Output

Real Time Ingestion and Output of Card Transaction CSV

Kafka D-streams are created which will consume the incoming real time data
Spark Streaming process is used to fetch the Card transaction data

```
eclipse-workspace - capstone/src/main/java/final_submission/KafkaSparkStreaming.java - Eclipse
File  Edit  Source  Refactor  Navigate  Search  Project  Run  Window  Help

Problems  @ Javadoc  Declaration  Console  Progress
<terminated> KafkaSparkStreaming [Java Application] C:\Program Files\Java\jdk1.8.0_181\bin\javaw.exe (28-Dec-2018, 7:12:52 PM)
{"card_id":6446222442368956,"member_id":922294712770270,"amount":4180590,"postcode":92233,"pos_id":566472260352621,"transaction_dt":"15-03-2018 02:05:55"}
{"card_id":6446222442368956,"member_id":922294712770270,"amount":9934093,"postcode":12123,"pos_id":872453714149450,"transaction_dt":"16-11-2018 08:36:39"}
{"card_id":6446222442368956,"member_id":922294712770270,"amount":3723735,"postcode":49080,"pos_id":861903740964705,"transaction_dt":"22-02-2018 20:09:35"}
{"card_id":6446222442368956,"member_id":922294712770270,"amount":6441089,"postcode":72538,"pos_id":415573622160253,"transaction_dt":"22-09-2018 02:22:18"}
{"card_id":6446222442368956,"member_id":922294712770270,"amount":4256993,"postcode":87532,"pos_id":64958987615119,"transaction_dt":"30-11-2018 00:48:24"}
{"card_id":4855193368821345,"member_id":922330731113010,"amount":7121363,"postcode":54643,"pos_id":328780506198241,"transaction_dt":"02-11-2018 13:25:29"}
{"card_id":4855193368821345,"member_id":922330731113010,"amount":6734589,"postcode":64077,"pos_id":897822726623099,"transaction_dt":"04-05-2018 11:42:46"}
{"card_id":4855193368821345,"member_id":922330731113010,"amount":6852188,"postcode":98587,"pos_id":556625935893505,"transaction_dt":"06-05-2018 22:01:32"}
{"card_id":4855193368821345,"member_id":922330731113010,"amount":5847768,"postcode":45332,"pos_id":476757631122488,"transaction_dt":"14-08-2018 16:34:58"}
{"card_id":4855193368821345,"member_id":922330731113010,"amount":4851630,"postcode":19428,"pos_id":671741391622312,"transaction_dt":"15-02-2018 06:29:36"}
{"card_id":4855193368821345,"member_id":922330731113010,"amount":6954051,"postcode":11932,"pos_id":224392627656727,"transaction_dt":"27-02-2018 06:19:08"}
{"card_id":4855193368821345,"member_id":922330731113010,"amount":1226172,"postcode":38821,"pos_id":624102022853394,"transaction_dt":"28-04-2018 19:39:00"}
{"card_id":377201318164757,"member_id":924475891017022,"amount":3466006,"postcode":33843,"pos_id":419151659886449,"transaction_dt":"02-10-2018 03:05:54"}
{"card_id":377201318164757,"member_id":924475891017022,"amount":9111095,"postcode":11972,"pos_id":850666355600525,"transaction_dt":"02-11-2018 05:12:05"}
{"card_id":377201318164757,"member_id":924475891017022,"amount":8746106,"postcode":32662,"pos_id":639599527137294,"transaction_dt":"04-08-2018 01:39:07"}
{"card_id":377201318164757,"member_id":924475891017022,"amount":1664357,"postcode":38651,"pos_id":312358474480549,"transaction_dt":"13-03-2018 06:44:17"}
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{"card_id":377201318164757,"member_id":924475891017022,"amount":5205373,"postcode":14867,"pos_id":485582832406687,"transaction_dt":"20-11-2018 02:19:22"}
{"card_id":377201318164757,"member_id":924475891017022,"amount":6881323,"postcode":95975,"pos_id":749826149212397,"transaction_dt":"28-07-2018 06:40:31"}
{"card_id":377201318164757,"member_id":924475891017022,"amount":5558730,"postcode":80131,"pos_id":390158709165973,"transaction_dt":"29-03-2018 02:31:05"}
{"card_id":4621825124121683,"member_id":924869952220528,"amount":7853363,"postcode":45899,"pos_id":196418175044784,"transaction_dt":"03-02-2018 14:08:39"}
{"card_id":4621825124121683,"member_id":924869952220528,"amount":5753871,"postcode":64465,"pos_id":886400248995428,"transaction_dt":"06-06-2018 21:08:17"}
{"card_id":4621825124121683,"member_id":924869952220528,"amount":8929310,"postcode":78672,"pos_id":750639762241685,"transaction_dt":"08-03-2018 21:19:36"}
{"card_id":4621825124121683,"member_id":924869952220528,"amount":6332465,"postcode":12510,"pos_id":8843104035396,"transaction_dt":"11-08-2018 11:34:49"}
{"card_id":4621825124121683,"member_id":924869952220528,"amount":8503631,"postcode":17356,"pos_id":137215447446754,"transaction_dt":"23-06-2018 14:35:54"}
{"card_id":4621825124121683,"member_id":924869952220528,"amount":4148078,"postcode":63349,"pos_id":74665902818603,"transaction_dt":"23-08-2018 21:07:28"}
{"card_id":4621825124121683,"member_id":924869952220528,"amount":5398104,"postcode":81334,"pos_id":529824120978763,"transaction_dt":"30-03-2018 13:39:18"}
```

