Interview tasks

You will find a SQLite database transactions.db containing dummy data.

DB

References

SQLite

SQLite Datatypes

The Zen of Python

Schema

The database is as follows:

```
CREATE TABLE Devices(
       id     INTEGER,      -- The primary key
       device_name TEXT,    -- The human readable device name
       PRIMARY KEY(id)
);

CREATE TABLE Transactions(
       id               INTEGER PRIMARY KEY AUTOINCREMENT, -- The primary key
       datetime         INTEGER, -- The transactions datetime
       visitor_id       INTEGER, -- The id to distinguish visitors
       device_type      INTEGER, -- The id of the associated device type
       revenue          REAL,    -- The created revenue within this transaction
                                 -- incl. TAX in $
       tax              REAL,    -- The tax rate applied to this transaction
       FOREIGN KEY(device_type) REFERENCES Devices(id)
);
```

Example Data

Devices

```
1|Desktop
2|Tablet
3|Mobile Phone
4|Unknown
```

Transactions

```
1|2018-03-04 18:06:06.758774|81593329765951|1|252.372410357035|0.19
2|2018-03-03 18:06:06.758894|94083918290864|3|869.137106660212|0.19
3|2018-02-24 18:06:06.758937|87602481661024|2|869.83677835433|0.19
4|2018-02-14 18:06:06.758973|46165110621787|3|751.382958837471|0.19
5|2018-02-12 18:06:06.759004|76824724902942|4|491.953054228461|0.19
6|2018-02-25 18:06:06.759036|21521749414164|3|441.219125134224|0.07
7|2018-02-26 18:06:06.759067|54038123865971|2|451.506573573628|0.19
8|2018-03-10 18:06:06.759097|64049995840902|1|997.972142453017|0.07
9|2018-03-03 18:06:06.759126|26959884571506|2|884.144015664516|0.19
10|2018-03-10 18:06:06.759156|2509371999743|4|256.738469651443|0.19
```

General Notes

The described database can be found here:

https://transfer.feld-m.de/fbsharing/4cRHU5mL

You don't have to care about Python 2.x, Python >=3.5 is sufficient.

Your solution should contain some kind of README or install guide (depends on the libraries you probably want to use for solving certain tasks)

The README should also explain how to execute certain tasks.

The idea behind these tasks is not to have a solution as soon as possible, but rather to have a look on how you address these tasks and getting a glimpse on your code style.

Task 1

Write a Python script to find out which visitor created the most revenue.

Note: a simple print of the result to the console is sufficient

Task 2

Write a Python script to find out on which day most revenue for users who ordered via a mobile phone was created.

Note: a simple print of the result to the console is sufficient

Task 3

Write a Python script that combines the contents of Devices and Transactions and store it as a single flat file including the column names.

Task 4

As stated in the SQL comments the created revenue is currently stored in USD.

Update the data stored in the database to have the created revenue in EUR.

You can use the following resource to fetch the currency conversion rates:

https://transfer.feld-m.de/fbsharing/Bzu2Zj3y

Task 5

Imagine you have to add support for other DBMS, how would you address this request?

Write a Python script that exemplarily uses PostgreSQL.