

Lab Assignment 7

Question 1-

Sentimental analysis using twitter streaming

Description:

I added TwitterSentimentMain.scala to the existing project SentimentAnalysisCoreNLP given in tutorial 7. This will stream data from twitter and classify sentiment into either positive or negative.

```

object TwitterSentimentMain {
  def main(args: Array[String]) {
    val filters = args

    // Set the system properties so that Twitter4j library used by twitter stream
    // can use them to generate OAuth credentials
    System.setProperty("twitter4j.oauth.consumerKey", "c0QH0grlM5HChyhbEEHDOZRW5")
    System.setProperty("twitter4j.oauth.consumerSecret", "41ZbQLsAI8V8HcFXORFSPmSWNiPaAYqaaEoMfytte598Fs1r")
    System.setProperty("twitter4j.oauth.accessToken", "4565837185-yK1zgmTW3Es2r4po5bRqpp53pipejpeTijv58Q4")
    System.setProperty("twitter4j.oauth.accessTokenSecret", "MsR84cLRkPBgjcnANh6WaB6on5OE7DeoYPr6H6HpOjtR0")

    // Create a spark configuration with a custom name and master
    val sparkConf = new SparkConf().setAppName("Deeppuapp1").setMaster("local[*]")
    // Create a StreamingContext with 2 second window
    val ssc = new StreamingContext(sparkConf, Seconds(2))
    // Using the streaming context, open a twitter stream
    // Stream generates a series of random tweets
    val stream = TwitterUtils.createStream(ssc, None, filters)
    // stream.print()

    val sentiment: DStream[TweetWithSentiment] = stream.map[Status] => {
      val st = Status.getText()
      val sa = new SentimentAnalyzer()
      val tw = sa.findSentiment(st)
      tw
    }

    sentiment.foreachRDD {
      rdd => rdd.foreach {
        tw => {
          if (tw != null)
            println(tw.getLine + " " + tw.getCssClass)
        }
      }
    }

    ssc.start()

    ssc.awaitTermination()
  }
}

```

SentimentAnalysisCoreNLP - [F:/BAA/Tutorial ppt/Sentiment Analysis/SentimentAnalysisCoreNLP] - [sentimentanalysiscorenlp] - ...src/main/scala/TwitterSentimentMain.scala - IntelliJ IDEA 15.0.1

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SentimentAnalysisCoreNLP > src > main > scala > TwitterSentimentMain.scala

Project: SentimentAnalysisCoreNLP [sentimentanalysiscorenlp-build] (sources)

TwitterSentimentMain.scala

```
object TwitterSentimentMain {
  def main(args: Array[String]) {
    val filters = args

    // Set the system properties so that Twitter4j library used by twitter stream
    // can use them to generate OAuth credentials
    System.setProperty("twitter4j.oauth.consumerKey", "c0Q8CgrtM5HChybEEDHOZRW5")
    System.setProperty("twitter4j.oauth.consumerSecret", "41ZbQLsAI8V8HcFXORFSPaSWN1PaAYqaaEomfyt5e98Fs1r")
    System.setProperty("twitter4j.oauth.accessToken", "4565837185-yK1zgmTW3Es2r4po5bRgpp53pipejpeTjv58Q4")
    System.setProperty("twitter4j.oauth.accessTokenSecret", "MsR84cLRkFBgjcnalNH6waE6on5OE7DeoYPr6H6HpOjtR0")
  }
}
```

Run TwitterSentimentMain

```
Adding annotator parse
Adding annotator sentiment
16/03/09 06:22:57 INFO TaskSetManager: Finished task 2.0 in stage 2.0 (TID 4) in 861 ms on localhost (2/7)
Adding annotator tokenize
Adding annotator split
Adding annotator parse
Adding annotator sentiment
An all-too-familiar dilemma requires you to choose between pus... More for Cancer https://t.co/suR8pFYC2v sentiment : negative
16/03/09 06:22:57 INFO MemoryStore: ensureFreeSpace(56412) called with curMem=608463, maxMem=499415777
[panelafj] eu n, mas meu pai disse q ia sentiment : negative
16/03/09 06:22:57 INFO MemoryStore: Block input-0-1457526177600 stored as bytes in memory (estimated size 55.1 KB, free 475.6 MB)
Adding annotator tokenize
16/03/09 06:22:57 INFO BlockManagerInfo: Added input-0-1457526177600 in memory on localhost:53678 (size: 55.1 KB, free: 475.7 MB)
16/03/09 06:22:57 WARN BlockManager: Block input-0-1457526177600 replicated to only 0 peer(s) instead of 1 peers
16/03/09 06:22:57 INFO BlockGenerator: Pushed block input-0-1457526177600
Adding annotator split
Adding annotator parse
Adding annotator sentiment
Adding annotator tokenize
Adding annotator split
Adding annotator parse
Adding annotator sentiment
16/03/09 06:22:58 INFO MemoryStore: ensureFreeSpace(4863) called with curMem=664875, maxMem=499415777
16/03/09 06:22:58 INFO MemoryStore: Block input-0-1457526177800 stored as bytes in memory (estimated size 4.7 KB, free 475.6 MB)
16/03/09 06:22:58 INFO BlockManagerInfo: Added input-0-1457526177800 in memory on localhost:53678 (size: 4.7 KB, free: 475.7 MB)
```

