Outcubator

TEST TASK

Position: **Business Intelligence Analyst**

Task 1. Brick is one of Paymentwall products which offers merchants a payment option through credit cards. Consider a merchant who provides watching online movies services and they are using Brick provided by Paymentwall.
They offer their users 4 packages: 1 month - $10, 3 months - $25, 6 months - $42, 12 months - $75. These packages automatically recur at the due date. The subscriptions can be stopped only when users cancel them or their cards don't have enough funds at the due date. Beside the subscription packages, users can also pay one time to watch a specific movie, average price per movie: $5/movie
From the table below, there is a significant drop in gross revenue from 6/24/2020. Questions:

1. What could be the reasons that caused the drop and kept the gross revenue staying at a low level from that point of time?
2. What kind of extra data/information that you need to check to narrow down and point out the correct reason for the drop?
3. What could be the possible solution to boost the revenue back to its usual level?

* **User Attempts**: Number of attempts that users try to make payments, including successful and failed attempts
* **Successful Rate**: percentage of successful attempts per total attempts (Successful Rate = Successful transactions / Total Attempts

Date	Gross revenue	Users' attempts	Successful Rate
6/3/2020	$4,065.15	157	43.00%
6/4/2020	$4,142.27	154	45.75%
6/5/2020	$3,674.10	174	35.90%
6/6/2020	$3,996.39	150	46.60%
6/7/2020	$5,009.52	137	53.69%
6/8/2020	$3,993.78	142	52.63%
6/9/2020	$3,573.97	111	60.68%
6/10/2020	$4,178.35	165	40.98%
6/11/2020	$4,771.11	156	46.49%
6/12/2020	$4,849.99	198	40.77%
6/13/2020	$3,834.68	170	40.88%
6/14/2020	$3,862.17	135	43.21%
6/15/2020	$4,121.25	160	52.95%
6/16/2020	$4,599.76	143	43.74%
6/17/2020	$4,702.48	146	54.01%
6/18/2020	$4,502.57	202	37.49%
6/19/2020	$5,527.25	174	50.94%
6/20/2020	$5,011.22	172	47.97%
6/21/2020	$4,590.26	163	45.85%
6/22/2020	$5,577.47	117	67.99%
6/23/2020	$4,591.18	110	67.25%
6/24/2020	$973.85	30	92.66%
6/25/2020	$606.18	24	100.00%
6/26/2020	$434.44	21	100.00%
6/27/2020	$566.90	24	100.00%
6/28/2020	$430.95	17	100.00%
6/29/2020	$513.42	15	100.00%
6/30/2020	$501.21	18	100.00%
7/1/2020	$271.00	13	100.00%
7/2/2020	$492.59	21	100.00%
7/3/2020	$963.86	30	100.00%
7/4/2020	$680.33	20	100.00%

*****Please submit your Python or R scripts for task 2 and 3.**

Task 2. Given the "sample_data.csv" file, please analyze the traffic and provide insights for our operations. Interpret and visualize data for each question when you can to support your insights. All calculations and visualizations should be done in Python or R.

Please import data from "sample_data.csv" file, and answer the following questions:

- **Paid amount: are from successful transactions only.**

1. Visualize daily trends of the traffic for the period: total number of clicks, successful payments and total paid amount.
2. Who were the top 10 merchants in terms of paid amount? What are merchants' contributions to the total paid amount overtime? Visualize their daily traffic and comment on their performance.
3. Which payment methods were being used (visualize their popularity in terms of the number of clicks generated)?
4. Which countries did we process? What were the traffic and volume (total paid amount and number of clicks) for each country? List top 10 countries with the highest average paid amount per successful payment.
5. What was the volume (total paid amount) of the card brand and payment method? Visualize with Tree Map to show the proportion between payment method and card brand (please visualize in 1 map).

Data dictionary for sample_data table.

Field	Description	Data Type
cl_id	ID of a click	Int
successful	Indicates whether a click is converted successfully into a payment or not (1=successful, 0=failed)	Bool
paid_amount	User paid amount (in USD)	Decimal
co_name	Country of user	Varchar
datecl	Date of when a click was generated	Date
payment_method	Payment method that user used to pay	Varchar
mid	Merchant ID	Int
card_brand	Card type that user paid with	Varchar

Task 3. Data Manipulation

Given the “BA_test_3” table (in the attached excel file), you will see a list of total Revenue and Profit of two products Mobiamo and PayAlto every month in 2020. All calculations should be done in Python or R.

Please import data from “BA_task_3” tab from “data.xlsx” file, and answer following questions:

1. Calculate annual Revenue and Profit for each product.
2. The Project Managers (PM) for PayAlto and Mobiamo are John Doe and Kelly Nguyen respectively. From the result of question 1, show in table the PM for each product. You need to create a new project manager-product table.
3. From the result of question 2, please transform the table to long format.

Note for all tasks: Please attach all external files (e.g..csv, .xlsx) that you download or created that use in the script.

==========THE END==========