

# DATA ANALYST: SQL PORTFOLIO



# Professional Background

Having worked as a Data Analyst with two large organizations with expertise in data aggregation, mining, and modeling. Providing proper analytical support to my superiors is extremely rewarding. That is why I believe I possess the versatile skillset and professional experience to be a top candidate for the job.

As a customer success manager of fourteen years, I have added the following skills- customer support, team building and training, strategic leadership, call center management, continuous process improvement, and sales support functions.

In my current role, I have worked on various wide-ranging projects, allowing me to expand my data toolbox and hands-on expertise. That experience together with my customer analytics background of fourteen years has given me a deep understanding of customer analytics framework, business needs, data understanding, data preparation, and data visualization.

Some notable contributions include:

- Developing complex reports using Excel, Tableau, and SQL to identify trends and potential opportunities and increase revenue for Udemy.
- Identifying and creating a new format for reporting the most paid Data science job role and giving insights into why the job roles are the highest paid.
- How to increase donations and increase the donor database of the charity organization

I hope to leverage my skills and experience to help your organization to achieve further success.



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# Introduction

As a data analyst working for a Charity Organization, Education For All. I have been asked by the Head of Fundraising to present the data on donor insights and donation rates.

Within the Fundraising team, my objectives are to:

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

In two weeks, my team will be having a fundraising strategy meeting for the following year, where I will be presenting insights from the donation data to inform our fundraising strategy and increase donations.

I used the EFO\_Donation Data and the EFO\_Donor Data to present my insights into the business problem.

In analyzing the data, I used the following SQL commands JOIN, LEFT JOIN, SUM, WHERE, ORDER BY, MIN, MAX, OR, COUNT, GROUP BY, AND.

I also looked into the Root Cause Analysis using the 5 Whys to ask pertinent questions regarding the datasets.

Tableau was used for visualizing the data. Analysis of the data was done based on my findings. The conclusion arrived at was that the California had the highest amount of donors, the male donors were more than the female ones. The datasets needed more details like age and telephone numbers and those with University degrees gave more than those without.

# Root Cause Analysis

Root Cause Analysis is a popular and often-used technique that helps people answer the question of why the problem occurred in the first place. It seeks to identify the origin of a problem using a specific set of steps, with associated tools, to find the primary cause of the problem.

To dig deeper to know why we had such amounts of donations and reasons why we have the variations of donors, I had to ask the below questions.

- How many donors do we have in the database?
- Who gave the highest amount?
- How much donations did we receive?
- What job field gave the highest and why?
- What state had the most donors?
- What was the highest donation frequency?
- How many females and males do we have?
- How much more did the female or male give more than the other?
- What gender is the donor with the highest amount?

To answer these questions, I applied the 5 whys to answer the questions.

- Why did the donors give so little compared to those that gave higher?
- Why do we have donors with higher amount living in some states.
- Why did a particular gender give more than the other?
- Why do some donors give daily, weekly, monthly or yearly?
- Why did the data not capture age or telephone numbers?

# Insights

I was given two relational databases the EFO\_donation data and the EFO\_donor data.

The SQLite management System was used to make these insights. The data in the Donation data contains the following:

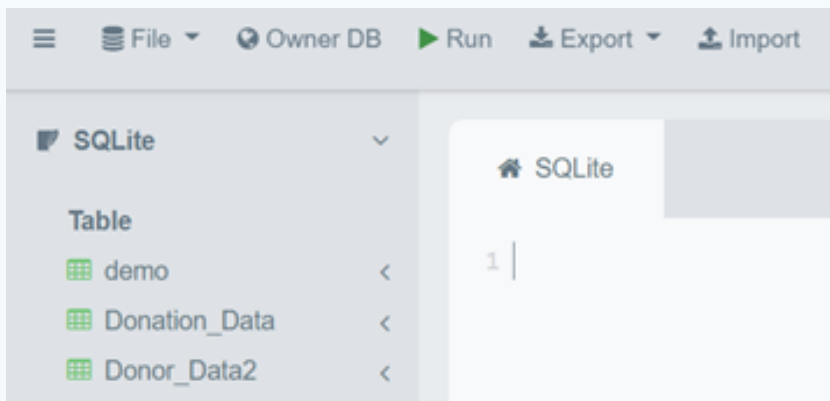
- Donor ID
- Donor First Name
- Donor Last Name
- Donor email address
- Donor gender
- Donor Job field
- Donor Amount
- Donor State of residence
- Donor T-Shirt Size

The data in the Donor data contains the following:

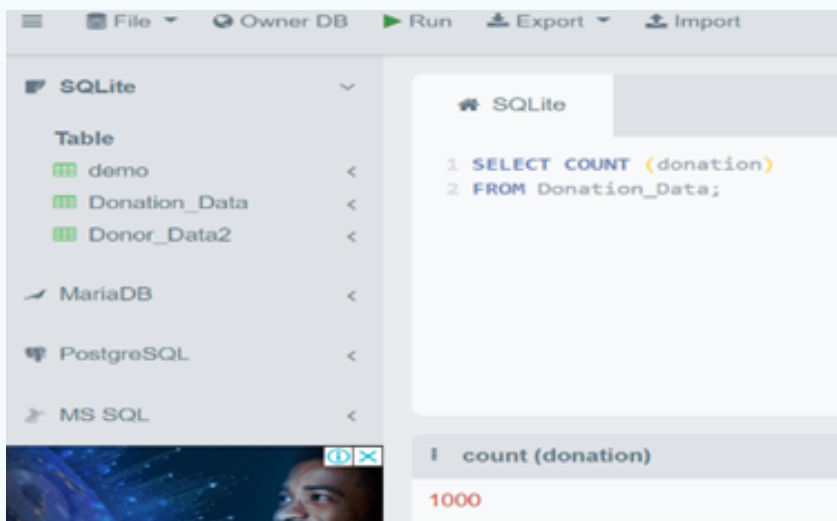
- Donor ID
- Frequency of Donation
- Donor University attended
- Donor Car Make
- Donor second language
- Donor Favorite Color
- Donor Favorite Movie genre

The two data sets were imported into the SQLite.

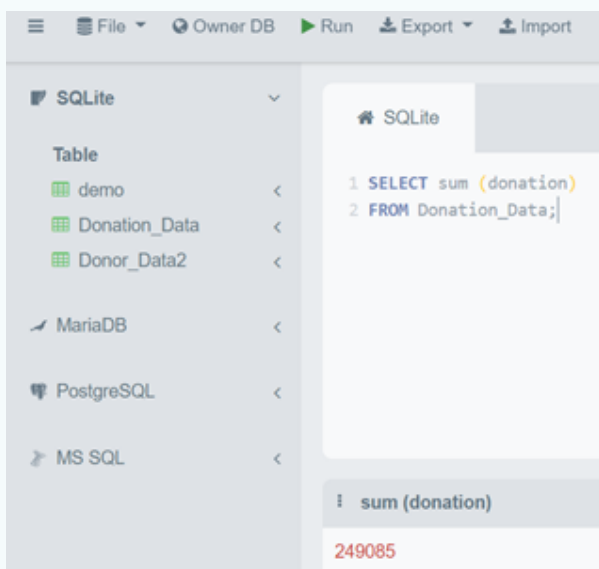
The two date sets were imported into the SQLite)



To find the total number of donors, I used the COUNT Function

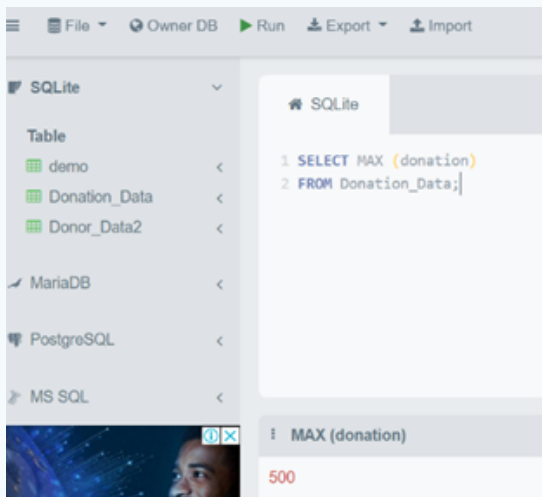


To find the Sum of Donations given, I used the SUM function

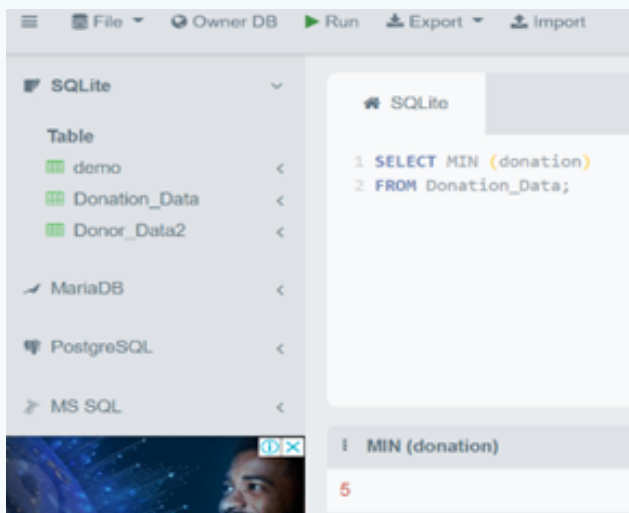




To get the maximum amount used the MAX function.