All files are up-to-date (4 minutes ago)

SentimentAnalysisCoreNLP - [F:/BAA/Tutorial ppt/Sentiment Analysis/SentimentAnalysisCoreNLP] - [sentimentanalysiscorenlp] - ...src/main/scala/TwitterSentimentMain.scala - IntelliJ IDEA 15.0.1

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SentimentAnalysisCoreNLP > src > main > scala > TwitterSentimentMain.scala

Project: SentimentAnalysisCoreNLP [sentimentanalysiscorenlp-build] (sources)

TwitterSentimentMain.scala

```
object TwitterSentimentMain {
  def main(args: Array[String]) {
    val filters = args

    // Set the system properties so that Twitter4j library used by twitter stream
    // can use them to generate OAuth credentials
    System.setProperty("twitter4j.oauth.consumerKey", "c0Q8CgrtM5HChybEEDHOZRW5")
    System.setProperty("twitter4j.oauth.consumerSecret", "41ZbQLsAI8V8HcFXORFSPaSWN1PaAYqaaEomfyt5e98Fs1r")
    System.setProperty("twitter4j.oauth.accessToken", "4565837185-yK1zgmTW3Es2r4po5bRgpp53pipejpeTjv58Q4")
    System.setProperty("twitter4j.oauth.accessTokenSecret", "MsR84cLRkFBgjcnalNH6waE6on5OE7DeoYPr6H6HpOjtR0")
  }
}
```

Run TwitterSentimentMain

```
جملوما لجة والتخو
sentiment : negative
سالم الأعمال...
Adding annotator tokenize
Adding annotator split
Adding annotator parse
Adding annotator sentiment
16/03/09 06:23:02 WARN FTBlexer: Untokenizable: ? (U+D83E, decimal: 55358)
16/03/09 06:23:02 INFO MemoryStore: ensureFreeSpace(5026) called with curMem=979373, maxMem=499415777
16/03/09 06:23:02 INFO MemoryStore: Block input-0-1457526182200 stored as bytes in memory (estimated size 4.9 KB, free 475.3 MB)
16/03/09 06:23:02 INFO BlockManagerInfo: Added input-0-1457526182200 in memory on localhost:53678 (size: 4.9 KB, free: 475.4 MB)
16/03/09 06:23:02 WARN BlockManager: Block input-0-1457526182200 replicated to only 0 peer(s) instead of 1 peers
16/03/09 06:23:02 INFO BlockGenerator: Pushed block input-0-1457526182200
16/03/09 06:23:02 INFO Executor: Finished task 4.0 in stage 2.0 (TID 6). 620 bytes result sent to driver
16/03/09 06:23:02 INFO TaskSetManager: Finished task 4.0 in stage 2.0 (TID 6) in 4975 ms on localhost (5/7)
[dcabellor] @CNNEE Quedó demostrado quien es América DES GRACIA. https://t.co/8YH06Bu0NT sentiment : positive
Adding annotator tokenize
Adding annotator split
Adding annotator parse
Adding annotator sentiment
RT @GraceArborea: Be happy. Not because everything is good, but because u can see the good side of everything.
#AldenForCebuana
#MaineFor sentiment : negative
16/03/09 06:23:02 INFO MemoryStore: ensureFreeSpace(5119) called with curMem=984399, maxMem=499415777
16/03/09 06:23:02 INFO MemoryStore: Block input-0-1457526182400 stored as bytes in memory (estimated size 5.0 KB, free 475.3 MB)
16/03/09 06:23:02 INFO BlockManagerInfo: Added input-0-1457526182400 in memory on localhost:53678 (size: 5.0 KB, free: 475.4 MB)
```

