CIS 4560 Term Project Tutorial

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Lab Tutorial

Iowa Liquor Data Analysis using HIVE, Pig, and Tableau

Objectives

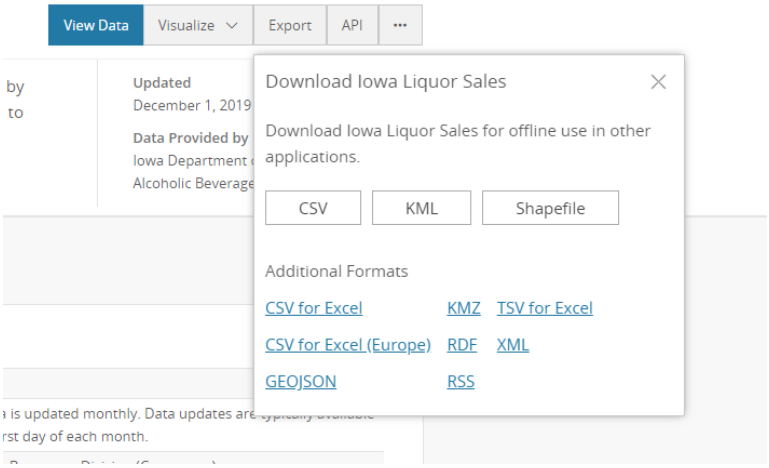
In this tutorial you will learn to:

- Import Dataset into HDFS
- Create Hive table using imported dataset
- Run queries against hive table
- Create Pig Script to find top 10 counties with most 'Jim Beam' bottles sold
- Build visual charts with dataset using Tableau

Platform Spec

Step 1: Retrieving the dataset

1. Download the csv dataset from Iowa's government website: https://data.iowa.gov/Sales-Distribution/Iowa-Liquor-Sales/m3tr-qhgy



Step 2: Upload dataset into HDFS

*NOTE: Replace “jmonte80” with your own EMR account

1. SSH into your Amazon AWS EMR account as follows:

   ```
   ssh jmonte80@54.187.148.25
   ```

2. Create a new directory named project:

   ```
   mkdir project
   ```

   ```
   ls
   ```

   Output:

   ```
   -bash-4.2$ ls
   cost_sites.pig  labPigETL  project  test_ad_data.txt
   ```

3. Now open a separate terminal and locate the directory in which the dataset is stored locally on your machine.

   ```
   techbyt@DESKTOP-79A7GOC:/mnt/d/Users/John/Documents/Coding/GitHub/Group-5-Big-Data$ cd dataset
   techbyt@DESKTOP-79A7GOC:/mnt/d/Users/John/Documents/Coding/GitHub/Group-5-Big-Data/dataset$ ls
   iowa_liquor_sales.csv  query_tables
   techbyt@DESKTOP-79A7GOC:/mnt/d/Users/John/Documents/Coding/GitHub/Group-5-Big-Data/dataset$
   ```

4. Once in the right directory, push the dataset to the project directory in local filesystem in EMR with scp as follows:

*NOTE: Your directory will be dependent on where you saved the dataset. Also, scp will only work in terminals such as bash, git-bash, or any *NIX based terminal.

```
scp iowa_liquor_sales.csv jmonte80@54.187.148.25:/home/jmonte80/project
```

5. Create a new directory in HDFS

   ```
   hdfs dfs -mkdir iowa_liquor_sales
   ```

   ```
   hdfs dfs -ls
   ```

```
-bash-4.2$ hdfs dfs -mkdir iowa_liqour_sales
-bash-4.2$ hdfs dfs -ls
Found 3 items
drwxr-xr-x   - jmonte80 hadoop          0 2019-10-26 12:25 .hiveJars
drwxr-xr-x   - jmonte80 hadoop          0 2019-12-03 02:27 dualcore
drwxr-xr-x   - jmonte80 hadoop          0 2019-12-16 07:22 iowa_liqour_sales
```

