DATA ANALYST 2:

SQL PORTFOLIO

PREPARED BY

Professional Background

I answered the data call.

I was born in the city of Pretoria, South Africa. Currently residing between the rural outskirts of KwaZulu Natal, in the village of eNyoni, and the Eastern Cape, Lusikisiki. I carry a plethora of lived cultural experiences with me, so it's no surprise that I can converse in more than 8 of our country's 11 official languages.

My academic background is in science, specifically analytical chemistry. Last year conducting literature review research for a report, I became interested in and fell in love with data analysis. I discovered a more appealing way of interpreting and conveying an analysis, which led to the shift to data analytics.

Since then, I've earned a Python certificate from PPIAI, a Web Development certificate from GirlCode, Course 1 of the Google Analytics Professional Certificate, Data Analyst 1 from EntryLevel. I am currently working on Data Analyst 2 and am a student of the MTN App Academy, 2022 Cohort.

When I'm not chasing after my goats, geese, and chickens in the backyard, I like gardening, hiking, crocheting, and volunteering for the recurring beach clean-ups.

Table of Contents

Portfolio Outline

Introduction

Project Background

Due to the COVID situation, NGOs had to deal with more needs and fewer resources prior to 2021. Serious fundraising problems plagued most organizations. Additionally, in a June 2019 article on businessinder.com, education came in first place while children and youth development came in sixth place for issues that philanthropists fund. However, as everything returned to normal in 2021, a new problem emerged in the form of dwindling donor numbers.

Education For All (EFA) is a global movement led by UNESCO that aims to meet the learning needs of all children, youth, and adults. The initiative is dedicated to achieving six specific educational objectives; namely,

1. To expand and improve early childhood care and education, particularly for the most vulnerable and disadvantaged children.
2. Ensure that by 2015, all children, have access to and a complete, free, and compulsory education of high quality.
3. Ensure that all young people and adults' learning needs are met by providing equal access to appropriate learning and life-skills programs.
4. By 2015, boost adult literacy by 50%, with a focus on women, and ensure that all adults have fair access to both basic and continuing education.
5. By 2005, gender differences in primary and secondary education should be eliminated, and by 2015, gender equality should be attained in education, with a special emphasis on ensuring that girls have full and equal access to and success in good-quality basic education.
6. Enhance all facets of educational quality and guarantee everyone's excellence so that everyone achieves recognized and quantifiable learning outcomes, particularly in literacy, numeracy, and crucial life skills.

The database for this project was obtained internally from the Head of Fundraising of the organization. In order extract and glean information that may be beneficial to the analysis. Two distinct SQL databases, Donation Data and Donor Data, each containing information on the donors, were part of the overall dataset. When consolidated the dataset had 15 fields, and 1000 records. The fields were split into groups, that is:

- Donor Demographics: id, first name, last name, email, gender, state, job filed,
- Donation Demographics: donation, donation frequency
- Additional Information: shirt size, car, university, second language, favorite color, movie genre

Data cleaning was performed to remove of duplicates records, misspelled words like mauv, inconsistent data, and useless columns.

The analysis is primarily aimed at aiding the fundraising team in achieving their objectives, state below, before the following year:

- Increasing the number of donors.
- Increasing the donation frequency.
- Increasing the value of donations.

Business Problem

The organization's key challenge is how to raise donations because the issue entails declining revenue. To effectively reach the intended target audience (i.e., the donors), the expectations of the stakeholders must be considered.

To better understand the problem, the following questions were asked:

- Who are our main donors?
- How much did they donate?
- How/when are they mostly likely to donate?
- What is the relationship between donations and donors?
- How can we attract more donors?

Root Cause Analysis

To get to the crux of the problem a root cause analysis was done. The five whys were as follows:

1. Why is the charity experiencing a decline in the donation rates?
    - There is a significant increase in the number of retained donors.
2. Why was there an increase in retained donors?
    - The charity was unable to secure enough new donations.
3. Why did they fail to attract new donors?
    - Since the pandemic was still ongoing, many individuals were concerned about the economy. Due to the need to put their own needs first, they were unable to donate.
4. Why were they unable to donate?
    - They assumed the charities were taken care of because there was no clear indication that they were in actual need of funds.
5. Why did was there no clear indication of need by the organization?
    - The nonprofit lacks a sound marketing plan.