All files are up-to-date (4 minutes ago)

SentimentAnalysisCoreNLP - [F:/BAA/Tutorial ppt/Sentiment Analysis/SentimentAnalysisCoreNLP] - [sentimentanalysiscorenlp] - ...src/main/scala/TwitterSentimentMain.scala - IntelliJ IDEA 15.0.1

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SentimentAnalysisCoreNLP [src] > main > scala > TwitterSentimentMain.scala

Project: SentimentAnalysisCoreNLP [sentimentanalysiscorenlp-build] (sources)

TwitterSentimentMain.scala

```
object TwitterSentimentMain {
  def main(args: Array[String]) {
    val filters = args

    // Set the system properties so that Twitter4j library used by twitter stream
    // can use them to generate OAuth credentials
    System.setProperty("twitter4j.oauth.consumerKey", "c0Q8CgrlM5HChybEEDH0ZRM5")
    System.setProperty("twitter4j.oauth.consumerSecret", "41ZbQLsAI8V8HcFXORFSPaSWiPaAYqaaEomfytte598FsiR")
    System.setProperty("twitter4j.oauth.accessToken", "4565837185-yK1zgmTw3Es2r4p05bRgpp53pipejpeTHjv58Q4")
    System.setProperty("twitter4j.oauth.accessTokenSecret", "MsR84cLRkFBgjcnah6WaE6on5OE7DeoTPr6H6pOjtR0")
  }
}
```

Run: TwitterSentimentMain

```
16/03/09 06:23:02 INFO MemoryStore: ensureFreeSpace(9621) called with curMem=989518, maxMem=499415777
16/03/09 06:23:02 INFO MemoryStore: Block input-0-1457526182600 stored as bytes in memory (estimated size 9.4 KB, free 475.3 MB)
16/03/09 06:23:02 INFO BlockManagerInfo: Added input-0-1457526182600 in memory on localhost:53678 (size: 9.4 KB, free: 475.4 MB)
16/03/09 06:23:02 WARN BlockManager: Block input-0-1457526182600 replicated to only 0 peer(s) instead of 1 peers
16/03/09 06:23:02 INFO BlockGenerator: Pushed block input-0-1457526182600
Adding annotator tokenize
Adding annotator ssplit
Adding annotator parse
Adding annotator sentiment
@Kinkardashanwest -And make NO mistake. You are NOT using your platform to empower women! sentiment : negative
16/03/09 06:23:03 INFO MemoryStore: ensureFreeSpace(55079) called with curMem=999139, maxMem=499415777
16/03/09 06:23:03 INFO MemoryStore: Block input-0-1457526182800 stored as bytes in memory (estimated size 53.8 KB, free 475.3 MB)
16/03/09 06:23:03 INFO BlockManagerInfo: Added input-0-1457526182800 in memory on localhost:53678 (size: 53.8 KB, free: 475.3 MB)
16/03/09 06:23:03 WARN BlockManager: Block input-0-1457526182800 replicated to only 0 peer(s) instead of 1 peers
16/03/09 06:23:03 INFO BlockGenerator: Pushed block input-0-1457526182800
16/03/09 06:23:03 INFO MemoryStore: ensureFreeSpace(7612) called with curMem=1054218, maxMem=499415777
16/03/09 06:23:03 INFO MemoryStore: Block input-0-1457526183000 stored as bytes in memory (estimated size 7.4 KB, free 475.3 MB)
16/03/09 06:23:03 INFO BlockManagerInfo: Added input-0-1457526183000 in memory on localhost:53678 (size: 7.4 KB, free: 475.3 MB)
16/03/09 06:23:03 WARN BlockManager: Block input-0-1457526183000 replicated to only 0 peer(s) instead of 1 peers
16/03/09 06:23:03 INFO BlockGenerator: Pushed block input-0-1457526183000
RT @fahdalfraikh: تحدي... (1000/10)
إشارة
البتكار
دع
```

All files are up-to-date (5 minutes ago)

SentimentAnalysisCoreNLP - [F:/BAA/Tutorial ppt/Sentiment Analysis/SentimentAnalysisCoreNLP] - [sentimentanalysiscorenlp] - ...src/main/scala/TwitterSentimentMain.scala - IntelliJ IDEA 15.0.1

