Image Classification based on the categories related to your project

3) Image-based Recommendation system (related to your own project)

a. The rating based on sentiment analysis of Instagram metadata

b. Expected outcome is to make a recommendation based on user image input or profile (e.g., preferences, location, gender, age)

4) Instagram trend notification to smartphone/smartwatch

5) Mobile Recommendation through smartphone/smartwatch using your ML application

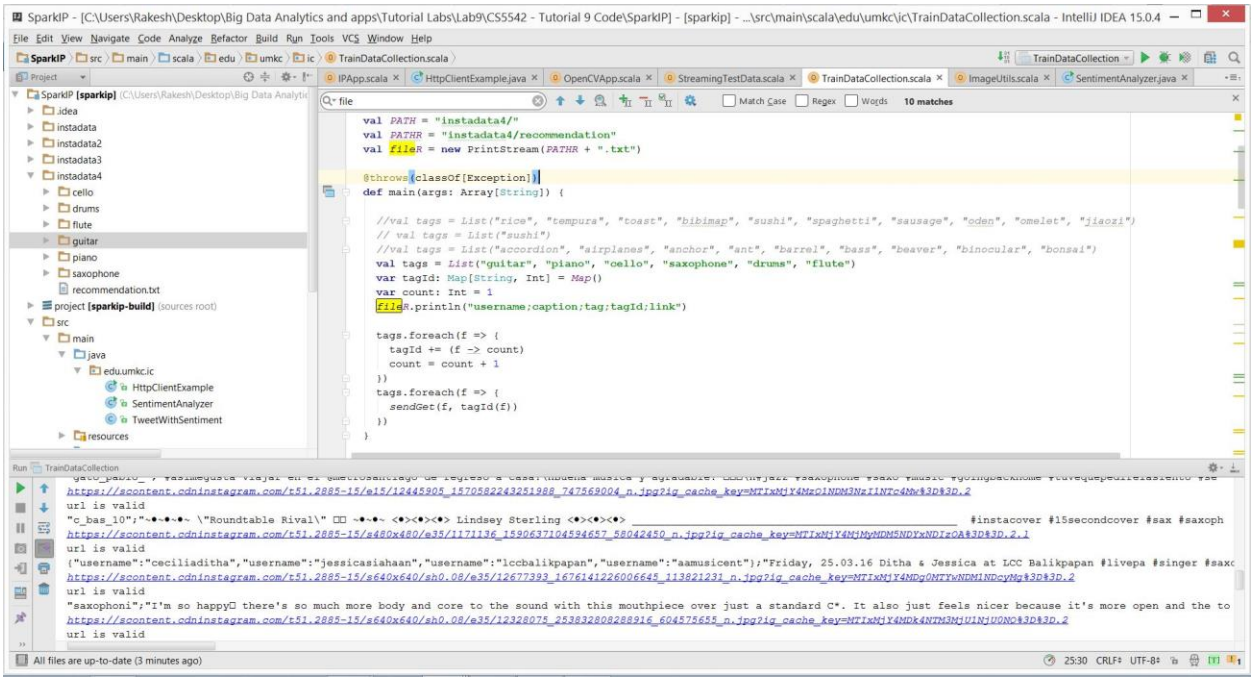
1) Image collection and sentimental analysis based on the image tags using Instagram streaming (related to your project)

a. Training Datasets: Instagram Streaming/Categorized Image (e.g., Static UEC Food Dataset) and metadata

