

DATA ANALYST: SQL PORTFOLIO

PREPARED BY

L*****Y*****



Professional Background

Hi there! My name is L***** and I am a finance and administration specialist with over 10 years of experience with varying industries such as banking and finance, engineering, and education and research.

I am currently looking for a career switch that blends my dynamic communication skills with the technical knowledge amassed from IBM's i.am-vitalize programme. I had the privilege of being exposed to the wonders of Artificial Intelligence while working at the now-defunct Institute for Media Innovation. It piqued my interest in this field and after considerable self-reflection, I wish to embark on being a data management professional.

Throughout the course of IBM's i.am-vitalize programme, I have done supplementary self-studying, which has enabled me to close knowledge gaps from a technical perspective. This SQL portfolio is just one example of my unwavering determination to continue improving my technical knowledge even after graduating from the programme.

My transferable soft skills include influencing and communications skills, which I hope to be able to apply in my next role, along with my newfound skills in Enterprise Design Thinking, Cloud Computing, Data Science and Artificial Intelligence. I look forward to contributing to your organisation by bringing these advanced technologies into different areas of everyday life and processes. Through job exposure, I will also deepen these skills which I will continue to hone and work on.

Portfolio Outline

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Introduction

Keep Us Educated is a (fictitious) charity organisation that gives a helping hand to those with a great hunger to keep learning. We rely heavily on generous contributions from individual donors, which are used to sponsor those who face difficulties in supporting their education in the United States of America.

The Fundraising team has decided to streamline our efforts of raising donations in consideration of the current economic climate. As a data management expert, I have been tasked by the Head of Fundraising to present data on current donors and their donation rates. Objectives have been identified to sharpen the focus of the study, which are to:

- Increase the number of donors
- Increase the donation frequency of current donors
- Increase the donation values of current donors

I applied mySQL queries to identify donors of varying profiles and look for interesting trends and patterns of donation frequencies and values based on the profiles. Afterwhich, I used Tableau to create visualisations so as to help the team better understand the insights gained.

More notable findings include engaging more extensively with donors from less-performing states and job fields, and favouring less donation frequencies of higher donation values. Touching base with current donors is an important aspect to keep them informed on what **Keep Us Educated** does so as to sustain their contributions to our cause.

