Yoochoose - RecSys Challenge 2015

Summary	Plotting insights with respect to Pricing, Recommendations, Search and Promotions
URL	https://recsys.yoochoose.net/challenge.html
Dashboard Link	https://na139.lightning.force.com/wave/wave.app#dashboard/0FK4W000000cnbpWAA
Category	Web

Abstract

- In this assignment, we are provided with a sample dataset and asked to analyze and build an analytical dashboard as a Proof-of-concept to illustrate the value of data driven analytics.
- The themes to be considered include: Pricing, Promotion, Search, Recommendations

- We will analyze the data using tools (xsv, Trifacta), stage data using Snowflake and build a dashboard using Salesforce Einstein analytics.

Dataset File Description

The training data comprises two different files:

yoochoose-clicks.dat - Click events. Each record/line in the file has the following fields:

- **Session ID** – the id of the session. In one session there are one or many clicks.
- **Timestamp** – the time when the click occurred.
- **Item ID** – the unique identifier of the item.
- **Category** – the category of the item.

yoochoose-buys.dat - Buy events. Each record/line in the file has the following fields:

- **Session ID** - the id of the session. In one session there are one or many buying events.
- **Timestamp** - the time when the buy occurred.
- **Item ID** – the unique identifier of the item.
- **Price** – the price of the item.
- **Quantity** – how many of this item were bought.

Working on Datasets using XSV

XSV commands to Sample the dataset and other Wrangling operations like Filtering, Joining, Slicing, Search, cleaning, Sampling

1. **Headers**: xsv header command applied to list the **headers** of both the files

```
C:\Users\kaviy\Desktop\Sem3>xsv headers ycclick.csv
1   5
2   2014-04-07T17:13:46.713Z
3   214530776
4   0

C:\Users\kaviy\Desktop\Sem3>xsv headers ycbuy.csv
failed to open ycbuy.csv: The system cannot find the file specified. (os error 2)

C:\Users\kaviy\Desktop\Sem3>xsv headers ycbuys.csv
1   420374
2   2014-04-06T18:44:58.314Z
3   214537888
4   12462
5   1
```

2. **Stats**: Calculated the **stats** using xsv stats command of the datasets

```
C:\Users\kaviy\Desktop\Sem3>xsv stats ycclick.csv | xsv table
field                   type     sum              min                     max                     min_length  max_length  mean               stddev
5                       Integer  702230708465     5                       7862270                 1           7           669700.0295305282  423498.613216545
2014-04-07T17:13:46.713Z Unicode                  2014-04-01T03:00:08.250Z 2014-08-11T23:33:48.331Z 24          24
214530776               Integer  225305088072789  214507239               643078907               9           9           214867880.7646461  7858889.10714466
0                       Unicode                  0                       S                       1           2

C:\Users\kaviy\Desktop\Sem3>xsv stats yccbuys.csv | xsv table
failed to open yccbuys.csv: The system cannot find the file specified. (os error 2)

C:\Users\kaviy\Desktop\Sem3>xsv stats ycbuys.csv | xsv table
field                   type     sum              min                     max                     min_length  max_length  mean               stddev
420374                  Integer  5677494810300    11                      10777833                2           8           5414486.145769381  3076926.2774466984
2014-04-06T18:44:58.314Z Unicode                  2014-04-01T03:05:31.743Z 2014-09-16T02:51:24.731Z 24          24
214537888               Integer  231738667292004  214507331               1178837797              9           10          221003425.87988177 51270413.58802422
12462                   Integer  1309270866       0                       334998                  1           6           1248.6191888991875 4388.846050711053
1                       Integer  605827           0                       30                      1           2           0.5777622010824196 1.1118696056571284
```

3. **Count**: Calculated the **count** of both the datasets

```
C:\Users\kaviy\Desktop\Sem3>xsv count ycclick.csv
1048575

C:\Users\kaviy\Desktop\Sem3>xsv count ycbuys.csv
1048575
```

4. **Sampled:** Sliced and **Sampled** ycclick.csv from 1048575 rows to **65000** rows and ycbuys.csv from 1048575 rows to **65000**

