



# **Data Analyst: SQL Portfolio**

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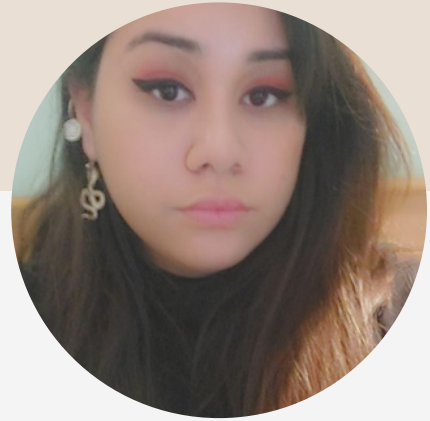
# Professional Background

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Hi, I'm Aaliyah Motala. I have a BSc honors degree in Biological Science. My background is in biology, research, and data analysis.

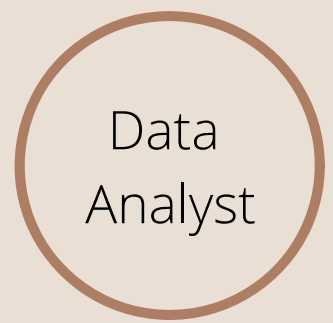
I started my professional career off with the South African National Biodiversity Institute (SANBI) where I was tasked with database management, social media management, and the City Nature Challenge eThekwin 2020. Thereafter I was a research assistant at UKZN.

In 2022, I've realized that I have a passion for data analysis and I want to pursue this career field. I love finding out trends and different ways people think.



## Data Skills:

- **R**
- **SPSS**
- **Tableau**
- **SQL**
- **SAS**



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# Introduction

Education can transform lives yet there are people who do not have the resources to learn. Statistics from 2019 show that the illiteracy rate among adults (aged 15 years and older) was 34.7% in Sub-Saharan Africa and 27.1% in South Asia. In around one-third of countries, fewer than 75% of primary school teachers are trained according to national standards.

Education For All (EFA) is an international initiative whose aim is to bring education to “every citizen in every society.” EFA promotes gender equality in education, and life-skill programs, and provides access to complete, free, and compulsory primary education of good quality.

EFA relies on donors and sponsorships for finance and knowledge services.

I was tasked as a data analyst to analyze the data EFA has on their donors and donation rates. I was tasked with 3 objectives:

- Increase the number of donors in the database
- Increase the donation frequency of the donors.
- Increase the value of donations in the database.

It is hypothesized that there are states with less than 10 donors and most of the donors in the database only donated once. The task timeline was 2 weeks and will be presented to the fundraising committee.

The data was provided by the EFA and I will analyze the data using SQL on [sqliteonline.com](https://sqliteonline.com). Thereafter, visualizations would be made on Tableau.

# Root Cause Analysis

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Developed by Sakichi Toyoda, the root cause analysis aims to find the root cause of a problem by asking why 5 times. Sakichi stated that a problem is only a symptom of the deeper issues. The analysis helps prevent recurring problems.

Q: Why is there a decrease in donation funds?

A: A decrease in new donors.

Q: Why is there a decrease in new donors?

A: Not enough young adult donors.

Q: Why don't we have young adults donating?

A: Not enough marketing toward them.

Q: Why are we not marketing towards young adults?

A: Marketing manager is not focusing on current social media trends.

Q: Why is the marketing manager not focusing on current social media?

A: Marketing manager does not have enough time.

# Insights

The data was analyzed using SQLite and Tableau. Each code and visualization would be explained under this insights section.

```
SELECT state, SUM(donation)
FROM Donation_Data
GROUP BY state
ORDER BY SUM(donation) DESC;
```