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SentimentAnalysisCoreNLP [src] > main > scala > TwitterSentimentMain.scala

Project: SentimentAnalysisCoreNLP [sentimentanalysiscorenlp-build] (sources)

TwitterSentimentMain.scala

```
object TwitterSentimentMain {
  def main(args: Array[String]) {
    val filters = args

    // Set the system properties so that Twitter4j library used by twitter stream
    // can use them to generate OAuth credentials
    System.setProperty("twitter4j.oauth.consumerKey", "c0Q8CgrlM5HChybEEDH0ZRM5")
    System.setProperty("twitter4j.oauth.consumerSecret", "41ZbQLsAI8V8HcFXORFSPaSWiPaAYqaaEomfytte598FsiR")
    System.setProperty("twitter4j.oauth.accessToken", "4565837185-yK1zgmTw3Es2r4p05bRgpp53pipejpeTHjv58Q4")
    System.setProperty("twitter4j.oauth.accessTokenSecret", "MsR84cLRkFBgjcnah6WaE6on5OE7DeoTPr6H6pOjtR0")
  }
}
```

Run: TwitterSentimentMain

```
Adding annotator parse
Adding annotator sentiment
Adding annotator tokenize
Adding annotator ssplit
Adding annotator parse
Adding annotator sentiment
16/03/09 06:23:06 WARN FTBlexer: Untokenizable: { (U+300C, decimal: 12300)
16/03/09 06:23:06 INFO MemoryStore: ensureFreeSpace(52781) called with curMem=1352412, maxMem=499415777
16/03/09 06:23:06 INFO MemoryStore: Block input-0-1457526186600 stored as bytes in memory (estimated size 51.5 KB, free 474.9 MB)
16/03/09 06:23:06 INFO BlockManagerInfo: Added input-0-1457526186600 in memory on localhost:53678 (size: 51.5 KB, free: 475.0 MB)
16/03/09 06:23:06 WARN BlockManager: Block input-0-1457526186600 replicated to only 0 peer(s) instead of 1 peers
16/03/09 06:23:06 INFO BlockGenerator: Pushed block input-0-1457526186600
RT @saloniradhainsa: Dr @Gurmeetramrahim G.O!! Pyare Mere PAPA..Pyare Mere PAPA!!
Thank U for all Ur love & benevolence my soulmate JI!
# sentiment : positive
Adding annotator tokenize
Adding annotator ssplit
Adding annotator parse
Adding annotator sentiment
16/03/09 06:23:06 WARN FTBlexer: Untokenizable: { (U+300C, decimal: 12300)
16/03/09 06:23:07 INFO MemoryStore: ensureFreeSpace(13479) called with curMem=1405193, maxMem=499415777
16/03/09 06:23:07 INFO MemoryStore: Block input-0-1457526186800 stored as bytes in memory (estimated size 13.2 KB, free 474.9 MB)
16/03/09 06:23:07 INFO BlockManagerInfo: Added input-0-1457526186800 in memory on localhost:53678 (size: 13.2 KB, free: 475.0 MB)
16/03/09 06:23:07 WARN BlockManager: Block input-0-1457526186800 replicated to only 0 peer(s) instead of 1 peers
16/03/09 06:23:07 INFO BlockGenerator: Pushed block input-0-1457526186800
```

All files are up-to-date (5 minutes ago)

Question-2

Make Recommendation(Related to your Project)