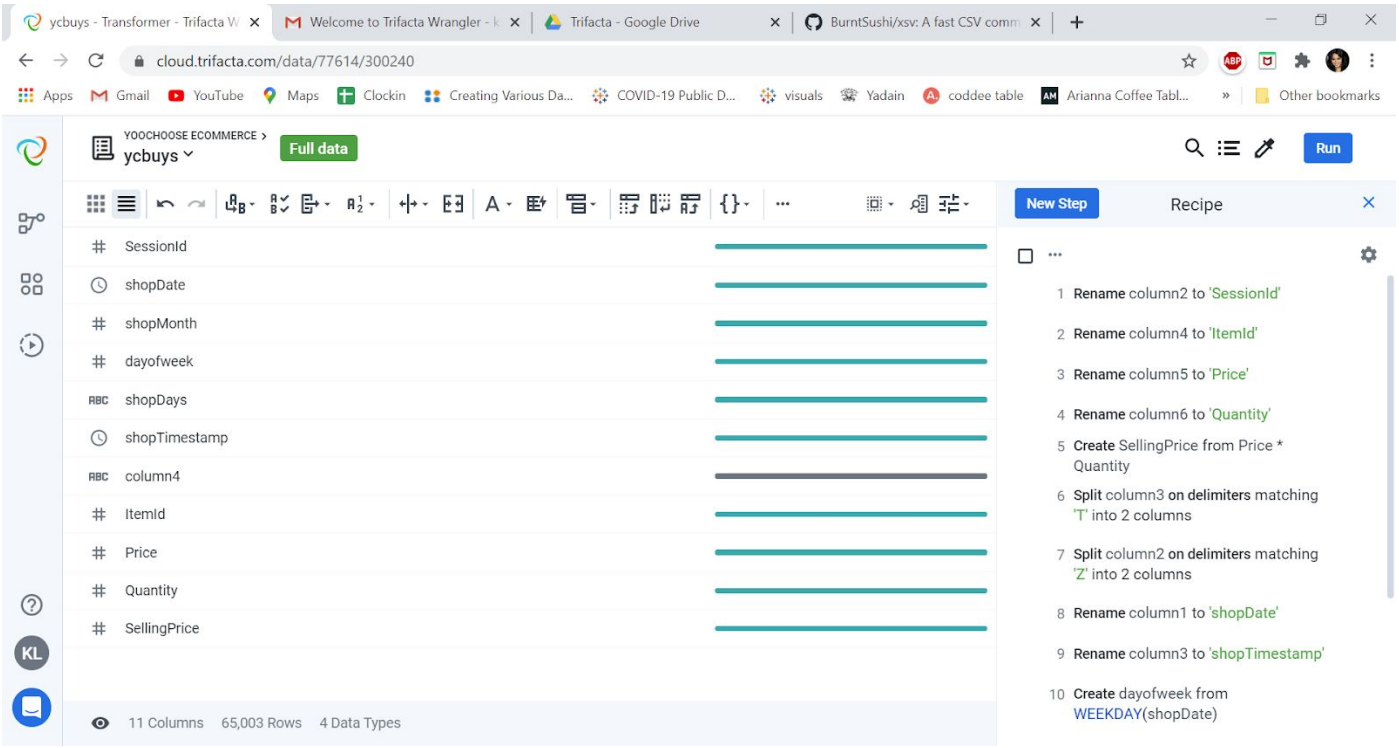
```
C:\Users\kaviy\Desktop\Sem3>xsv slice ycbuys.csv -s 65000 | xsv table
```

```
C:\Users\kaviy\Desktop\Sem3>xsv slice ycclick.csv -s 65000 | xsv table
```

Working on the dataset using Trifacta

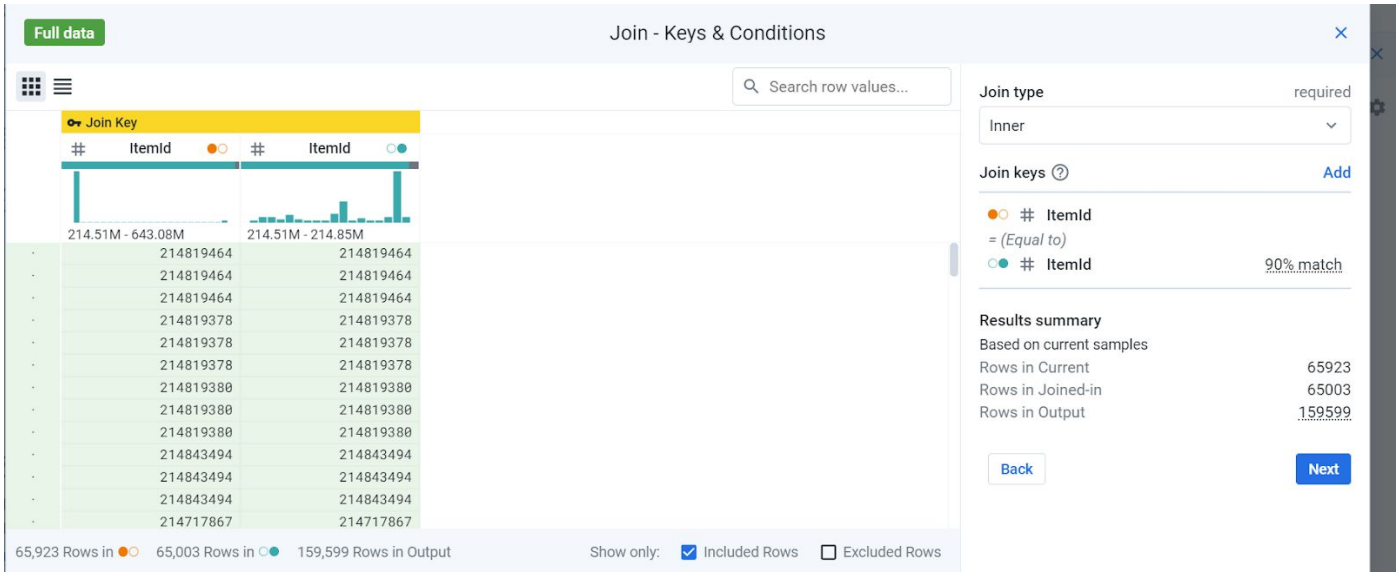
Missing value analysis and data imputation
Feature Extraction: Event hour, Date, Day of Week, Timezone.
Applied some Wrangling operations like filtering, regex, Aggregate, Groupby.
Finally created the recipe for Transformation to Wrangle the data

