Supplier Score

3D Hubs provides a platform where customers can upload their designs and have them manufactured according to their desires from a wide range of technologies, materials and finishes. Behind the scenes we work with a network of suppliers in order to source customer designs as they were specified.

Many actions taken by our customers in the website are recorded, i.e. when they submit an order or leave a review. All these events are stored and are used to understand how well the website is performing (e.g., how many visitors who upload a model end up submitting an order?).

One of the many uses for this event data is to understand the quality of our supply and make intelligent decisions about our supplier network. Several metrics can be derived from these events, such as:

- Average review rating
- Average order acceptance rate (i.e., ratio accepted orders / total orders)

Your assignment

You will receive a sample of our event data, containing the following events:

- `order/execute/status/customer/processing`: an order is submitted through the website and assigned to a Supplier.
- `order/execute/status/customer/payment`: the Supplier has accepted the order, and the customer can proceed with the payment.
- `order/execute/status/customer/printing`: the Customer has paid the order, and the Supplier can start manufacturing.
- `order/execute/status/customer/successful`: the order was successfully delivered to the Customer.
- `node/review/created`: the Customer created a review for an order
- `node/review/updated`: the Customer updated a review for an order
- `node/review/deleted`: the Customer removed a review for an order

The following attributes are shared between all these metrics:

- `context_traits_uid`: the internal database customer ID
- `supplier_id`: the internal database Supplier ID
- `order_id`: an unique ID for the order
- `timestamp`: the time when the event was created

A Customer can review an order based on 2 properties: speed and print quality.You can ignore other review values. The review values found on `node/review/[created|updated|deleted]` events:

- `review_value_speed`
- `review_value_print_quality`

Your assignment consists in **calculating a average review and acceptance ratio** for every Supplier in the database. Each statistic should be **reported daily**, and stored in a `supplier_score_metrics` table. For instance, the table can look like:

calculated_at	supplier_id	metric	value
2017-04-01	1	average_rating	80
2017-04-01	1	acceptance_ratio	82%
2017-04-01	2	average_rating	65
2017-04-01	2	acceptance_ratio	65%
2017-04-02	1	average_rating	82
2017-04-02	1	acceptance_ratio	85%
2017-04-02	2	average_rating	40
2017-04-02	2	acceptance_ratio	50%

To keep in mind:

- You can use any language and framework. It might be easier to do it in SQL since the data is shaped as SQL inserts.
- Keep it on point. We don't give extra points for things that don't contribute to answering the question.
- Explain the result, sometimes the discussion is more valuable than the actual result.
- List the assumptions you made.
- You may also compute any other statistic you think is relevant in judging the quality or reliability of a Supplier's service in the 3D Hubs platform.

Enjoy!

The 3D Hubs team