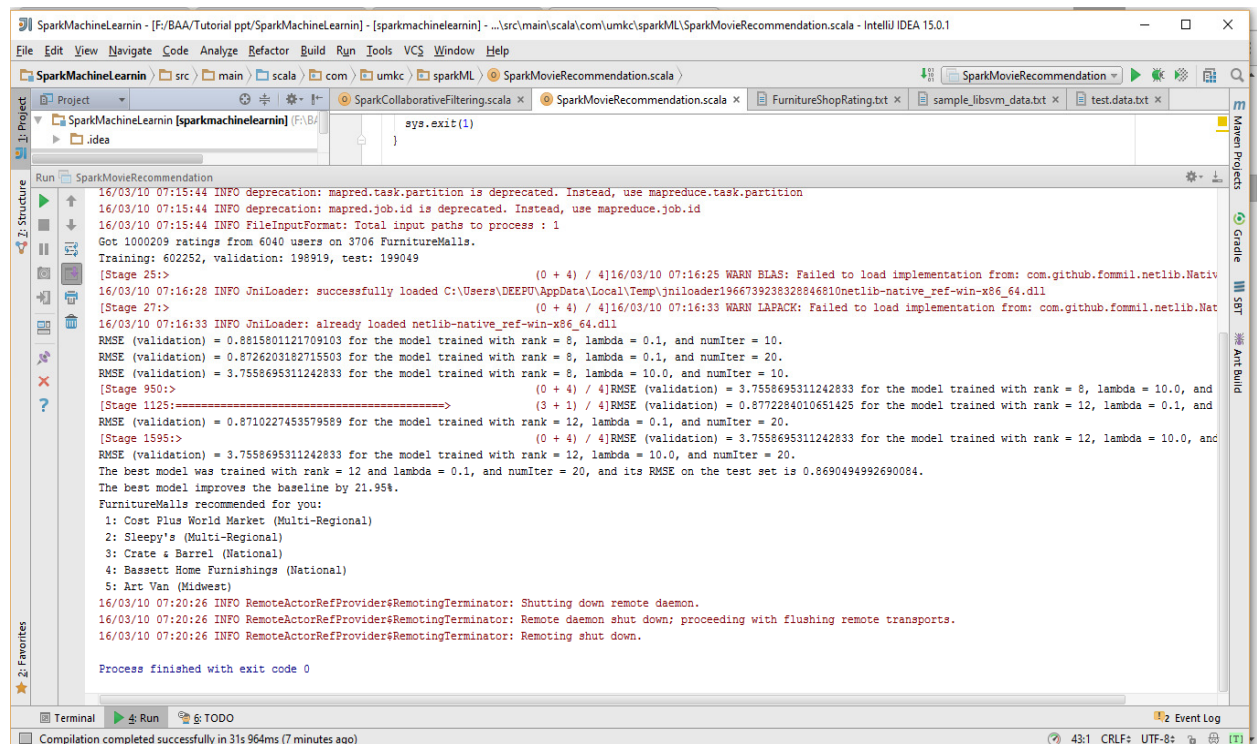
Description:

In this section, I used the SparkMovieRecommendation.scala code to recommend the best places to buy his furniture(FurnitureMalls) to the user. Using 25 handpicked FurnitureMalls, the model recommends top 5 FurnitureMalls based on user preference.

This Screen shot shows the iterations of training:

```
16/03/10 07:15:44 INFO deprecation: mapred.task.partition is deprecated. Instead, use mapreduce.task.partition
Got 1000209 ratings from 6040 users on 3706 FurnitureMalls.
Training: 602252, validation: 198919, test: 199049
[Stage 25:>] (0 + 4) / 4j16/03/10 07:16:25 WARN BLAS: Failed to load implementation from: com.github.fommil.netlib.Native
16/03/10 07:16:28 INFO JniLoader: successfully loaded C:\Users\DEEPU\AppData\Local\Temp\jni-loader1966739238328846810netlib-native_ref-win-x86_64.dll
[Stage 27:>] (0 + 4) / 4j16/03/10 07:16:33 WARN LAPACK: Failed to load implementation from: com.github.fommil.netlib.Native
16/03/10 07:16:33 INFO JniLoader: already loaded netlib-native_ref-win-x86_64.dll
RMSE (validation) = 0.8815801121709103 for the model trained with rank = 8, lambda = 0.1, and numIter = 10.
RMSE (validation) = 0.8726203182715503 for the model trained with rank = 8, lambda = 0.1, and numIter = 20.
RMSE (validation) = 3.7558695311242833 for the model trained with rank = 8, lambda = 10.0, and numIter = 10.
[Stage 950:>] (0 + 4) / 4jRMSE (validation) = 3.7558695311242833 for the model trained with rank = 8, lambda = 10.0, and
[Stage 1125:>] (3 + 1) / 4jRMSE (validation) = 0.8772284010651425 for the model trained with rank = 12, lambda = 0.1, and
RMSE (validation) = 0.8710227453579589 for the model trained with rank = 12, lambda = 0.1, and numIter = 20.
[Stage 1595:>] (0 + 4) / 4jRMSE (validation) = 3.7558695311242833 for the model trained with rank = 12, lambda = 10.0, and
RMSE (validation) = 3.7558695311242833 for the model trained with rank = 12, lambda = 10.0, and numIter = 20.
The best model was trained with rank = 12 and lambda = 0.1, and numIter = 20, and its RMSE on the test set is 0.8690494992690084.
The best model improves the baseline by 21.95%.
```