1. List of Features extracted after joining the datasets - ycclick.csv and ycbuys.csv



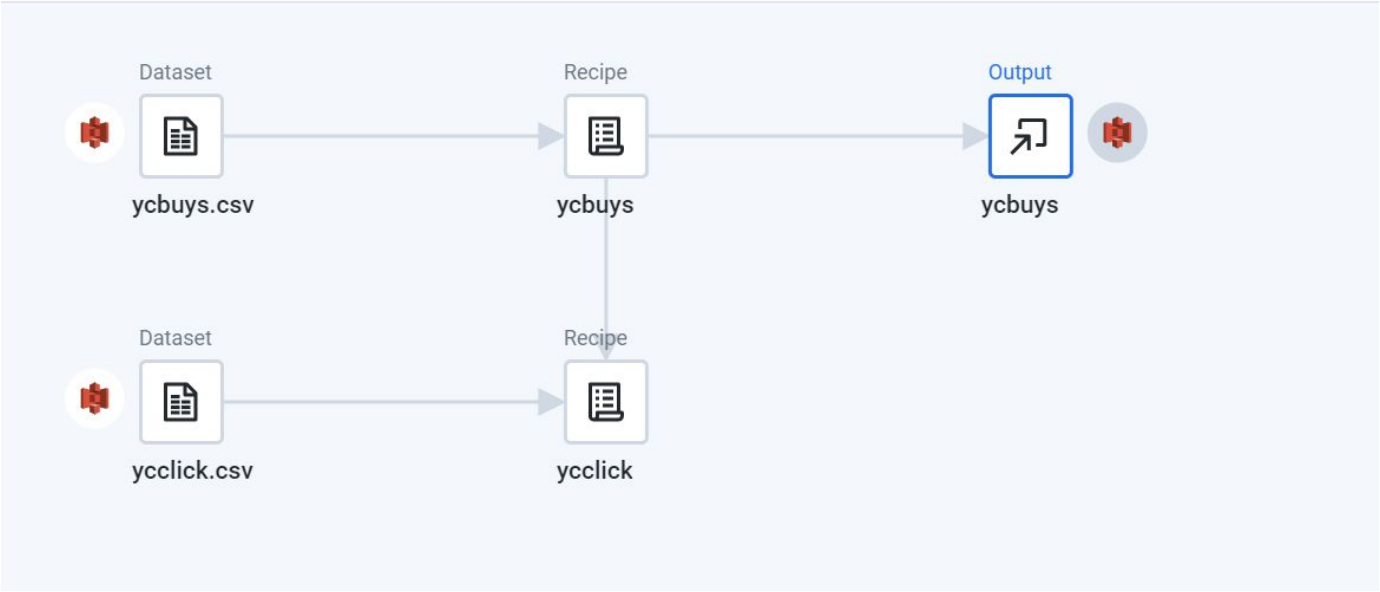
2. Recipe of the datasets - wrangling performed on the datasets