Insights

The tools used to: to collect, organize, clean, analyze data, reveal patterns and trends, were spreadsheets (Excel CSV), Query Language (SQLite)and Data Visualization (Tableau). Excel was used conjunction with SQL to export and save the online queries.

Five insights were extracted, below are the SQL codes:

Given the two tables; *Donation_Data* and *Donor_Data2*

--To consolidate the two datasets

The (inner) join command returns rows that have matching values in both tables. The SQL code selects every record with id of the query.

```
SELECT *

FROM Donation_Data

JOIN Donor_Data2

ON Donation_Data.id = Donor_Data2.id;
```

--View the Total Donation vs Average Donation/Minimum Donation/Max Donation

The code will return a table of the total, average, largest and smallest donation amounts respectively from the Donation_Data.

```
SELECT SUM (donation) AS Total,

        AVG (donation) AS Average,

        MAX (donation) AS Maximum,

        MIN (donation) AS Minimum

FROM Donation_Data

WHERE donation;
```

--View of states with the highest donations

Statement lists all the different states from the Donation_Data table in increasing order according to donations.

```
SELECT DISTINCT state, donation

FROM Donation_Data

ORDER by donation DESC;
```

--View of the gender ratio

The statement selects the gender from the Donation_Data table that is sorted by the donation column.

```
SELECT gender, SUM (donation) AS total_donation
FROM Donation_Data
WHERE donation
GROUP by gender
ORDER BY donation;
```

--View of information about how much was donated in each industry and how often

Selection of the donation frequency of each industry ordered by donations.

```
SELECT Donation_Data.job_field AS industry,
        Donation_Data.donation,
        Donor_Data2.donation_frequency
FROM Donation_Data
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE donation_frequency IN ('Once', 'Yearly', 'Monthly', 'Weekly')
GROUP BY donation
ORDER by donation DESC;
```

--View of information about the top 10 donor behavior.

The statement returns a table listing our top ten donors, their amounts donated, the vehicles they drive, and their favorite colors.

```
SELECT Donation_Data.first_name,
        Donation_Data.gender,
        Donation_Data.donation,
        Donor_Data2.car,
        Donor_Data2.favourite_color
FROM Donation_Data
```

```
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE donation
GROUP BY first_name
ORDER BY donation DESC
LIMIT 10;
```

