Load data from Kafka to Hadoop

<Steps to run the python file to load data from Kafka>

1. **Downloaded the Jar file using:**

https://search.maven.org/artifact/org.apache.spark/spark-sql-kafka-0-10_2.11/2.4.6/jar

2. **Run to get data from kafka to local**

```
# Import Dependencies
import os
import sys
from pyspark.sql import SparkSession
from pyspark.sql.functions import *
from pyspark.sql.types import *
from pyspark.sql.functions import from_json
from pyspark.sql.window import Window

spark = SparkSession \
        .builder \
        .appName("Kafka-to-local") \
        .getOrCreate()
spark.sparkContext.setLogLevel('ERROR')

# Read Input
kafka_read = spark  \
        .readStream  \
        .format("kafka")  \
        .option("kafka.bootstrap.servers","18.211.252.152:9092")  \
        .option("subscribe","de-capstone3")  \
        .option("startingOffsets", "earliest")  \
        .load()

updated_data= kafka_read \
      .withColumn('value_str',kafka_read['value'].cast('string').alias('key_str')).drop('value') \
      .drop('key','topic','partition','offset','timestamp','timestampType')

clickstream_data = updated_data.writeStream \
  .format("json") \
  .outputMode("append") \
  .option("truncate", "false") \
  .option("path", "clickstream_data/") \
```

```
  .option("checkpointLocation", "clickstream_data/cp/") \
  .start()

clickstream_data.awaitTermination()
```

3. **Commands used to run the Spark Submit job:**

```
spark-submit --packages org.apache.spark:spark-sql-kafka-0-10_2.11:2.4.6  spark_kafka_to_local.py
```

<Steps to load the data into Hadoop>

1. **Clean data using spark_local_flatten.py**

```
from pyspark.sql import SparkSession
from pyspark.sql.functions import *

spark=SparkSession.builder.appName("Kafka-to-HDFS").master("local").getOrCreate()
spark

#Reading data from hdfs
df=spark.read.json("clickstream.json")

df.show(10,truncate=False)
#Selecting the columns from the clickstream data set
df=df.select(get_json_object(df['value_str'],"$.customer_id").alias("customer_id"),
            get_json_object(df['value_str'],"$.app_version").alias("app_version"),
            get_json_object(df['value_str'],"$.OS_version").alias("OS_version"),
            get_json_object(df['value_str'],"$.lat").alias("lat"),
            get_json_object(df['value_str'],"$.lon").alias("lon"),
            get_json_object(df['value_str'],"$.page_id").alias("page_id"),
            get_json_object(df['value_str'],"$.button_id").alias("button_id"),
            get_json_object(df['value_str'],"$.is_button_click").alias("is_button_click"),
            get_json_object(df['value_str'],"$.is_page_view").alias("is_page_view"),
            get_json_object(df['value_str'],"$.is_scroll_up").alias("is_scroll_up"),
            get_json_object(df['value_str'],"$.is_scroll_down").alias("is_scroll_down"),
            get_json_object(df['value_str'],"$.timestamp").alias("timestamp")
             )

df.printSchema()

df.show(10)
```

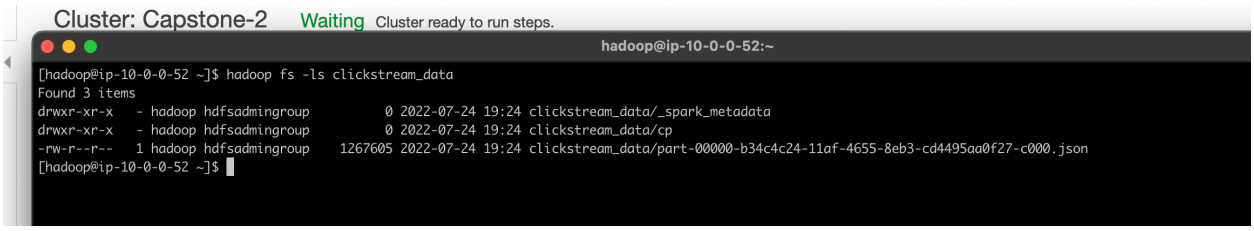
#Writing the dataset to hdfs
df.coalesce(1).write.format('csv').mode('overwrite').save('/user/hadoop/clickstream_flattened',header='true')

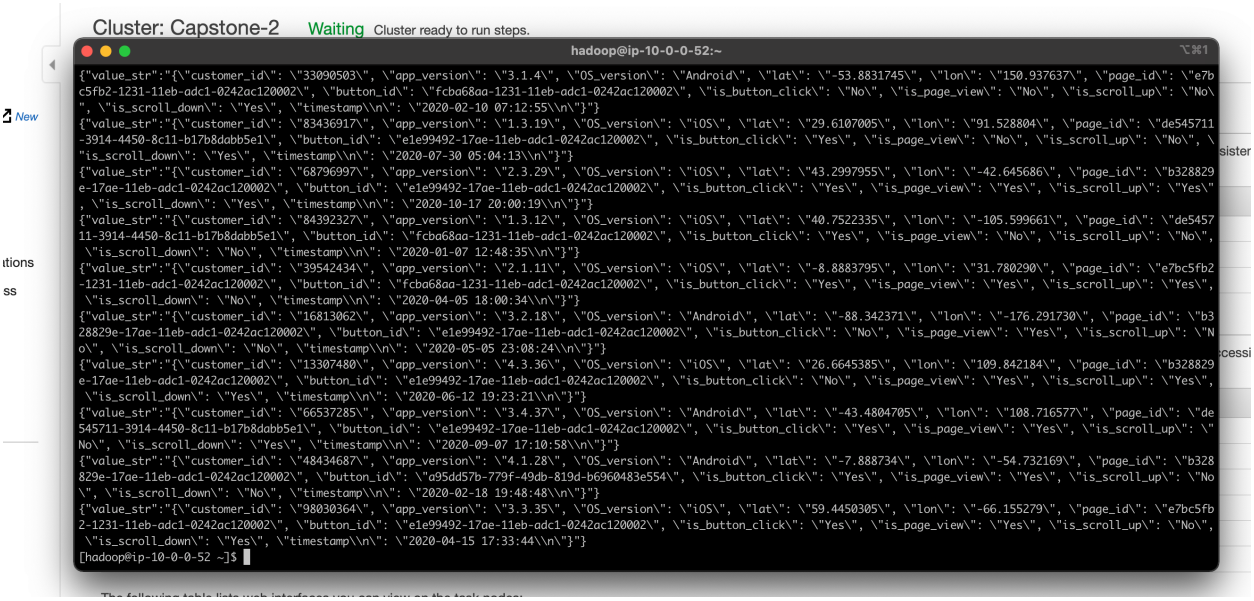
2. Run Spark Submit Job

spark-submit --packages org.apache.spark:spark-sql-kafka-0-10_2.11:2.4.6 spark_local_flatten.py

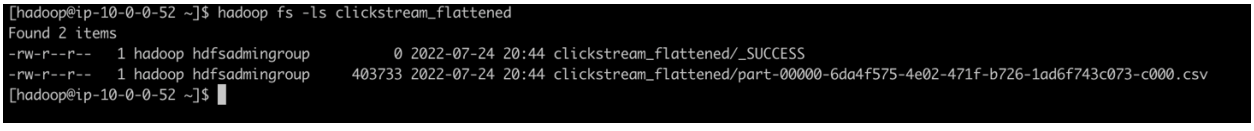
<Screenshot of the data>

1. Kafka to Local





2. Local to HDFS



```
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|value_str
                                                                                                                                                                                |
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```