3. Inner Join implemented with ItemId as a primary key

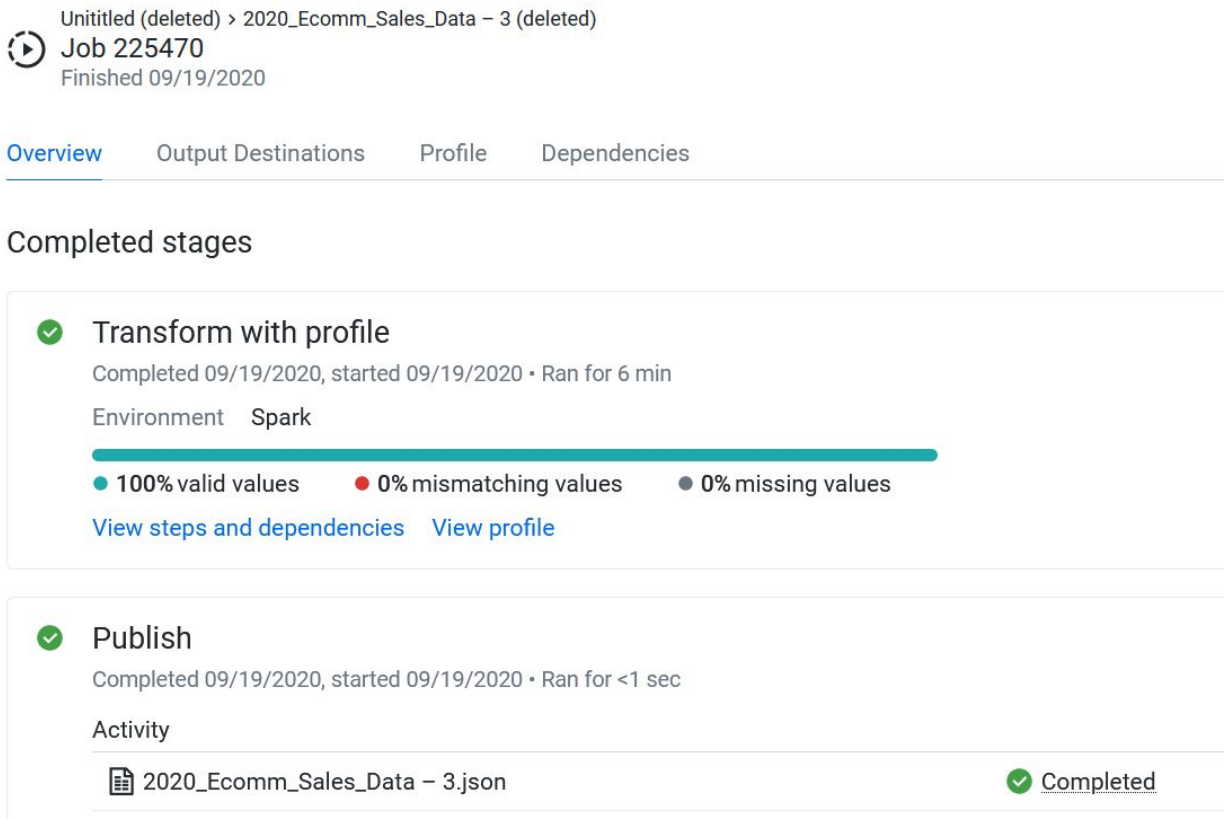


4. Data profile - Created recipe of both datasets and then implemented join

Yoochoose Ecommerce



