

# Report on yearly customers loyalty

Your goal will be to prepare a report for evaluating customers purchase likelihood based on acquisition time. The main question the report should answer is, if someone that was acquired in last 12M (months) and has ordered once in last 12M what is the likelihood/propensity of ordering again in next 12M. We should be able to compare customers that bought once, twice, thrice, or more than 3 times. Then we should also be able to see the difference between customers that were acquired in last 12-24M that also ordered 1, 2, 3 or more times.

The report must have results shown in order numbers and revenue, for example customers bought in last 12M 2 times, will likely create again 2000 new orders or \$25000 additional revenue in next 12M.

Finally the report must provide a way to compare these results over different years - from 2010 - 2014 and provide a forecast for 2015.

Dataset (sales data for 2010-2014):

[http://bigquery.cloud.google.com/dataset/sf-hipper:da\\_test\\_task\\_20180318](http://bigquery.cloud.google.com/dataset/sf-hipper:da_test_task_20180318)

**Hint:** the sales dataset transactions can have more than 1 purchase (multiple products), but the purchase should be counted as one if products were purchased at the same time.

Helper table - this makes the query simpler when having to calculate customer counts between years:

[https://bigquery.cloud.google.com/table/sf-hipper:da\\_test\\_task\\_20180318.sales\\_acquisition\\_frequency](https://bigquery.cloud.google.com/table/sf-hipper:da_test_task_20180318.sales_acquisition_frequency)

Example output for backing reports (note you should include also for 2012-2014, as the output is trimmed on purpose) -

[https://docs.google.com/spreadsheets/d/10kO3npeW8fde0VRHf48j49VnKwQ\\_YOeeevP4KA3HIAw/edit#gid=1881266038](https://docs.google.com/spreadsheets/d/10kO3npeW8fde0VRHf48j49VnKwQ_YOeeevP4KA3HIAw/edit#gid=1881266038)

Expected results:

- SQL queries for every data source which is used in the report
- Charts/Graphs illustrating visually the data that would answer questions outlined above. Each chart must be accompanied by explanation what's its purpose and what is the main result it explains.

There is no restriction what tool to use for reporting, either excel or something more sophisticated like Tableau that directly connects to BigQuery.

## Guidelines

Preparation:

- Make sure for all SQL queries you use standard sql which can be enabled by clicking on “Show options” and unchecking “Use Legacy SQL” here:

**Destination Table** Select Table No table selected

**Write Preference** ☒ Write if empty ☐ Append to table ☐ Overwrite table

**Results Size** ☐ Allow Large Results ?

**Results Schema** ☒ Flatten Results ?

**Query Caching** ☒ Use Cached Results ?

**Query Priority** ☒ Interactive ☐ Batch ?

**UDF Source URIs** Edit ?

**Maximum Bytes Billed** Project Default ?

**SQL Dialect** ☐ Use Legacy SQL ?

**Destination Encryption** Default ?

**Processing Location** Unspecified ?

RUN QUERY Save Query Save View Format Query Hide Options

Query complete (7.5s elapsed, 110 MB processed)

## References

- On Repeat purchase probability - <https://blog.smile.io/how-purchase-frequency-increases-retention>
- <https://cloud.google.com/bigquery/docs/reference/standard-sql/functions-and-operators#analytic-functions> - SQL reference