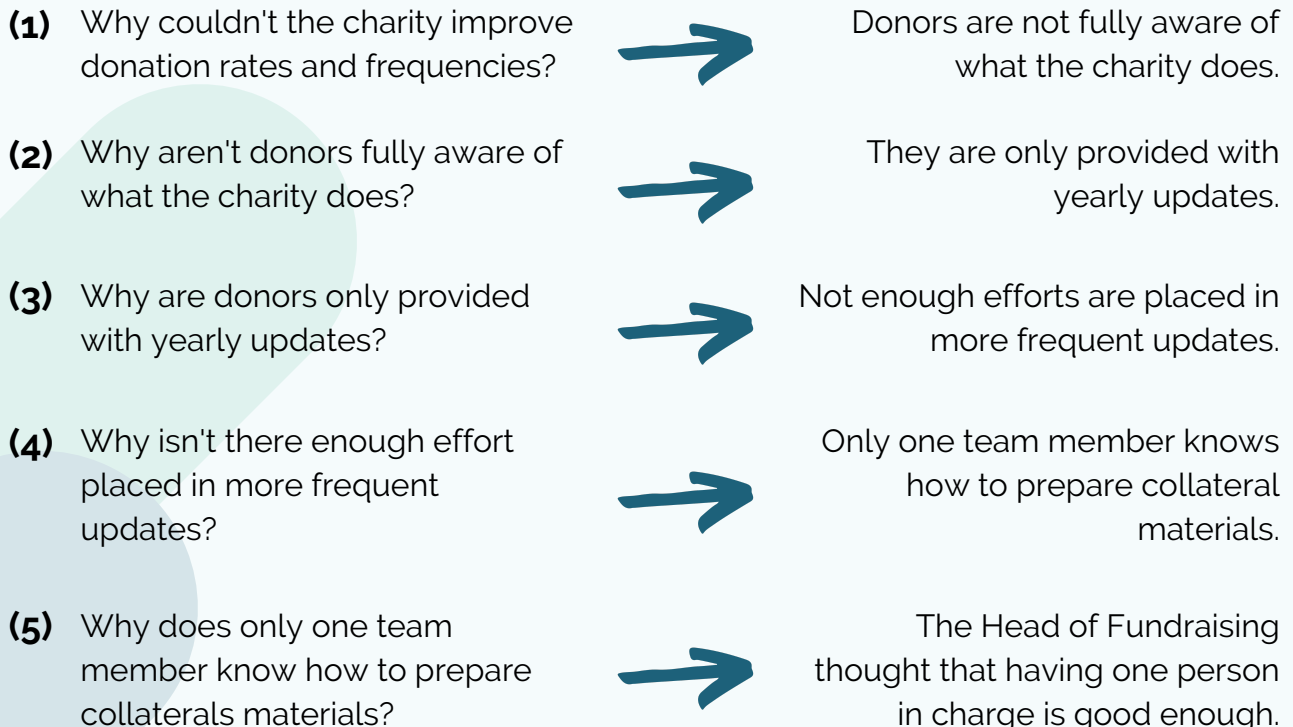
Root Cause Analysis

I have implemented Root Cause Analysis (RCA), the process of discovering root causes of problems, in order to determine appropriate solutions for **Keep Us Educated**'s fundraising efforts. RCA assumes that it is more effective to handle underlying issues in a systematic way instead of addressing symptoms that occur on an adhoc basis.

To perform the analysis, I have adopted The 5 Ways Approach, which sets out to uncover the essence of the issue at hand. The following problem statement has been established as a guide:

How might we improve donation rates and frequencies of **Keep Us Educated**'s donors in the United States of America so that the organisation remains financially sound in helping the needy?

The 5 Why questions are as follows:



Thus, **Keep Us Educated** should consider training the Fundraising team on marketing and communication skills to improve outreach to donors. I will next look into insights from our database of 1,000 donors to better target efforts of raising awareness on what **Keep Us Educated** does.

Insights

This section is presented using different visualisation dashboards to glimpse into the following areas:

- Current donor profiles
- Donation values of current donors
- Donation frequency of current donors

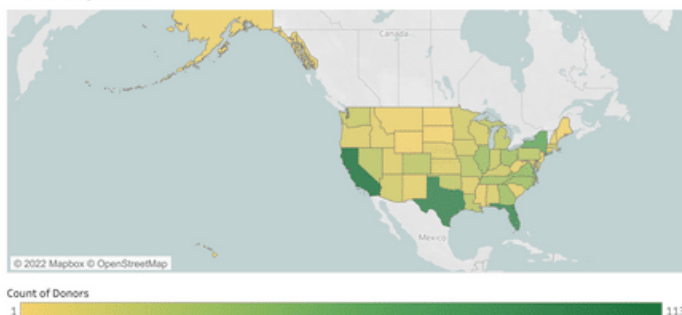
For all three sections, mySQL queries were executed to retrieve the relevant data and Tableau was used to develop the data visualisations.

CURRENT DONOR PROFILES

This first dashboard was developed to describe donors by state, job field, car brand owned, and shirt size. These respective parameters have been selected to better understand their geographical locations, fields of expertise, extent of affluence, and logistical purposes for **Keep Us Educated's** donor-centric events.

```
1 /* Dashboard 1: Donor Profile */
2 SELECT Donation_Data.first_name, Donation_Data.last_name, Donation_Data.email, Donation_Data.state, Donation_Data.job_field,
3 Donation_Data.donation, Donation_Data.shirt_size, Donor_Data.donation_frequency, Donor_Data.car, Donor_Data.favourite_colour
4 FROM Donation_Data
5 LEFT JOIN Donor_Data
6 ON Donation_Data.id = Donor_Data.id;
```