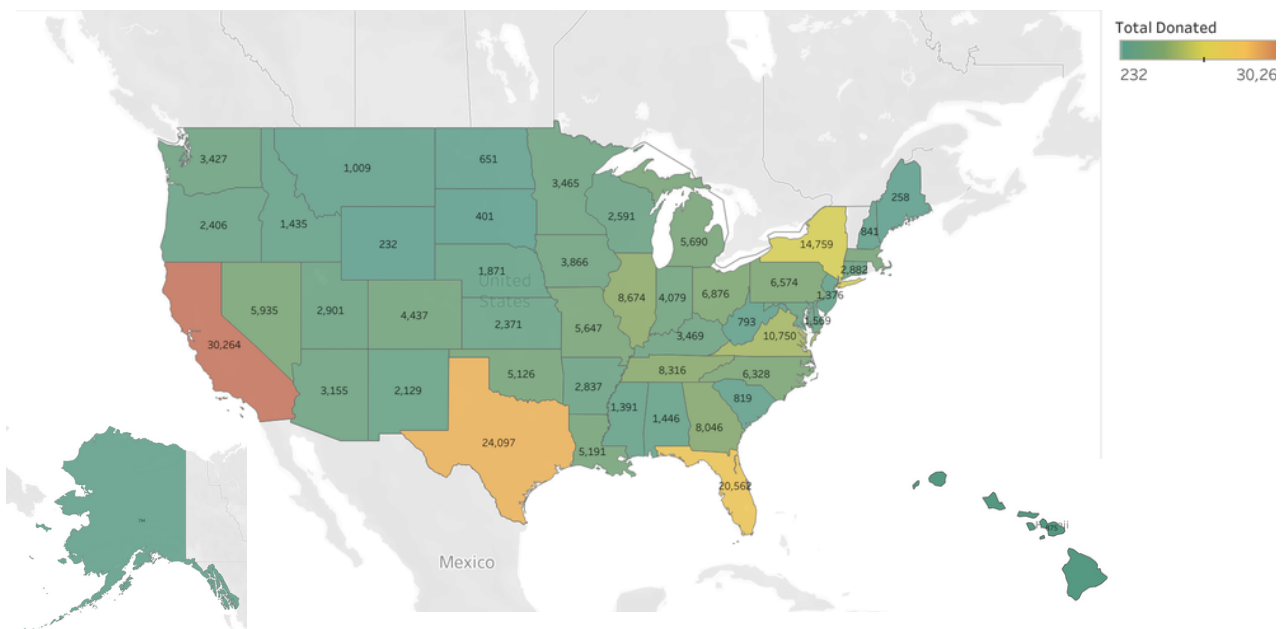


Figure 1: the total amount of donations received from each state.

The USA map shows the total donations for every state with the blue being the least (Wyoming with a total of 232) to red being the most (California with a total of 30264). Hawaii (a total of 875) is placed on the bottom right and Alaska (a total of 734) is placed on the bottom left to show all the states in closer proximity.

# Insights

```
SELECT state, COUNT(*), ROUND(AVG(donation))  
FROM Donation_Data  
GROUP BY state  
HAVING COUNT(Donation_Data.id)  
AND ROUND(AVG(donation)) < 200;
```

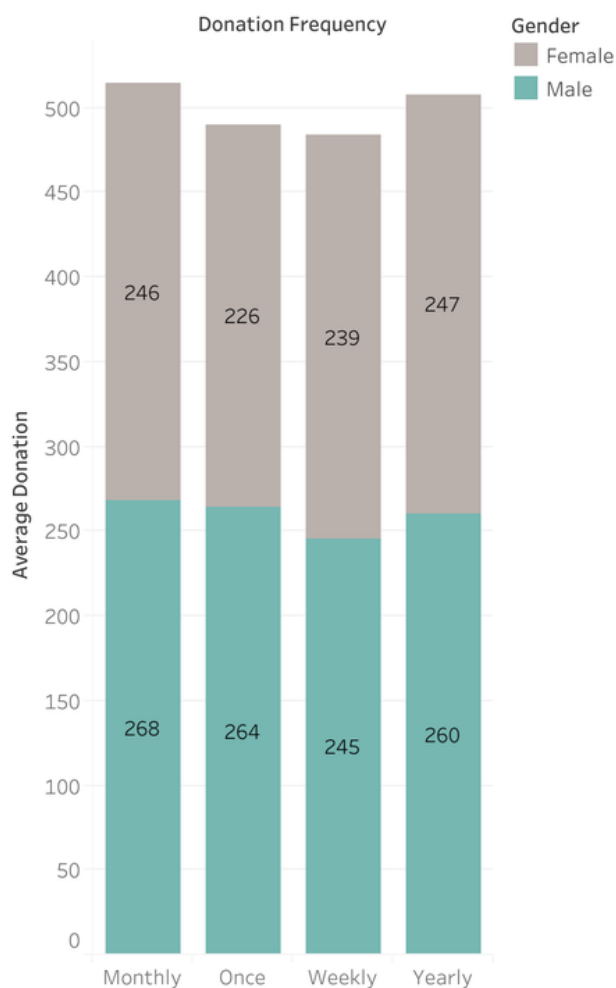
Table 1: the states that have an average donation under \$200 and the number of donors.