To get the minimum amount used the MIN function.



To get the count of donors grouped by state with the count of greater than 50 in a descending order.

SQLite	SQLite.1	SQLite.2
<pre>1 SELECT state, COUNT (*) 2 FROM Donation_Data 3 GROUP BY state 4 HAVING COUNT (*) &gt;= 50 5 ORDER BY COUNT (*) DESC; 6 7 8</pre>		
state	COUNT	
California	113	
Texas	95	
Florida	90	
New York	58	



To get the top 20 sum of donation by grouped by job field.

```
SQLite SQLite.1
1 SELECT sum (donation), job_field
2 FROM Donation_Data
3 GROUP BY job_field
4 ORDER BY COUNT (*) DESC
5 LIMIT 20;
6
```

To find the sum of donations grouped by gender. I used the GROUP BY function to see how much the females and males gave in total.

```
SQLite SQLite.1
1 SELECT sum (donation), gender, |
2 FROM Donation_Data
3 GROUP BY gender
4 ORDER BY COUNT (*) DESC
5 LIMIT 10;
6
```

sum (donation)	gender
121457	Female
127628	Male

To get the count of donations between 400 and 500; 5 and 100, I used the WHERE and BETWEEN function

```
1 SELECT *
2 FROM Donation_Data
3 WHERE donation BETWEEN 400 AND 500;
```

```
1 SELECT *
2 FROM Donation_Data
3 WHERE donation BETWEEN 5 AND 100;
```

I also used the JOIN function to know the frequency of the donations with a LIMIT of 20 donors.

```
SQLite
1 SELECT Donation_Data.first_name, Donation_Data.last_name, Donation_Data.email, Donation_Data.donation, Donor_Data2.donation_frequency, Donor_Data2.id
2 FROM Donation_Data
3 JOIN Donor_Data2
4 ON Donation_Data.id = Donor_Data2.id
5 WHERE donation_frequency = 'Weekly'
6 OR donation_frequency = 'Monthly'
7 ORDER BY donation DESC
8 LIMIT 20;
```

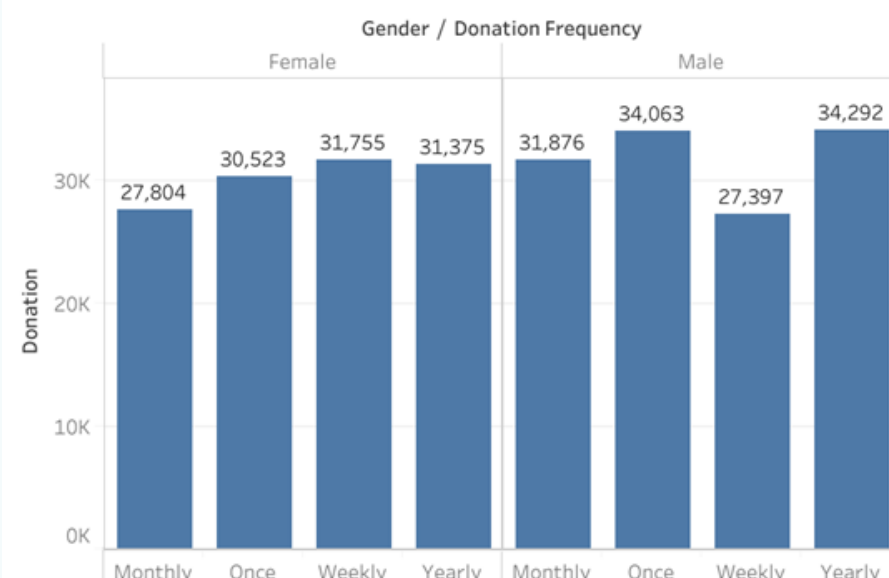
I used the LEFT JOIN function to ascertain the gender of the donors using the university they attended with a minimum donation of 400 and a count of 15.

```
SQLite
1 SELECT Donation_Data.donation, Donation_Data.gender, Donor_Data2.donation_frequency, Donation_Data.state, Donor_Data2.university
2 FROM Donation_Data
3 LEFT JOIN Donor_Data2
4 ON Donation_Data.id = Donor_Data2.id
5 WHERE gender = 'Female' OR 'Male'
6 AND university != 'NULL'
7 AND donation > 400
8 ORDER BY donation DESC
9 LIMIT 15 ;
```