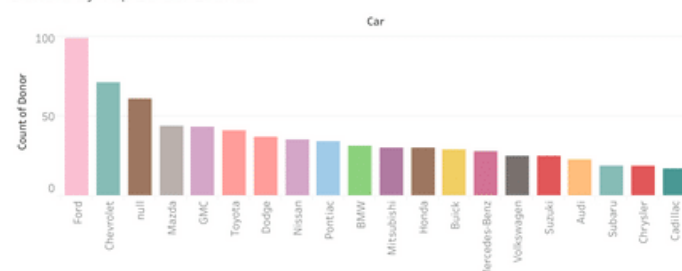
Donors by State



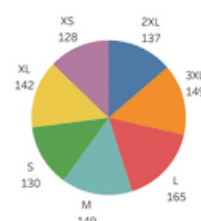
Donors by Job Field



Donors by Top 20 Car Brands



Donors by Shirt Size



Insights

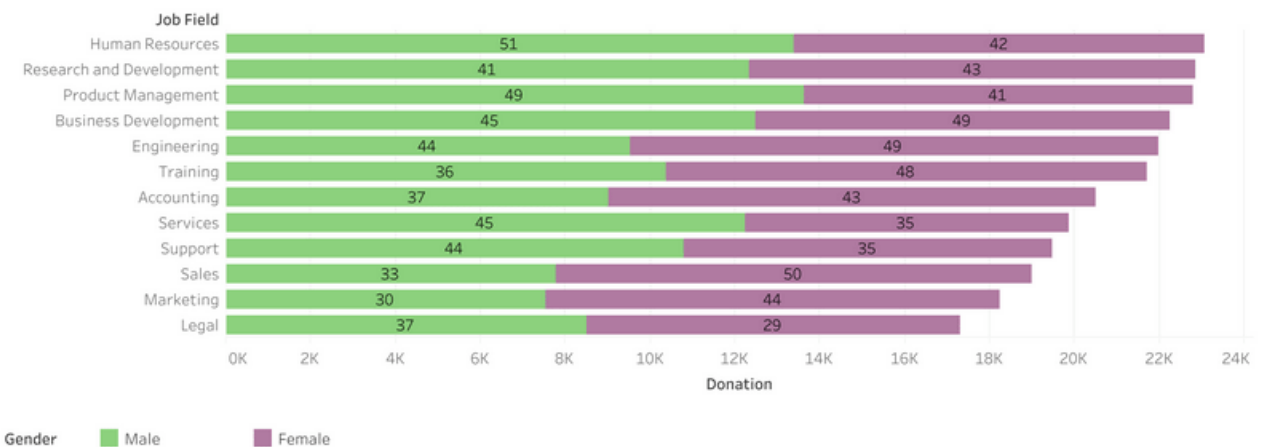
DONATION VALUE OF CURRENT DONORS

For this aspect, primary focus was placed on the donors' genders and types of job field to gain insights into donations contributed by donors.

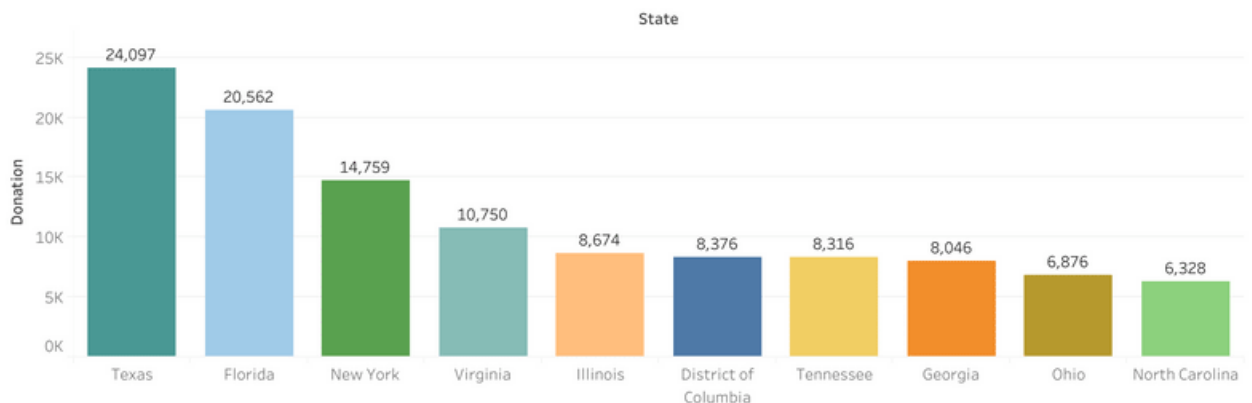
To determine the 10 best-performing states, donors' geographical locations is another variable that is considered. However, California is excluded as it would be more strategic for **Keep Us Educated** to align fundraising resources in other states and target to reach similar donation value as California (at \$30,264).

```
1 /* Dashboard 3: Donation Values */
2 SELECT *
3 FROM Donation_Data;
4
5 SELECT *
6 FROM Donation_Data
```

Donations by Gender and Job Field



Donations by Top 10 States (outside California)