State	Number of Donors	Average Donation
Alabama	11	131
North Carolina	33	192
South Carolina	6	137
West Virginia	6	132

There are four states that have an average donation of less than \$200. Alabama, West Virginia, and South Carolina are close in average donations with \$131, \$132, and \$137 respectively. North Carolina has the highest amongst the 4 in terms of donors (33) and average donation (\$192).

# Insights

```
SELECT gender, ROUND(AVG(donation)), donation_frequency
FROM Donation_Data
LEFT JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
GROUP BY gender, donation_frequency;
```



The data shows that male and female distributions under the monthly, weekly, once and yearly donation frequencies don't have any significant differences.

Males donate more in all 4 categories, the most males donate monthly (268) while 264 males donated once. Most of the females donate yearly (247), followed closely by monthly (246).

Figure 2: The distribution of male and female contributions in the various donation frequencies



# Insights

```
SELECT job_field, COUNT(*), donation_frequency
FROM Donation_Data
LEFT JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
GROUP BY job_field, donation_frequency;
```

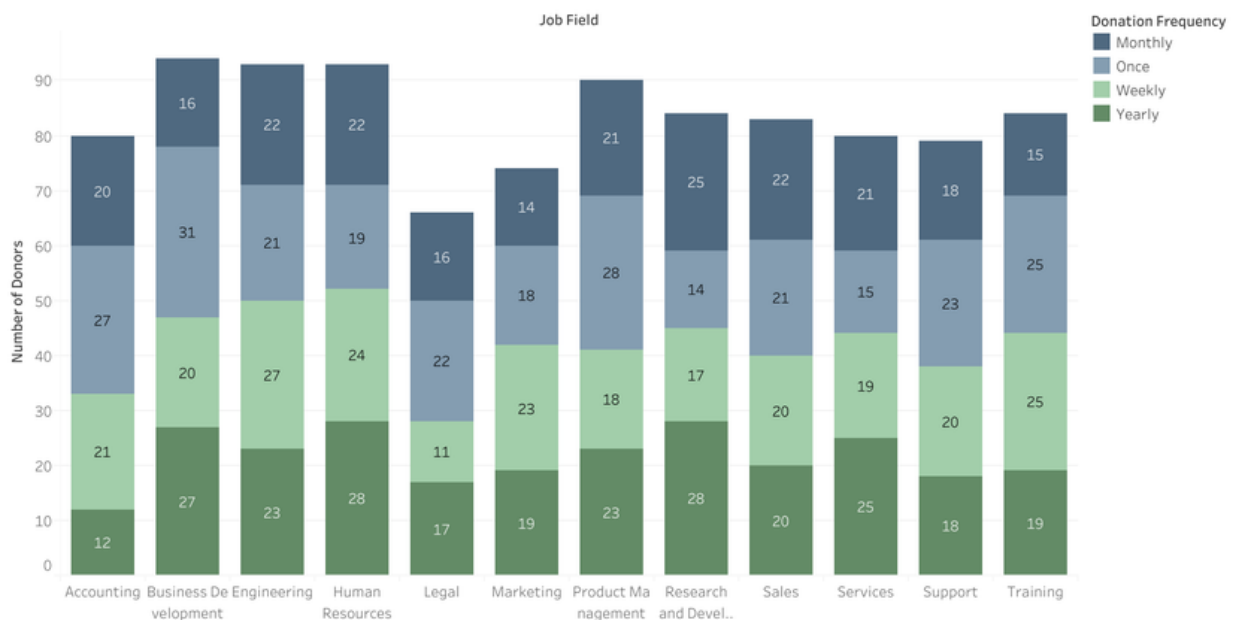


Figure 3: the donors various job fields and how often they donate

There are 12 job fields that the donors fall under and the graph shows the distribution of donors' job fields with their donation frequency. Business development has the most donors but the majority of the donors have only donated once. The least amount of donors is in the legal field. Research and development have the most monthly donors. Product management has the most amount of donors who donated once. Engineering has the largest number of weekly donors. Research and development and Human resources share the largest amount of yearly donations donors.