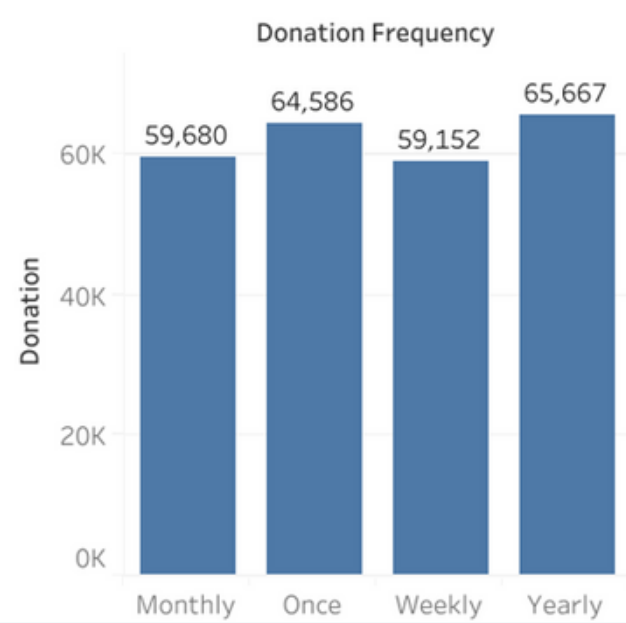
To find the top 20 donors based on their weekly or monthly donations based on universities attended and type of cars driven.

```
1 SELECT Donation_Data.gender, Donation_Data.donation, Donor_Data2.donation_frequency, Donation_Data.job_field, Donor_Data2.car, Donor_Data2.id
2 FROM Donation_Data
3 JOIN Donor_Data2
4 ON Donation_Data.id = Donor_Data2.id
5 WHERE donation_frequency = 'Weekly'
6 OR donation_frequency = 'Monthly'
7 ORDER BY donation DESC
8 LIMIT 20;
```

Donation Frequency by Gender and Donation



# Donation Frequency by Donation



# Findings and Recommendations

From the datasets, the following data results were gotten.

- Total Number of Donors were 1000
- Total amount donated was \$249085
- The maximum amount donated was \$500
- The minimum amount donated was \$5.

The Top 10 donors with their job fields showing the frequency of donation.

FirstName	LastName	Email	Donation	Donation f	JobField
Wallie	Leather	wleather7b@taobao	500	Monthly	Product Management
Worthy	Le feaver	wlefeaverdb@edubk	498	Monthly	Sales
Amalea	Knill	aknillqs@devhub.co	497	Weekly	Research and Developme
Tonnie	Stockney	tstockney23@examir	494	Weekly	Support
Corbett	Lansdale	clansdalebv@ovh.ne	494	Monthly	Product Management
Nathaniel	McGenn	nmcgennqw@nih.go	494	Monthly	Human Resources
Beverlee	Camacke	bcamackefo@cloudf	493	Monthly	Product Management
Hurley	Bogey	hbogey81@cpanel.n	492	Weekly	Business Development
Babbette	Fyers	bfyers87@nymag.co	491	Monthly	Engineering
Karilynn	Ivan	kivanl8@addthis.com	490	Monthly	Engineering

It was observed that the Human resources was the job field with the highest amount donated.

Sum of Donation	Job Field
23060	Human Resources
22862	Research and Development
22798	Product Management
22266	Business Development
21968	Engineering
21721	Training
20504	Accounting
19858	Services
19475	Support
19009	Sales
18255	Marketing
17309	Legal

Top 15 female donors showing if they went to University or Not and showing the frequency of donation. Very few of the female donors did not have a university education.

Donation	Gender	Donation	State	University
499	Female	Yearly	Virginia	Sparhawk
499	Female	Yearly	Delaware	Antoszewski
494	Female	Monthly	California	Coates
492	Female	Weekly	Florida	null
492	Female	Yearly	New York	Minthorpe
491	Female	Monthly	New Mexi	Blackborn
490	Female	Monthly	Kentucky	Heinert
489	Female	Weekly	Florida	Fraser
488	Female	Weekly	California	Turford
487	Female	Weekly	Texas	Forrington
487	Female	Yearly	Utah	Deeks
487	Female	Yearly	Texas	Wichard
487	Female	Yearly	Texas	Drewet
486	Female	Yearly	Washington	Sackes
483	Female	Monthly	Connectic	Gorch

Top 15 female donors showing if they went to University or Not and showing the frequency of donation. Very few of the female donors did not have a university education.