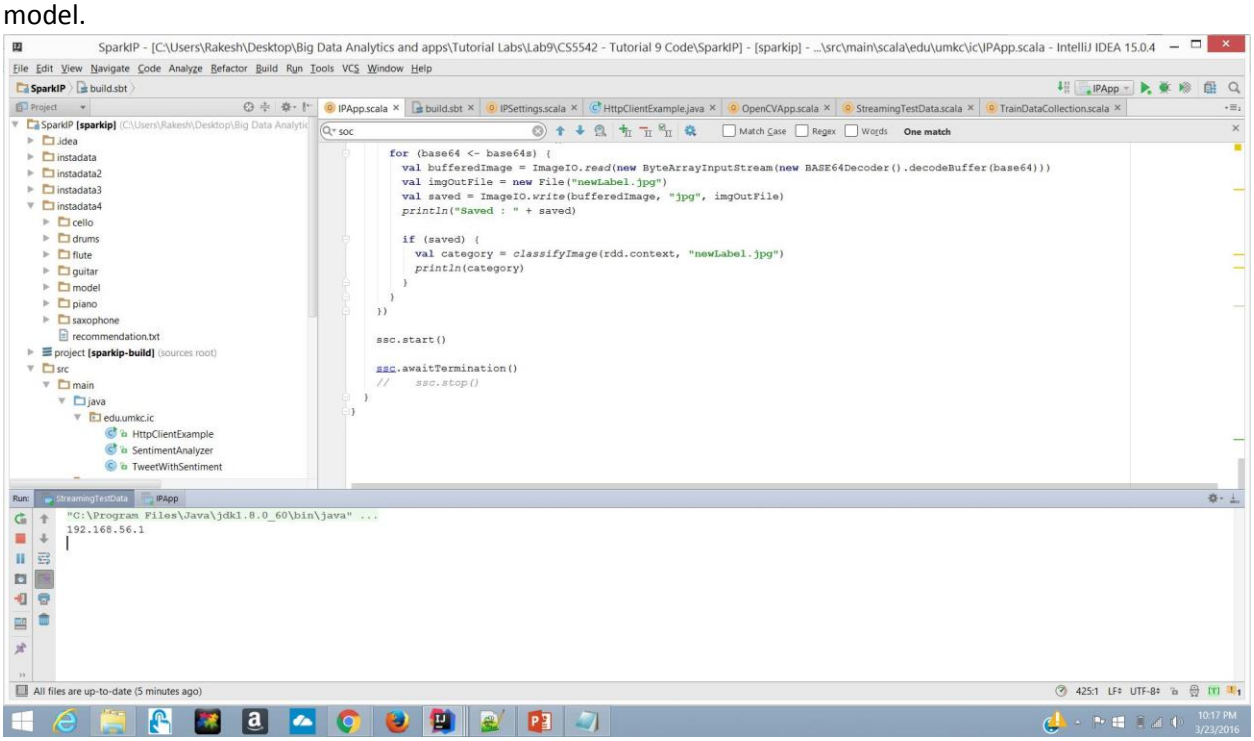
b. Testing Datasets e.g., Image, UserGroup, Category, Rating (Instagram streaming)

- We have collected the image datasets from the Instagram. We have collected the Image data for the hashtags musical instruments.
- The list of tag categories for musical instruments are List("guitar", "piano", "cello", "saxophone", "drums", "flute")
- Along with the Training data collection we have also collected the image tags based on user group and their image links and tags in Recommendation.txt file which is later used for the Recommendation. Format “username;caption;tag;tagId;link”
- Testing Data is live streaming Data from the Instagram.

1. We have collected the image datasets from the Instagram. We have collected the Image data for the hashtags musical instruments. **Data Folder: Instadata4 - List("guitar", "piano", "cello", "saxophone", "drums", "flute")**



2. For Testing and Validation of the model we create a live streaming data to predict the current live image for the particular tags. We open a socket to listen the request from the client i.e. our classification model.