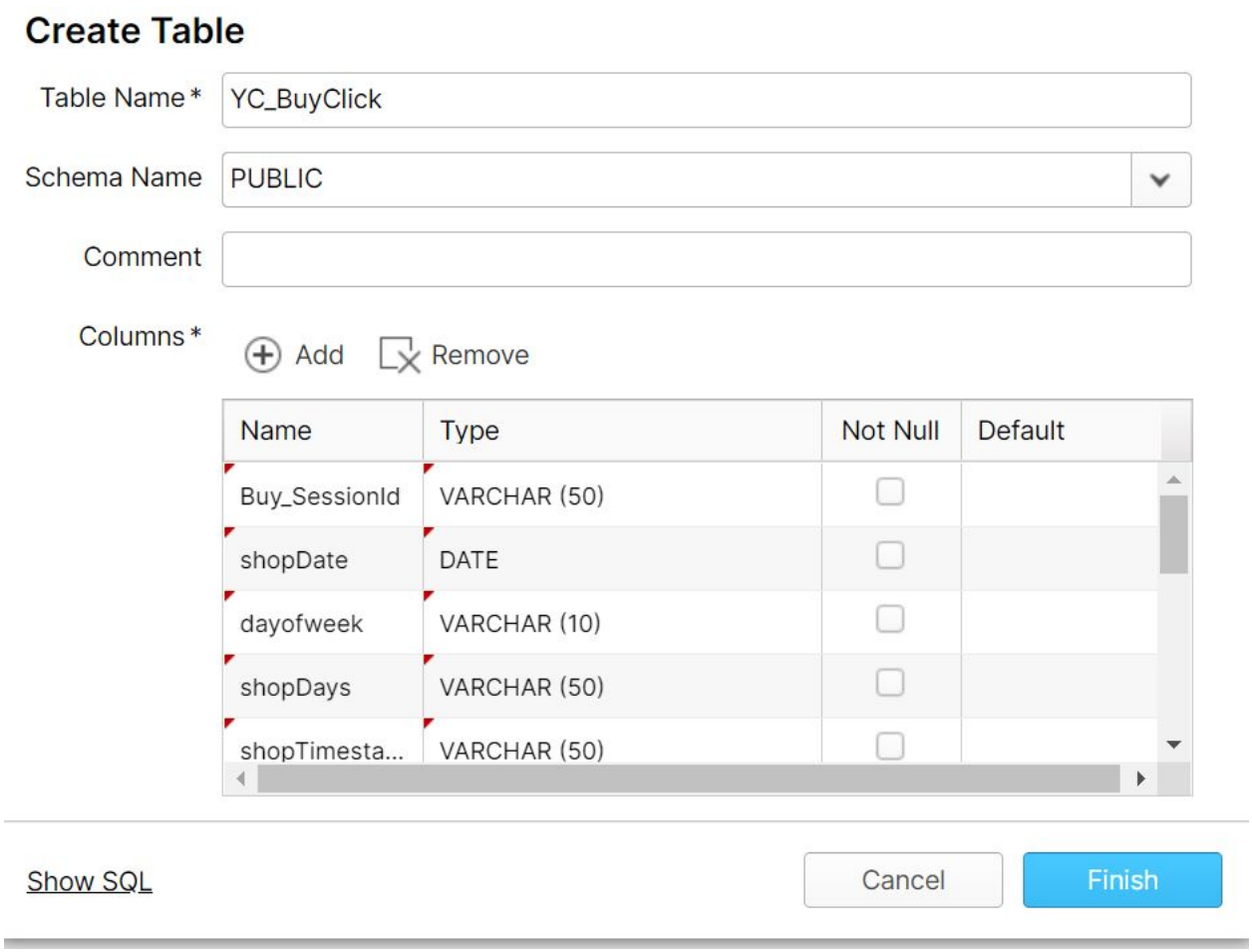
5. Final dataset published in Trifacta



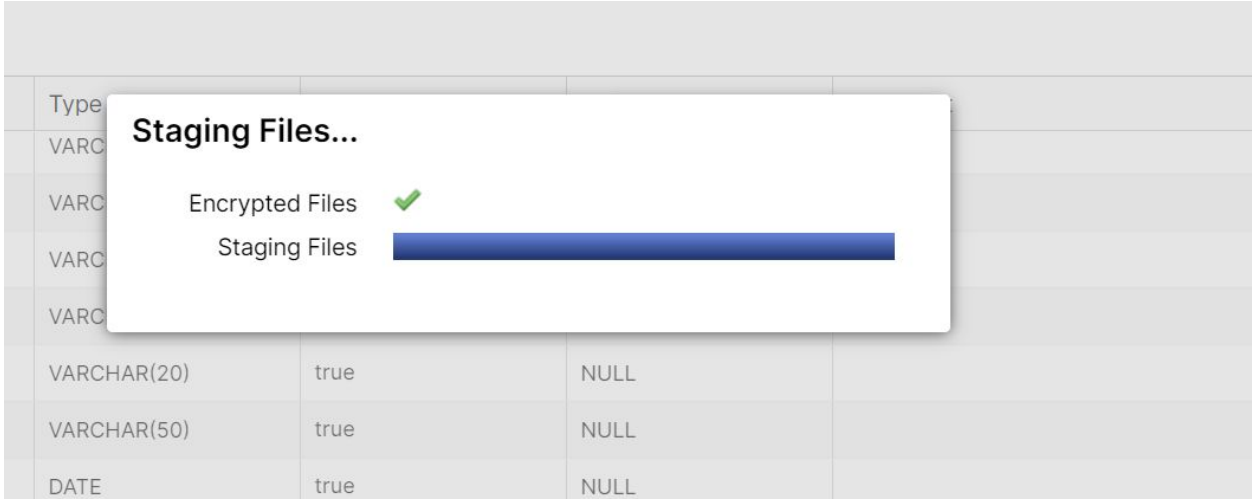
Working on the dataset using Snowflakes

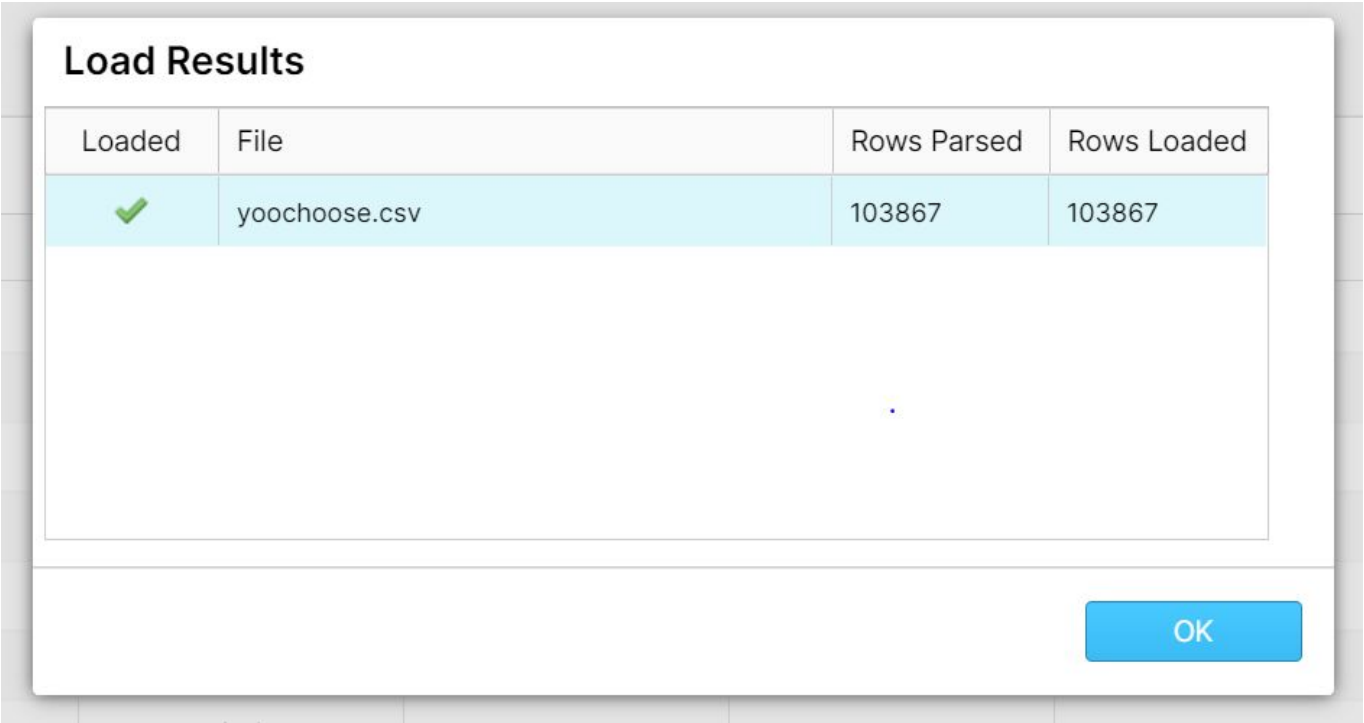
The final dataset imported from trifacta after performing Data wrangling is staged on snowflakes.
The staged file will be used in Salesforce - Einstein Analytics to derive several insights