# Insights

```
SELECT state, COUNT(*), ROUND(AVG(donation))  
FROM Donation_Data  
Group BY state  
HAVING COUNT(Donation_Data.id) > 50;
```

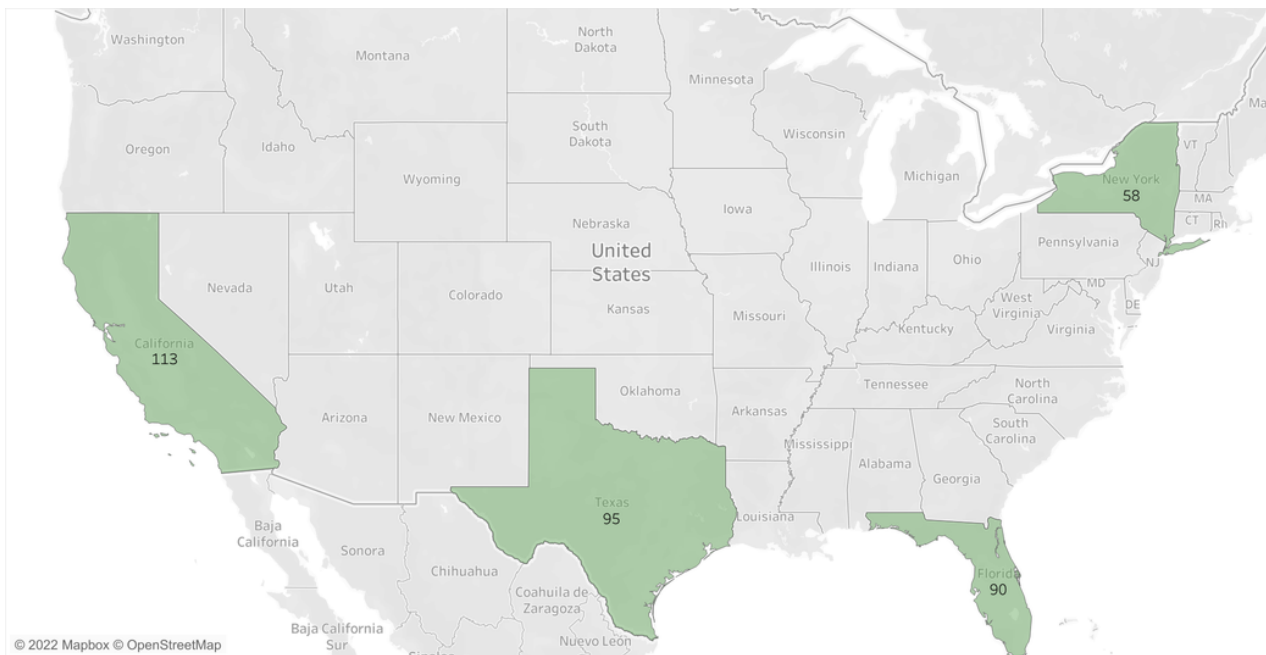


Figure 4: the donors various job fields and how often they donate

The United States of America is made up of 50 states. The code stated was to show the states with over 50 donors. Figure 4 shows that only 4 states have over 50 donors. California has the highest donation average with \$113 and New York with the lowest donation average from the 4 states with \$58.

