

Analytics Engineer technical test

SQL

Question One

```
create table events
(
    sensor_id      integer not null,
    event_type     integer not null,
    value          float not null
)
```

Write an SQL query that returns a set of all sensors (sensor_id) with the number of different event types (event_type) registered by each of them, ordered by sensor_id (in ascending order).

Question Two

The following table (*session*) consists of customer session data.

session

customer_id
session_id*
created_date
session_type

*primary key

Please write a SQL query to compute the percentage of sessions of type ‘mobile’ per customer, in comparison to each customer’s total sessions.

Question Three

Write a SQL query to find all numbers that appear at least three times consecutively.

+-----+-----+		
Id	Num	
+-----+-----+		
1	1	
2	1	
3	1	
4	2	
5	1	
6	2	
7	2	
+-----+-----+		

Question Four

We're currently in the process of rolling out Lookbooks, a way for hair stylists to post photos of treatments, to existing Treatwell salon partners who have expressed interest trying it.

Treatwell salon partners could have expressed interest in two ways: either by filling out an interest form or mentioning to our support team that they want to try it.

For the interest form, there is one table, `salesforce.contact`, with two relevant fields:

`email` – The user's email address

`lookbooks_interest` – A Unix timestamp in milliseconds representing when they filled out the form or null if they have not expressed interest

email	lookbooks_interest
matt@example.com	1534101377000
eli@example.com	

When a Treatwell partner expresses interest in a support conversation, our support team tags the conversation with a `lookbooks-interest` tag. There are two relevant tables:

`zendesk.conversation` with three relevant fields:

`id` – The id of the conversation

`email` – The email of the person who reached out to support

`created_at` – A timestamp with the date/time the conversation was created

id	email	created_at
1	matt@example.com	2018-08-14 14:02:10 UTC
2	eli@example.com	2018-08-14 14:06:30 UTC
3	matt@example.com	2018-08-14 14:07:33 UTC
4	katia@example.com	2018-08-14 14:11:30 UTC
5	jen@example.com	2018-08-13 14:11:30 UTC

There's also a `zendesk.conversation_tag` table with two relevant fields:

`conversation_id` – The id of the conversation that was tagged. A conversation can have zero or more tags.

`tag` – The name of the tag

conversation_id	tag
1	new-trial
1	bug-report
2	lookbooks-interest
4	lookbooks-interest

Your challenge:

Write a SQL query that combines data from these two sources that lists everyone who has expressed interest in trying Lookbooks and when they first expressed that interest.

The end result using the example tables above should be a functioning SQL query that returns the following:

email	expressed_interest_at
matt@example.com	2018-08-12 19:16:17 UTC
eli@example.com	2018-08-14 14:06:30 UTC
katia@example.com	2018-08-14 14:11:30 UTC