Insights

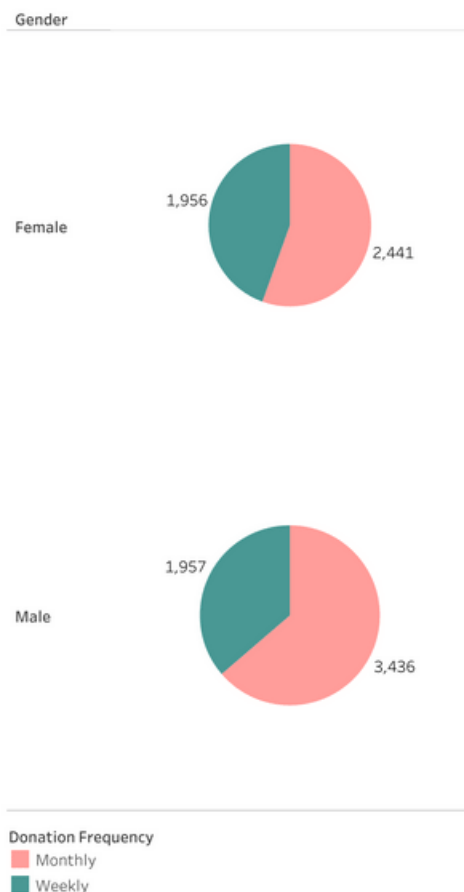
DONATION FREQUENCY OF CURRENT DONORS

Gender and job field were selected again to observe how donation frequencies vary based on these parameters.

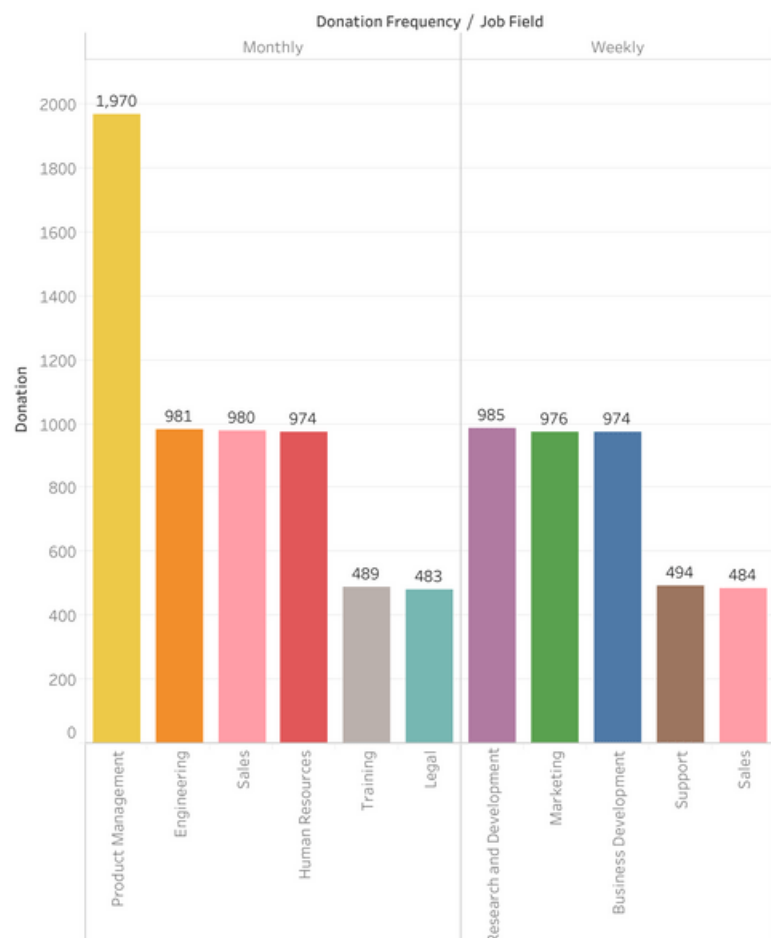
This is so that we can make handy observations on whether the above mentioned parameters have any significant impacts to the distribution of the top 20 donation frequencies on weekly and monthly bases.

```
1 /* Dashboard 2: Donation Frequencies */
2 SELECT Donation_Data.first_name, Donation_Data.last_name,
3 Donation_Data.email, Donation_Data.donation, Donor_Data.donation_frequency, Donation_Data.gender, Donation_Data.job_field
4 FROM Donation_Data
5 JOIN Donor_Data
6 ON Donation_Data.id = Donor_Data.id
7 WHERE donation_frequency = 'Weekly'
8 OR donation_frequency = 'Monthly'
9 ORDER BY donation DESC
10 LIMIT 20;
```

Top 20 Weekly and Monthly Donations by Gender



Top 20 Weekly and Monthly Donations by Job Field



Findings and Recommendations



CURRENT DONOR PROFILES

DONORS BY STATE

Majority of donors are based on California (113), Texas (95) and Florida (90), as reflected in darker shades of green. Nevertheless, from a general perspective, based on the varying degree of light green hues, we see that most donors are living in the East Coast.