The 5235 records of Ingested JSON data

Classification:

59191 GENUINE Card_ID after the update

card_txn.key	card_tx	card_tx	card_tx	card_tx
{"card_id":340028465709212,"transact	9.25E+12	15650	6.81E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	13485	3.26E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	63951	3.06E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	24658	2.47E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	35201	7.41E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	42718	7.26E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	51542	4.98E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	81428	4.18E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	88433	2.25E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	25537	5.54E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	71363	6.34E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	11952	3.50E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	58641	4.47E+13	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	82630	8.43E+13	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	84776	7.25E+13	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	68320	9.89E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	84056	7.99E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	31322	5.77E+13	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	14847	5.84E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	24078	4.85E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	21524	4.88E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	82933	2.19E+14	GENUINE
{"card_id":340028465709212,"transact	9.25E+12	27865	5.62E+14	GENUINE

178 FRAUD Transactions after the update

1	card_txn.key	card_tx	card_tx	card_tx	card_tx	ta
31	{"card_id":340028465709212,"transact	9.25E+12	95636	6.54E+14	FRAUD	
249	{"card_id":340134186926007,"transact	8.88E+14	24330	1.31E+14	FRAUD	
636	{"card_id":341005627432127,"transact	8.72E+14	15623	6.29E+14	FRAUD	
995	{"card_id":341519629171378,"transact	5.34E+14	15120	4.89E+14	FRAUD	
1039	{"card_id":341519629171378,"transact	5.34E+14	24535	7.11E+14	FRAUD	
1371	{"card_id":342048672911139,"transact	4.09E+14	88252	6.77E+13	FRAUD	
1731	{"card_id":342659393657862,"transact	7.56E+13	36601	2.57E+14	FRAUD	
1732	{"card_id":342659393657862,"transact	7.56E+13	80471	5.53E+14	FRAUD	
1738	{"card_id":342659393657862,"transact	7.56E+13	17581	8.60E+14	FRAUD	
1741	{"card_id":342659393657862,"transact	7.56E+13	75779	4.37E+13	FRAUD	
1742	{"card_id":342659393657862,"transact	7.56E+13	28690	8.50E+14	FRAUD	
1748	{"card_id":342659393657862,"transact	7.56E+13	15465	9.97E+13	FRAUD	
1783	{"card_id":342679959520647,"transact	3.29E+14	25978	7.66E+14	FRAUD	
1784	{"card_id":342679959520647,"transact	3.29E+14	25978	7.66E+14	FRAUD	
1802	{"card_id":342679959520647,"transact	3.29E+14	25908	9.20E+13	FRAUD	
3160	{"card_id":344250415187512,"transact	7.87E+14	43317	8.59E+14	FRAUD	
3487	{"card_id":344544208972277,"transact	8.31E+14	71320	6.02E+14	FRAUD	
3578	{"card_id":344583480345238,"transact	6.68E+14	25537	5.54E+14	FRAUD	
3794	{"card_id":345027679564944,"transact	8.09E+14	85327	2.78E+14	FRAUD	
4023	{"card_id":345140945581726,"transact	1.27E+14	24747	9.58E+14	FRAUD	

The Output screenshots required for the initial part of Ingestion of RDBMS Data, NO SQL Table creation, Batch procession were already shown in the Capstone Project – Doc (Mid Submission) .