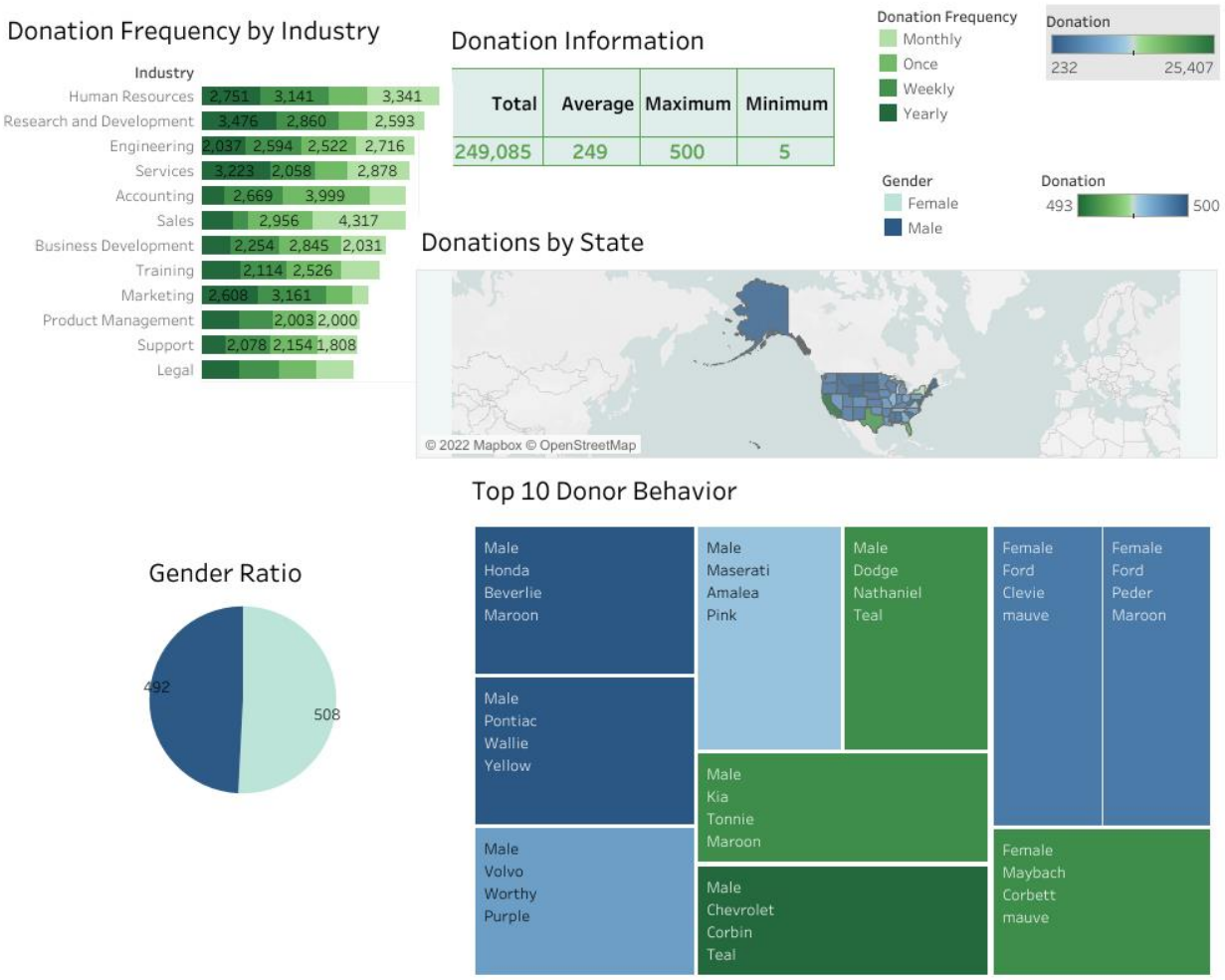

Fig 1: Tableau Dashboard

The **Fig 1** above displays a dashboard visual representation of the SQL data on donations and donors. It has five graphics and their corresponding legends.

Findings and Recommendations

Findings

There are a total of 1000 donors, who have given a total of $249,085 in donations. Male donors contributed $127,628 while female donors contributed $121,457. The data revealed that, in terms of gender, women tend to donate consistently but in moderate amounts, whilst males tend to give large sums sparingly. To improve the budget, the donation should ideally be at least a little bit larger than the average donation, which is $249, given that the greatest donation is $500 and the lowest is $5.

Out of the 49 states, California ($25,407), Texas ($21,337), and Florida ($18,844) had the greatest donations, while Wyoming ($232), Maine ($258), and South Dakota ($401) had the lowest donations, for a total donation of $236,344. Making a total of $12,741 in the discrepancy between the initial pledged donations and the actual donations.

The graph's depiction of industry dynamics revealed that people favored making weekly ($29,263), monthly ($27,591), once ($26,565), and lastly annual ($24,598) donations.

The top 10 donors were broken down, and it was found that 70% of them were men. The lack of a car's model and specifications rendered the car information insufficient. However, based on the data we found, donors drove a variety of vehicles, from well-known brands like Ford and Kia to ultra-luxury sedans like Maybach. According to the information available, there does not appear to be a direct correlation between the amount of donation made and the type of vehicle one drives.

Research on the psychology of colors is ongoing. However, several significant findings about the impact of color on personality have been discovered. Where it says that normally, the color green relates to giving, we discover two men whose favorite hue is teal. While many charity logos, including the one for EFA, typically feature the colors red and blue. It is understandable why three people chose maroon as their favorite hue. In this investigation, two guys preferred pink and purple, whereas two females preferred mauve. Purple and its hues are typically preferred by women. Although further research is obviously required, the analysis does provide some interesting findings.

Recommendations

Include a timeline in the database so that you can easily view the statistical patterns for donations, to enhance planning and decision-making.

Look at adding additional career fields to the database.

To help with better data preparation and organization, form collaborations with other NGOs like DataKind.

Increase the appeal of recurring payments while making the donation procedure simple and accessible via mobile tools.

Demonstrate to donors what is done with the funds they have contributed.

Acknowledge any donation, no matter how modest it may be.

Maintain constant contact with donors and solicit their feedback.

Conclusion

In conclusion, analysis of the fundraising data revealed that persons who regularly give to charitable organizations are most likely to make contributions. The amount of donations made is not directly impacted by donor preferences and/or gender. The organization must improve the management of their donation system and maintain regular contact with their donors.