1. Creating Table: (Owner:SYSADMIN)

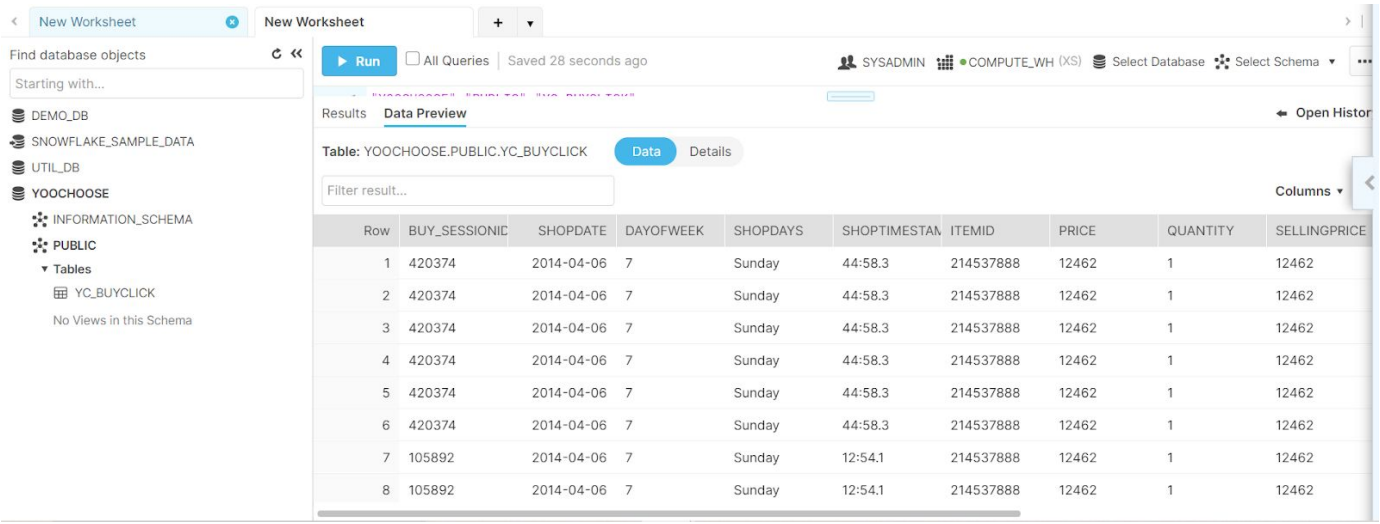


2. Loading data





3. Preview Data: The dataset is staged successfully

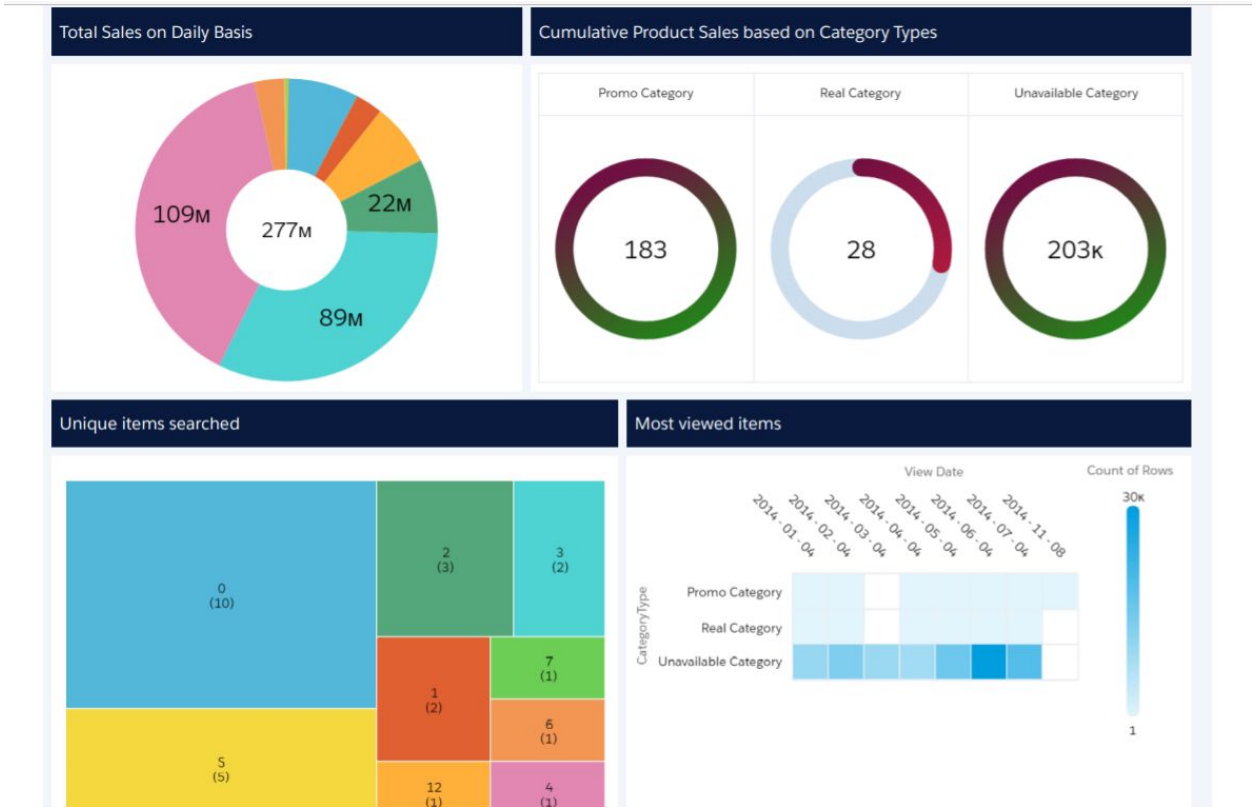


Row	BUY_SESSIONID	SHOPDATE	DAYOFWEEK	SHOPDAYS	SHOPTIMESTAM	ITEMID	PRICE	QUANTITY	SELLINGPRICE
1	420374	2014-04-06	7	Sunday	44:58.3	214537888	12462	1	12462
2	420374	2014-04-06	7	Sunday	44:58.3	214537888	12462	1	12462
3	420374	2014-04-06	7	Sunday	44:58.3	214537888	12462	1	12462
4	420374	2014-04-06	7	Sunday	44:58.3	214537888	12462	1	12462
5	420374	2014-04-06	7	Sunday	44:58.3	214537888	12462	1	12462
6	420374	2014-04-06	7	Sunday	44:58.3	214537888	12462	1	12462
7	105892	2014-04-06	7	Sunday	12:54.1	214537888	12462	1	12462
8	105892	2014-04-06	7	Sunday	12:54.1	214537888	12462	1	12462