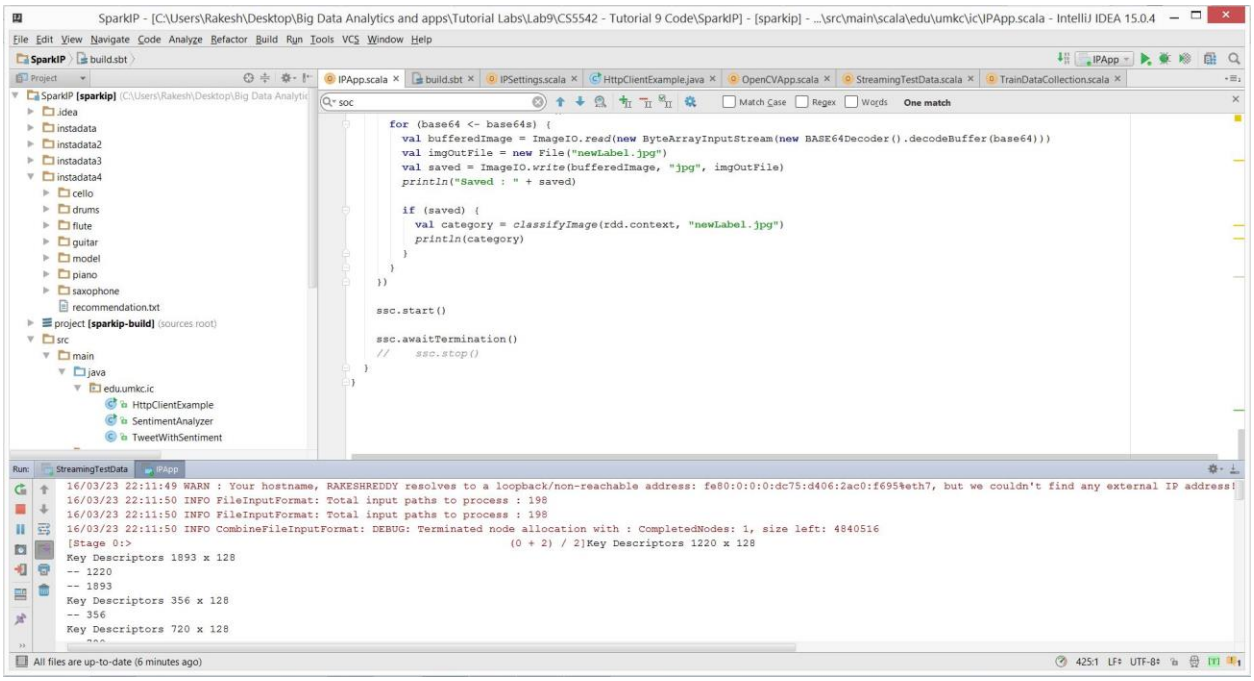
2) Image Classification based on the categories related to your project

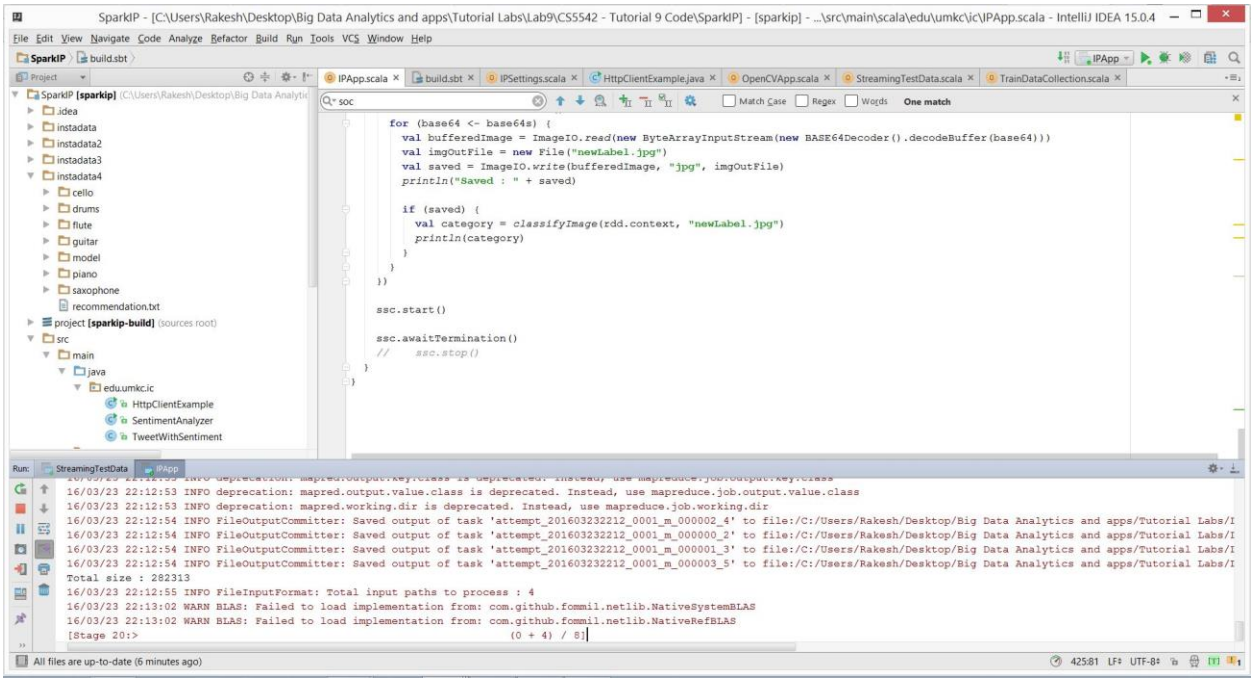
Image classification:

Predicting the tag for Live Image Data

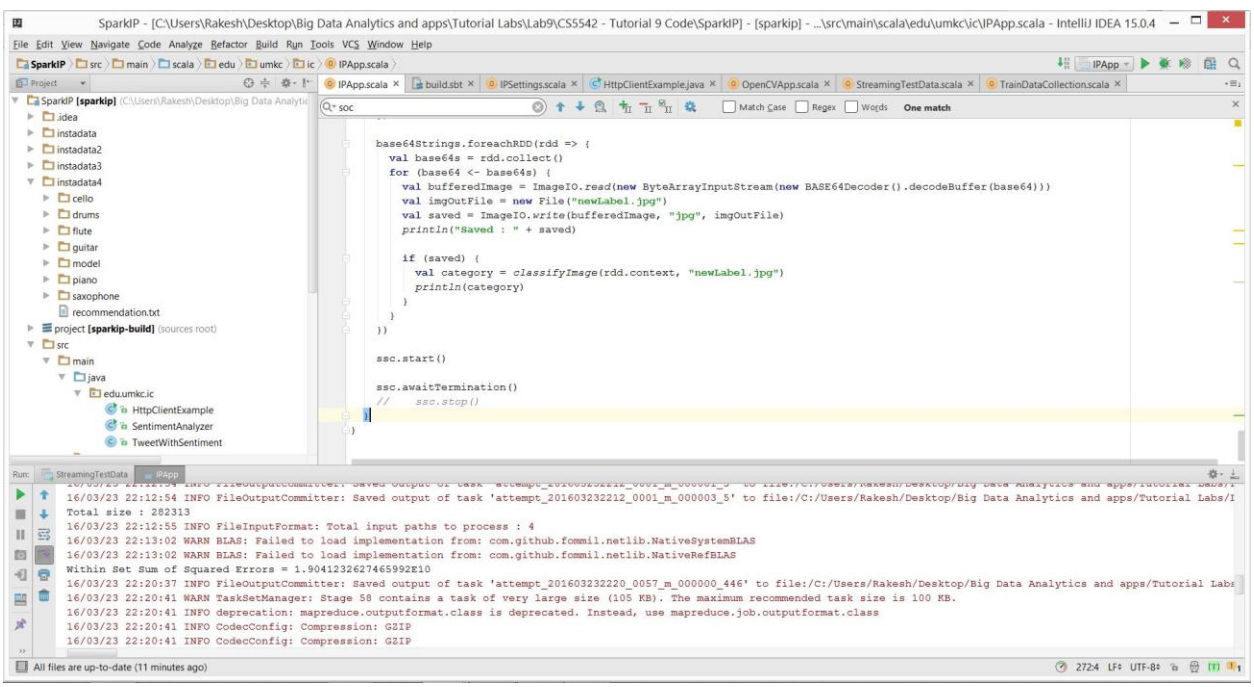
Steps:

1. First we get the key Descriptors for the all images

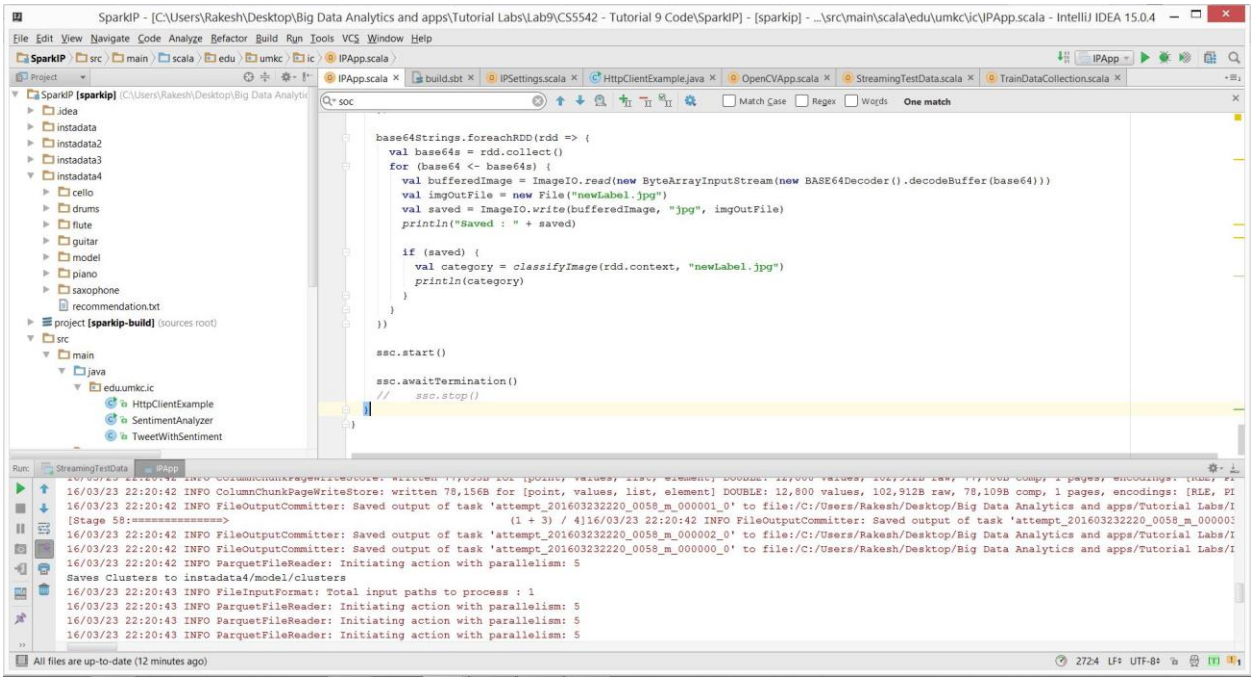




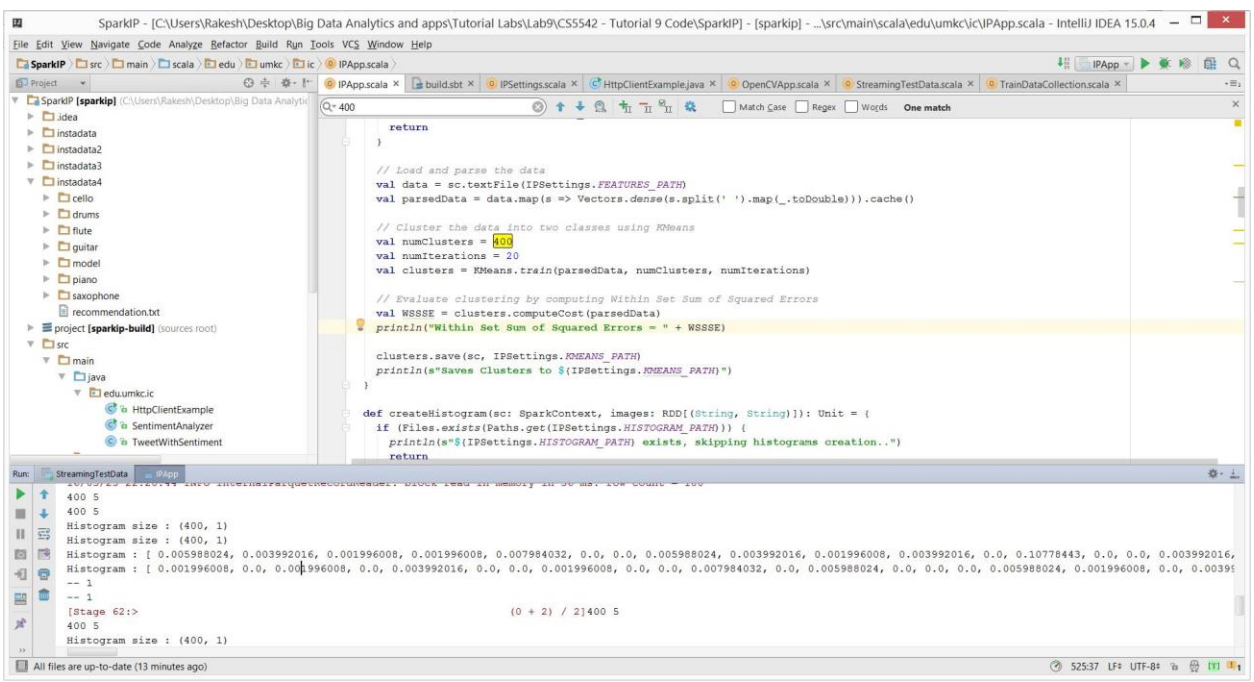
5. Displaying for squared errors



6. Clustering the image Bag of Visual words



7. Histograms for features of images



8. Confusion Matrix Almost we got accuracy of 45%

```
16/03/23 23:24:51 WARN BLAS: Failed to load implementation from: com.github.fommil.netlib.NativeSystemBLAS
16/03/23 23:24:51 WARN BLAS: Failed to load implementation from: com.github.fommil.netlib.NativeRefBLAS
 |=================== Confusion matrix ==========================
0.0  3.0  0.0  6.0   0.0  0.0
0.0  9.0  0.0  1.0   0.0  0.0
0.0  6.0  0.0  1.0   0.0  0.0
0.0  2.0  0.0  14.0  0.0  0.0
0.0  3.0  0.0  4.0   0.0  0.0
0.0  8.0  0.0  4.0   0.0  0.0
16/03/23 23:24:55 INFO FileOutputCommitter: Saved output of task 'attempt_201603232324_0013_m_000000_47' to file:/C:/Users/Rakesh/Desktop/Big Data Analytics and apps/Tutorial Labs/
16/03/23 23:24:55 INFO deprecation: mapreduce.outputformat.class is deprecated. Instead, use mapreduce.job.outputformat.class
```

9. Built the Naïve Bayes Model

```
16/03/23 23:24:56 INFO ParquetFileReader: Initiating action with parallelism: 5
