



Suade Labs Python Challenge 2020



Job: Backend Developer

Introduction

This challenge is a simplified analytics component.

The goal of this exercise is to see:

- What your "production" level code looks like (OO, Documentation, etc)
- How you ensure that the code actually works as expected (Testing)
- How you respond to tight deadlines (Which shortcuts you take)
- Your approach and creativity to crafting a solution

Challenge

We are expecting you to deliver your work as a git project, with a README file containing instructions on how to install/run the project.

You should use python 3 and a web framework of your choice, we use Flask but it is okay to use something else.

You will find an archive here <https://updates.suade.org/files/data.zip> that contains sample data from an imaginary e-shop.

Your task is to create an endpoint that, for a given date, will return a report that will contain the following metrics.

- The total number of items sold on that day.
- The total number of customers that made an order that day.
- The total amount of discount given that day.
- The average discount rate applied to the items sold that day.
- The average order total for that day
- The total amount of commissions generated that day.
- The average amount of commissions per order for that day.
- The total amount of commissions earned per promotion that day.

Schemas

Example endpoint response:

```
{
  "customers": 877,
  "total_discount_amount": 23207660.62,
  "items": 291544,
  "order_total_avg": 14857290.47,
  "discount_rate_avg": 0.15,
  "commissions": {
    "promotions": {
      "1": 30789016.52,
      "3": 8054710.81,
      "2": 20082936.33,
      "5": 22946449.12,
      "4": 27573451.86
    },
    "total": 2532657169.95,
    "order_average": 2743940.59
  }
}
```

The data has the following schema:

```
Order
  id
  created_at
  vendor_id
  customer_id

OrderLine
  order_id
  product_id
  product_description
  product_price
  product_vat_rate
  discount_rate
  quantity
  full_price_amount
  discounted_amount
  vat_amount
  total_amount

Product
  id
  description

Promotion
  id
  description

ProductPromotion
  date
  product_id
  promotion_id

VendorCommissions
  date
  vendor_id
  rate
```