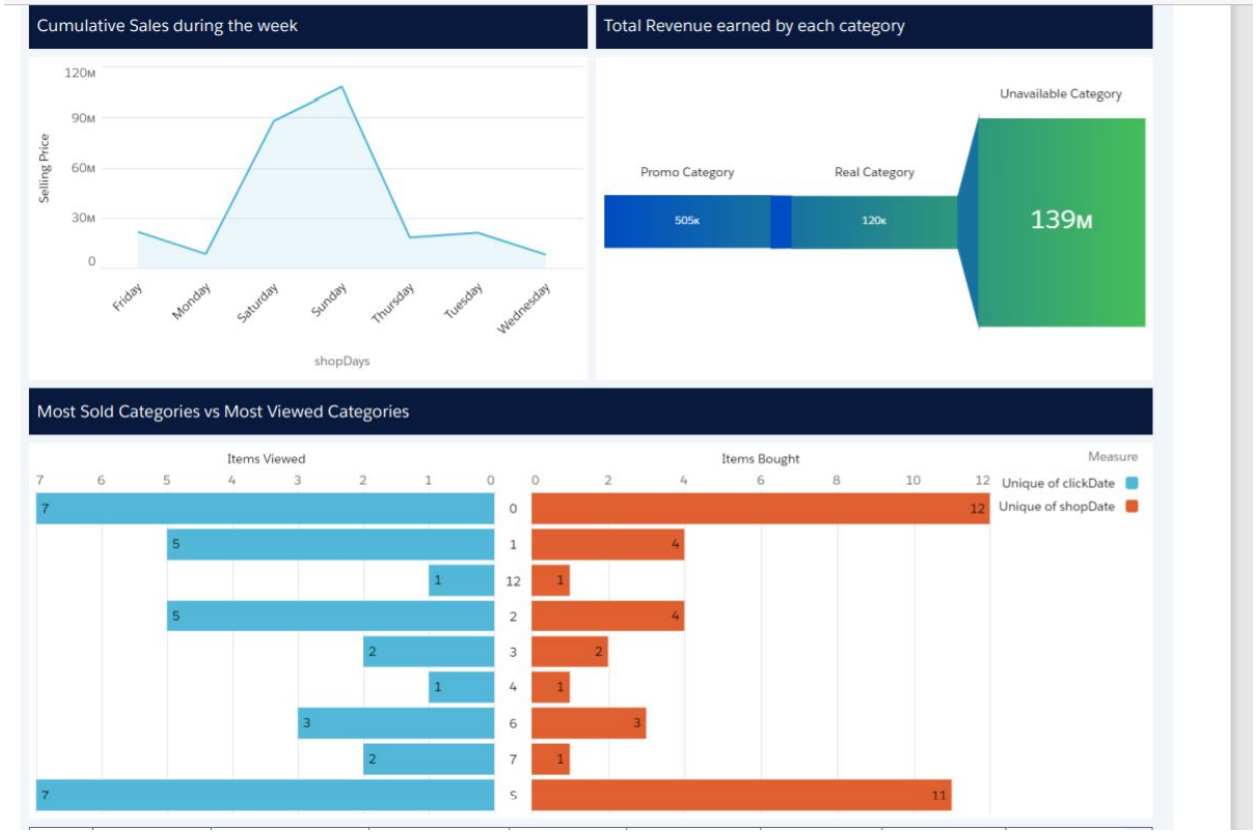
Creating Insights using Salesforce Einstein Analytics

Pricing:

Search & Recommendations:



Promotions:



Answered Questions related to Dashboards

Which columns are dimensions, which columns are measures?

Dimensions -

1. SessionID
2. ItemID
3. Category
4. CategoryType
5. clickTimestamp
6. shopTimestamp

Time -

1. shopDate
2. clickDate

Measures -

1. Price
2. Quantity

How would you generate new dimensions? What will you do to summarize measures?

1. New dimensions are created using wrangling tools like Trifacta, XSV tool, google DataPrep, tabula etc or can be performed in Python using libraries like Numpy, Pandas, Theano and R using libraries - Purrr, Dplyr, JSOnline
2. We have summarized the measures in form of intuitive graphs and tables

Who would use this dashboard?

1. Business Analyst
2. Data Analyst
3. Data Scientist
4. Marketing Manager

What value would be generated using this dashboard ?

1. Helps business to decide the outcomes that needs to be achieved, in order to achieve their goals
2. making marketing decisions and mitigate risks
3. Identifies why expected results are not achieved by looking down into data chain