6. Upload dataset from EMR local filesystem to HDFS

   ```
   hdfs dfs -put project/iowa_liquor_sales.csv iowa_liquor_sales
   ```

   ```
   hdfs dfs -ls iowa_liquor_sales
   ```

```
-bash-4.2$ hdfs dfs -put project/iowa_liquor_sales.csv iowa_liquor_sales
-bash-4.2$ hdfs dfs -ls iowa_liquor_sales/
-rw-r--r--   1 jmonte80 hadoop 4241525375 2019-12-16 07:34 iowa_liquor_sales
```

STEP 3: Create a table in HIVE using beeline

1. Login to beeline: (Remember to use your account)

   ```
   beeline -u jdbc:hive2://localhost:10000/default -n jmonte80
   ```

   *make sure to use your own database

```
0: jdbc:hive2://localhost:10000/default> use group_five;
INFO  : Compiling command(queryId=hive_20191216074432_d29630ee-9451-4ba7-9dd4-441b17d2a19d): use group_five
INFO  : Semantic Analysis Completed
INFO  : Returning Hive schema: Schema(fieldSchemas:null, properties:null)
INFO  : Completed compiling command(queryId=hive_20191216074432_d29630ee-9451-4ba7-9dd4-441b17d2a19d); Time taken: 0.079 seconds
INFO  : Concurrency mode is disabled, not creating a lock manager
INFO  : Executing command(queryId=hive_20191216074432_d29630ee-9451-4ba7-9dd4-441b17d2a19d): use group_five
INFO  : Starting task [Stage-0:DDL] in serial mode
INFO  : Completed executing command(queryId=hive_20191216074432_d29630ee-9451-4ba7-9dd4-441b17d2a19d); Time taken: 0.169 seconds
INFO  : OK
No rows affected (0.31 seconds)
0: jdbc:hive2://localhost:10000/default>
```

2. Create an external table using the following code to define the table for dataset

```
CREATE EXTERNAL TABLE IF NOT EXISTS iowa_liquor_sales(invoice string,
date_sold string,
store_number int,
store_name string,
address string,
```

```
city string,
zipcode int,
geo_location string,
county_num int,
county_name string,
category string,
category_name string,
vendor_num int,
vendor_name string,
item_num int,
item_name string,
pack int,
bottle_volume_ml int,
state_bottle_cost string,
state_bottle_retail string,
bottles_sold int,
sale_dollar int,
sale_volume_liter int,
sale_volume_gallon int)
ROW FORMAT DELIMITED FIELDS TERMINATED BY ','
STORED AS TEXTFILE LOCATION '/user/jmonte80/iowa_liquor_sales/'
TBLPROPERTIES ('skip.header.line.count'='1');
```

3. Test the table by running a query selecting a few columns with a limit of 10

```
SELECT invoice, store_name, category_name, vendor_name, bottles_sold
FROM iowa_liquor_sales LIMIT 10;
```

Output:

invoice	store_name	category_name	vendor_name	bottles_sold
S19082200035	Shop N Save #2 / E 14th	IMPORTED GRAPE BRANDIES	"Moet Hennessy USA	14
S16317600032	Hy-Vee Food Store #4 / Waterloo	PEPPERMINT SCHNAPPS	Luxco-St Louis	6
S15931100001	Wal-Mart 5115 / Davenport	CANADIAN WHISKIES	"Constellation Wine Company	7
S24144700124	Hy-Vee Food Store / Carroll	IRISH WHISKIES	Pernod Ricard USA/Austin Nichols	1
S24118200010	Dahl's / Johnston	VODKA 80 PROOF	Phillips Beverage Company	6
S26263700008	"Uptown Liquor	1011500	255	27
S12372400025	Super Stop 2 / Altoona	IMPORTED VODKA	Pernod Ricard USA/Austin Nichols	2
S04575700019	Benz Distributing	VODKA FLAVORED	Diageo Americas	36
S04700300012	Wal-Mart 3762 / WDM	VODKA 80 PROOF	Laird And Company	12
S15955700054	Round Window Liquor	VODKA 80 PROOF	Laird And Company	3

10 rows selected (0.367 seconds)