# Insights

```
SELECT first_name, last_name, email, donation, donation_frequency
FROM Donation_Data
LEFT JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE donation < 50
AND donation_frequency != 'Weekly'
OR donation_frequency = 'Once';
```

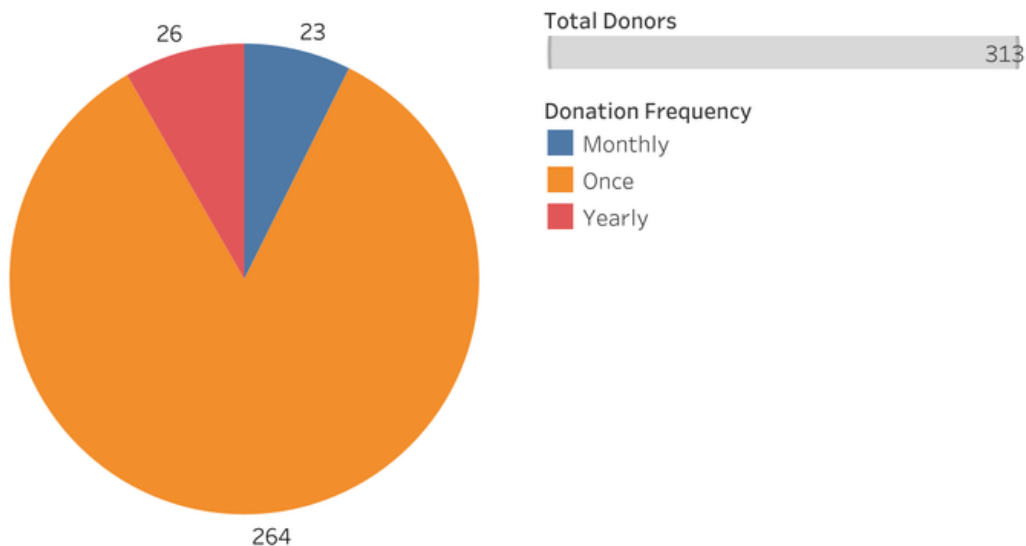


Figure 5: The total of people who donate less than 50\$ monthly and yearly and donors who only donated once.

The code extracted people in the database who donated less than \$50 (monthly or yearly) or people who donated once. People who donated less than \$50 weekly were excluded as they were regular donors. There is a large number (264) of donors who donated once. While people who donated monthly and yearly under \$50 are 23 and 26 respectively.

# Findings

There are 3 main objectives that were stated in the introduction:

- Increase the number of donors in the database.
- Increase the donation frequency of the donors.
- Increase the value of donations in the database.

The United States of America has 50 states and our goal is to spread awareness to as many people as possible. Figures 1 and 5 focus on the donors in each state. However, it has come to my attention that we have 0 donors from Vermont and only 4 states have over 50 donors.

In table 1, we look at states with an average of less than \$200. There are only 4 states with an average of less than \$200 and all these states have less than 50 donors. We need to increase the donors in South Carolina and West Virginia as they have 6 donors each.

I then take a look at the male vs female donors (figure 2). There is no significant difference in the number of male and female donors. It was shown that more males donate monthly while more females donate yearly.

There are a total of 12 various job fields amongst the donors (figure 3). Business development is the highest donating job field but it is the job field with the highest donors who donated once. The legal field has the least number of donors. Research and development have the highest number of monthly and yearly donors. Engineers, however, prefer to donate weekly.

Lastly, we have figure 5, I searched for donors who have donated once (264) and donors who have donated less than \$50 monthly or yearly. This gives a clear indication of which donors we can focus on as since they are/were already donors, they can be easily persuaded to donate more (a list of donors will be provided).

**26%**

**of donors in the database only  
donated once**

**0**

**donors from Vermont**

# Next Steps

Where do we go from here? The analysis was the first step. How can we implement the analysis into the objectives?



## 01. Increase donors

To increase donors, we need to market via mainstream media means. We can also show how the donations have helped. The analysis has showed which states and job fields to target.



## 02. Increase frequency

To increase frequency, we can target those who have donated once and those who donate yearly.



## 03. Increase donation

To increase donations, we can increase donors in the areas I focused on. Rewards to people who donate, progress reports, and pictures of where and how their money is being used.

# Conclusion

## Summary

Focus on donors who donated already and build that relationship while also focusing on reaching out to new professionals.

## What I've learnt:

SQL is a wonderful tool for data management and access. I enjoyed this task and look forward to more. Tableau was also easy to learn and a great visualisation tool.



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