It is clear that **Keep Us Educated** has been more successful in attracting donors from these regions within the United States of America. It is recommended that the Fundraising team continues to engage with them by sending monthly newsletters or updating our social media platforms on a weekly basis.

DONORS BY JOB FIELD

While donors come from diverse career backgrounds, they are predominately subject experts in the Business Development (94), Engineering and Human Resource (tied at 93), and Product Management (90) domains.

One interesting point to note that we have the least number of donors from the Legal (66) field, which could be a potential group that we could target our fundraising efforts towards.

DONORS BY TOP 20 CAR BRANDS

Visual presentation of this scope is narrowed down to focus on the top 20 most popular car brands owned by donors. This is to draw more attention to the level of affluence that this group of donors are of. Unsurprisingly, most donors own cars from Ford and Chevrolet, which are well known to be the most popular vehicle manufacturers in the United States of America.

Findings and Recommendations

Even so, it is noteworthy that 66 donors either do not own cars or did not disclose that they are car owners. Although the correlation between donors that own cars and donors' degree of purchasing power is still relatively strong and direct, we should acknowledge that this group of donors should not be left out in our donor interactions.

DONORS BY SHIRT SIZE

This parameter is highlighted in light of future networking events that **Keep Us Educated** may organise for donors, so that we have first-hand information that we would need when making arrangements for the production of donor shirts.

As shirt sizes of L and larger would be required for majority of donors (721), we are in a relatively better position than before to negotiate for a better deal when sourcing for a shirt manufacturer.

DONATION VALUE OF CURRENT DONORS

There tends to be an almost equal distribution of male and female donors across all job fields. While some job fields have relatively more male or female donors, it is possibly due to the nature of that particular job field.

Outside of California, it is observed that donations originate from states all around the country, the most being from Texas, Florida, New York and Virginia (above \$10,000). This supports the previous finding on donors by states.

More awareness on what **Keep Us Educated** does could be targeted towards those from job fields and states that fall under the lower-tier total donation values. Another possibility worth exploring would be to establish collaborations with donors from Sales, Marketing and Legal and living in Ohio and North Carolina for networking events catered to both donors and beneficiaries.

Findings and Recommendations

DONATION FREQUENCY OF CURRENT DONORS

Looking at the top 20 donations, donors of both genders tend to contribute more on a monthly basis rather than on a weekly recurrence. This infers that donors are more comfortable to donate larger amounts at less frequent cycles, probably because they see it as a form of monthly routine to do a good deed.

It is interesting to see that generally, donors in Product Management have been giving significantly more (\$1,970) than donors from other job fields, which is a similar finding about our donor profile. Another compelling observation is that donors from six different job fields (Engineering, Sales, Human Resources, Research and Development, Marketing, and Business Development) roughly contribute the same total donation values within the \$900 range despite their varying donation frequencies.

Based on these findings, we could advocate monthly donations among new donors, and encourage current weekly donors to convert to monthly contributions.

Conclusion

ABOUT THE STUDY

The purpose of this review is to better understand how **Keep Us Educated** could streamline its fundraising efforts and continue to support its beneficiaries. Based on the RCA performed, it is also worthy to note that more training in the areas of marketing and communication is advisable for the Fundraising team so as to keep current donors updated on a more regular basis.

The observations made have helped in narrowing down the scope of future fundraising and outreach activities. A few notable ones include engaging more extensively with donors from less-performing states and job fields, and favouring less donation frequencies of higher donation values.

Nevertheless, touching base with current donors is an important aspect to keep them informed on the type of activities that **Keep Us Educated** does for those who need financial help in pursuing their education, and continue to encourage contributing to our cause.

ABOUT MY LEARNING TAKEAWAYS

This is my first attempt in preparing a full data analysis report on my own, and it has been challenging. I found myself doubting the quality of my work at every step of the way, wondering if it was good enough. Be that as it may, I was determined to block out such negative thoughts, lower expectations of myself, and just do a simple portfolio.

Besides tapping into data analytics resources, namely SQL and Tableau, I also had the opportunity to use Canva as a platform to complete my report. Thank you, EntryLevel, for creating such a dazzling template!