Gender	Job Field	Donation
Male	Human Resources	494
Female	Human Resources	487
Male	Human Resources	482
Male	Human Resources	480
Female	Human Resources	476
Female	Human Resources	460
Male	Human Resources	459
Female	Human Resources	458
Female	Human Resources	450
Male	Human Resources	450

It was observed that the amount of donation given was not based on what university or make and model of car driven by the donor.

Gender	Donatio	Donation	Job Field	Car	University
Male	500	Monthly	Product Manage	Pontiac	Leithgoe
Male	498	Monthly	Sales	Volvo	Trotton
Male	497	Weekly	Research and De	Maserati	Rockcliffe
Male	494	Weekly	Support	Kia	Cominetti
Female	494	Monthly	Product Manage	Maybach	Coates
Male	494	Monthly	Human Resource	Dodge	Baumber
Male	493	Monthly	Product Manage	Infiniti	Armatidge
Female	492	Weekly	Business Develo	Ford	null
Female	491	Monthly	Engineering	Mercedes-Benz	Blackborn
Female	490	Monthly	Engineering	Mercedes-Benz	Heinert
Female	489	Weekly	Marketing	BMW	Fraser
Male	489	Monthly	Training	Audi	Menci
Female	488	Weekly	Research and De	Chevrolet	Turford
Female	487	Weekly	Marketing	Lexus	Forrington
Male	484	Weekly	Sales	Ford	null
Female	483	Monthly	Product Manage	BMW	Gorch
Female	483	Monthly	Legal	Mazda	null
Male	482	Weekly	Business Develo	Infiniti	Guerrier
Male	482	Monthly	Sales	Lamborghini	Baford
Male	480	Monthly	Human Resource	Mercedes-Benz	null

From the observation, we saw that donors that gave between 400 and 500 were 206 in number. And those that gave between 5 and 100 were 206 donors (Due to space constraint, I could not show the template though I have that in the SQL code above).

As seen above, the male donors were 127628 and the female donors were 121457 in total.

The Count of donors per state is shown below, with California having the highest number of donors.

State	Count
California	113
Texas	95
Florida	90
New York	58
Virginia	39
Illinois	34
North Carolina	33
Georgia	33
Ohio	32
Tennessee	30
District of Columbia	30
Pennsylvania	23
Missouri	23
Nevada	22
Louisiana	22
Colorado	22
Oklahoma	20
Michigan	20
Washington	17
Massachusetts	17



# Conclusion

Given the analysis above from the datasets EFO donation\_data and EFO donor\_data for the charity organization, Education for All.

For me to give insights on how to increase the donations and increase the number of donors. I gathered that the donors are very different people with different peculiarities like different states lived in, not similar job roles, different T-shirt sizes, cars driven, favorite colours, and universities attended.

California had the highest number of donors followed by Texas. We will need to push more adverts and sensitize other states to get more donors and also increase the amount of donations given in the states with low count.

The male donors gave more than the female donors.

The donation amount varied based on their different peculiarities. We will need to speak to the emotions of the females to give more as we have women who are climbing up the career ladders.

The overall donations that were given yearly was much more than those given once, weekly or monthly. The yearly donations by the male donors were more than the female donors. We will need to sensitize the donors to give more weekly as the weekly donations were lesser than the other frequencies.

The car make, Second language, T-shirt size, favorite colour, movie genre and university attended did not have any impact in the amount donated.

The Human resources Job field gave more than other job fields. Hence, we will need to channel our resources to other job fields to attract more donations from them, though the highest amount came from the support job role and product management.

The donors who gave little amounts will need to be encouraged to give more and be made to understand the goals of the organization. Feedback should be given to the donors to show them what their monies have been used for.

In conclusion, the charity organization, Education For All, will need to have a website and social media handles like Instagram, Twitter, and Facebook to showcase what it is they do that will help attract more donors.

This could also help to create awareness for what they do and also push adverts to them for more donors who would be willing to partner with them.

The database will also need to be improved upon as the data provided (favorite color, second language, movie genre) was not useful for the analysis. We will be needing telephone numbers, ages, etc. to be added to the database. SMS broadcast could be sent to the donor's phone numbers as well for any information concerning their partnership with the charity organization.