

Assignment – Capstone Project
Final submission

Credit Card Fraud Detection System - LogicFinal.pdf

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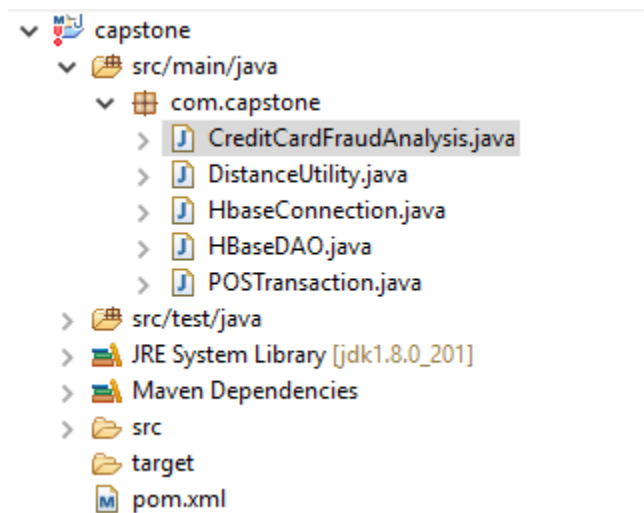
Streaming Layer Processing Explanation

This activity involves processing of POS transactions from the Kafka streams using Spark.

Various steps involved in the process are as follows:

1. Integrate the Kafka stream into Spark and read the POS transactions.
2. Convert the retrieved POS transactions JSON objects into the POSTransaction Pojo class.
3. Validate the POS Transaction based on 3 rules – UCL , Score and Speed
4. If the transaction is Genuine, Update the Lookup table – Set status as GENUINE and update postcode and transaction_dt fields
5. Else mark the status of transaction as FRAUD
6. Insert the POS Transaction into the NoSQL database HBASE.

Code Structure



Description of the Classes

1. **CreditCardFraudAnalysis** – Main class to process the streaming data, validate the POS transaction and update in database.
2. **POSTransaction** – Pojo class to convert the retrieved POS transaction json object
3. **HBaseDAO** – Class to retrieve the instance of Hbase table and Look up data
4. **HbaseConnection** – Class to retrieve the connection of HBase database
5. **DistanceUtility** - Utility class that reads file zipCodePosId.csv and using same if two zipcodes are provided, it returns distances.

Steps for Execution

1. Winscp the capstone-0.0.1-SNAPSHOT-jar-with-dependencies.jar on EC2.

2. Commands to run:

```
#> export SPARK_KAFKA_VERSION=0.10
#> spark2-submit --class com.capstone.CreditCardFraudAnalysis --master yarn --
deploy-mode client --name CreditCardFraudAnalysis --conf
"spark.app.id=CreditCardFraudAnalysis spark.driver.memory=12g
spark.executor.memory=12g spark.executor.instances=2" capstone-0.0.1-SNAPSHOT-
jar-with-dependencies.jar 18.211.252.152:9092 transactions-topic-verified ec2-
54-162-82-15.compute-1.amazonaws.com &> output.txt
```