Naive Bayes Model generated
-------------------------------------------
Time: 1458793498000 ms
-------------------------------------------

16/03/23 23:24:58 WARN ReceiverSupervisorImpl: Restarting receiver with delay 2000 ms: Socket data stream had no more data
16/03/23 23:24:58 ERROR ReceiverTracker: Deregistered receiver for stream 0: Restarting receiver with delay 2000ms: Socket data stream had no more data
16/03/23 23:24:58 WARN BlockManager: Block input-0-1458793498000 replicated to only 0 peer(s) instead of 1 peers
-------------------------------------------
Time: 1458793500000 ms
```

10. **Predicting the tag for Live Image Data – Piano tag**

```
16/03/23 23:51:12 INFO InternalParquetRecordReader: block read in memory in 3 ms. row count = 1
0.0 1.0 2.0 3.0 4.0 5.0
16/03/23 23:51:13 WARN BLAS: Failed to load implementation from: com.github.fommil.netlib.NativeSystemBLAS
16/03/23 23:51:13 WARN BLAS: Failed to load implementation from: com.github.fommil.netlib.NativeRefBLAS
Predicting test image : piano
()
-------------------------------------------
Time: 1458795060000 ms
-------------------------------------------

-------------------------------------------
```

11. Trained model stored in Data folder