This Screenshot shows the FurnitureMalls recommended to you:

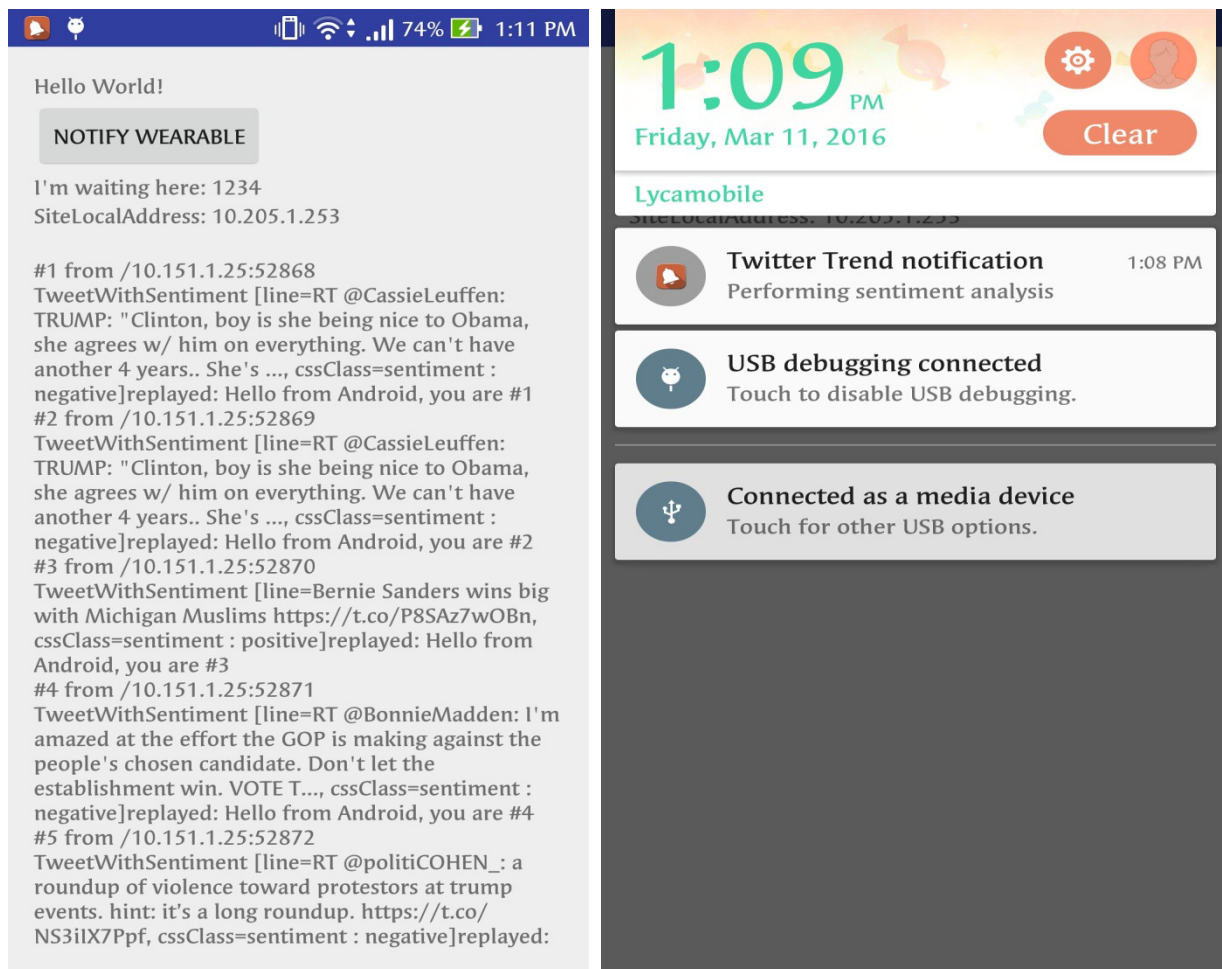


Question 3

Twitter Trend Notification:

Description:

If the smart phone is connected to smart watch through android wear, then the notification could be viewed in smart watch too.



Question 4

Recommendation through smartphone:

Description:

Now the goal is to send the recommendations of the user to his smart phone. So I have taken this recommendation output above and sent it as a notification to smart phone.

Here is the Screenshot:

