

DATA ANALYSIS REPORT [PORTFOLIO TASK]

FOR EDUCATION FOR ALL CHARITY ORGANIZATION (EFA)



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Table of Contents

| | |
|--|----|
| Introduction | 3 |
| Project Objectives | 3 |
| Business Problem | 3 |
| Root Cause Analysis Process | 4 |
| Insights and Visualization from the Analysis | 5 |
| Findings | 13 |
| Recommendations | 15 |
| Conclusion | 16 |

Introduction

I was given a hypothetical situation that I am a Data Analyst working for the charity organization, Education for ALL. I have been asked by the Head of Fundraising to present the data on donor insights and donation rates.

“Education for All”(EFA) is an international initiative that was launched to bring the benefits of education to “every citizen n every society” To realize this aim, a broad coalition of national governments, civil society groups, and development agencies such as UNESCO and world Bank gets funding's for this scheme.

Project Objectives

This project focuses on finding useful insights from the datasets provided by the organization, to assist the fundraising team to make inform strategies to meet the following objectives for the following year;

1. To increase the number of donors.
2. To increase the donation frequency of donors.
3. To increase the value of donations to the charity.

Business Problem

The business problem discovered is that it is very difficult to grow funds for charity organizations due to the non-availability of enough frequent donations of fund from individuals which is a major factor. Hence, the need to search for more doors who can donate regularly via a fundraising initiative, is an efficient solution that will help increase the value of donations available for the organization for the following year.

Datasets Gathered

We could say that the available data source provided during the research is known as a Primary and Internal data source which was gotten from the organization's database and it contains two tables 'Donation data' and 'donors data'.

The below are the data/attributes contained in the datasets provided

Donation Data:

Donor ID, Donor First name, last name, Email, Gender, Job-field, Donation, State and Shirt size

Donors Data:

Donor ID, Donation Frequency, University, Car, Second Language, Favorite color and Movie genre

When merged together, they contain 1000 records and 15 attributes. The dataset contains information of registered donors from 49 US states, before the analysis, the dataset was cleaned by checking for null records, duplicate records, inconsistent data types and misspellings.

The following are some questions asked to analyze the dataset and get deeper insights and further understand the business problem.

1. What is the total amount of donors and donations gotten for the database?
2. What is the frequency of their donations based on the donors?
3. What region (state) recorded the lowest and highest amount of donors and donations?
4. What job fields had the highest donations and donors who donated more frequently?
5. What gender recorded the highest amount of donors and donations?
6. Is the amount of donations depended on gender, job field, university degree, and car?

Root Cause Analysis

The application of the five whys (5whys) root cause technique was used to determine the underlying cause of the business problem. The following why questions were asked:

1. Why is the organization lacking enough donations as required for their ongoing projects?
 - Because the donations are not coming frequently as expected
2. Why do we have infrequent number of donations recorded?
 - Because we have less frequent donors than the frequent donors
3. Why do we record high number of less frequent donors?
 - Because there are many inactive donors that have not fulfilled their pledges
4. Why have they refuse to donate?
 - Maybe they have forgotten or they are been preoccupied with other bills
5. Why were they not reminded of their donation
 - This might be as a result of no further engagement across to them via different mediums and channels

Insights and Visualization Analysis

The below insights from the datasets provided were gotten by querying the data using SQL Lite Database Management System. The query codes can be found in below in this report. Also the insights from the queries were graphically represented using Tableau public.

The Below Datasets were imported individually into SQL Lite

EFO-Donation Data and EFO-Donor Data

The **SELECT** statement below was used to fetch the datasets records from the database

```
SELECT * FROM Donation_Data;  
SELECT * FROM Donor_Data2;
```

The **COUNT()** function was used to get the total number of donors with the query below

```
SELECT COUNT(donation) as Total_donor  
FROM Donation_Data;
```

The **SUM()** function was used to get the total number of donations

```
SELECT SUM(donation) as Total_donation  
FROM Donation_Data;
```

The **MAX()** function was used to get the maximum amount of donation donated

```
SELECT MAX(donation) as Maximum_donation  
FROM Donation_Data;
```

The **MIN()** function was used to get the minimum amount of donation donated

```
SELECT MIN(donation) as Minimum_donation  
FROM Donation_Data;
```

The **AVG()** function was used to get the average amount donated by the donors

```
SELECT AVG(donation) as Average_donation  
FROM Donation_Data;
```

The **COUNT()** function was used to get the total number of Males and Females as well as the total donations donated respectively

Males:

```
SELECT COUNT(gender), SUM(donation) from Donation_Data  
WHERE gender ='Male';
```

Females:

```
SELECT COUNT(gender), SUM(donation) from Donation_Data  
WHERE gender ='Female';
```

The DISTINCT statement was used to fetch distinct states where donations were made along with the GROUPBY, ORDERBY and SUM() function to get the total donations in each state from the highest to the lowest donations with the DESC order statement

```
SELECT DISTINCT state, SUM(donation) as total_donation FROM Donation_Data  
GROUP by state  
ORDER by total_donation DESC;
```

The LIMIT statement was used to fetch the top 10 states with the highest donors, along with the GROUPBY, ORDERBY and SUM() function to get the total donors and donations in those states

```
SELECT DISTINCT state, SUM(donation) as total_donation, COUNT (id) as Total_donor  
FROM Donation_Data  
GROUP by state  
ORDER by total_donation DESC  
LIMIT 10;
```

The INNER JOIN clause allows us to join different columns from multiple tables. The WHERE clause was used to filter the results to a set to include only the specified rows where the condition is met.

Total number of Males and Females that went to University along with the total donations donated.

```
SELECT COUNT(gender), SUM(donation)  
FROM Donation_Data  
JOIN Donor_Data2  
ON Donation_Data.id = Donor_Data2.id  
WHERE gender ='Male'  
AND university is NOT NULL;
```

```
SELECT COUNT(gender), SUM(donation)  
FROM Donation_Data  
JOIN Donor_Data2  
ON Donation_Data.id = Donor_Data2.id  
WHERE gender ='Female'  
AND university is NOT NULL;
```

Total number of Males and Females that never went to University along with the total donations donated

```
SELECT COUNT(gender), SUM(donation)
FROM Donation_Data
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE gender ='Male'
AND university is NULL;
```

```
SELECT COUNT(gender), SUM(donation)
FROM Donation_Data
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE gender ='Female'
AND university is NULL;
```

The INNER JOIN clause was also used to get the total amount of donations made either ONCE, WEEKLY, MONTHLY or YEARLY along with the total donors that donated respectively.

```
SELECT COUNT(donation), Donor_Data2.donation_frequency, SUM(donation)
FROM Donation_Data
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE donation_frequency ='Once';
```

```
SELECT COUNT(donation), Donor_Data2.donation_frequency, SUM(donation)
FROM Donation_Data
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE donation_frequency ='Weekly';
```

```
SELECT COUNT(donation), Donor_Data2.donation_frequency, SUM(donation)
FROM Donation_Data
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE donation_frequency ='Monthly';
```

```
SELECT COUNT(donation), Donor_Data2.donation_frequency, SUM(donation)
FROM Donation_Data
JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE donation_frequency ='Yearly';
```

Also the LEFT JOIN command was used to fetch how many males and females with and without university education donated above \$300.

```
SELECT * FROM Donation_Data
LEFT JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE gender = 'Male'
AND university is NULL AND donation > 300
ORDER BY donation DESC
LIMIT 10;
```

```
SELECT * FROM Donation_Data
LEFT JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE gender = 'Female'
AND university is NULL AND donation > 300
ORDER BY donation DESC
LIMIT 10;
```

```
SELECT * FROM Donation_Data
LEFT JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE gender = 'Male'
AND university is NOT NULL AND donation > 300
ORDER BY donation DESC
LIMIT 10;
```

```
SELECT * FROM Donation_Data
LEFT JOIN Donor_Data2
ON Donation_Data.id = Donor_Data2.id
WHERE gender = 'Female'
AND university is not NULL AND donation > 300
ORDER BY donation DESC
LIMIT 10;
```

Here we also discovered how many states has more than 50 donors using the HAVING clause to restrict our search to 50 and above.

```
SELECT state, COUNT(donation) as total_donor FROM Donation_Data
GROUP BY state
HAVING total_donor > 50;
```


The total number of donors and the total amount of donations contributed in each Job-Field

```
SELECT job_field as Occupation, COUNT(donation), SUM(donation) from  
Donation_Data  
GROUP by job_field  
ORDER by SUM(donation) DESC;
```

The Top 10 donors that donated between \$300 to \$500 monthly using the BETWEEN clause.

```
SELECT Donation_Data.id, Donation_Data.gender, Donation_Data.donation,  
Donor_Data2.donation_frequency, Donor_Data2.university  
FROM Donation_Data  
JOIN Donor_Data2  
ON Donation_Data.id = Donor_Data2.id  
WHERE donation_frequency ='Monthly'  
AND donation BETWEEN 300 AND 500  
AND university is not NULL  
ORDER by donation  
LIMIT 10;
```

The Bottom donors that donated between \$5 to \$20 monthly using the BETWEEN clause.

```
SELECT Donation_Data.id, Donation_Data.gender, Donation_Data.donation,  
Donor_Data2.donation_frequency, Donor_Data2.university  
FROM Donation_Data  
JOIN Donor_Data2  
ON Donation_Data.id = Donor_Data2.id  
WHERE donation_frequency ='Monthly'  
AND donation BETWEEN 5 AND 20  
AND university is not NULL  
ORDER by donation;
```

Visualization

Tableau public was a very powerful tool used for data analysis and visualization.

Thus, below are the graphical insights represented using Tableau Public.

1. The States in USA with the donors

It was discovered from the dataset given, that donations to the Education for all charity came from 49 US states.

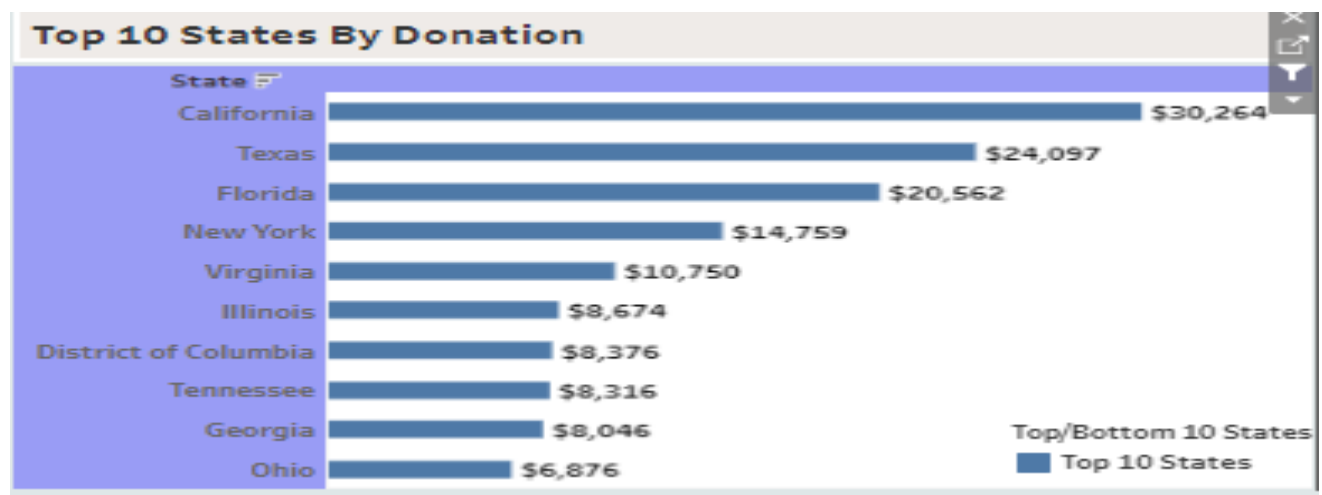
Figure 1 below is a map showing the different states and population density of donors in them.



2. The Top 10 States with their Total Donations

The Top 10 states based on donations are California with \$30,264 donations, Texas with \$24,097, Florida with \$20,562 donations followed by New York, Virginia and the last Ohio.

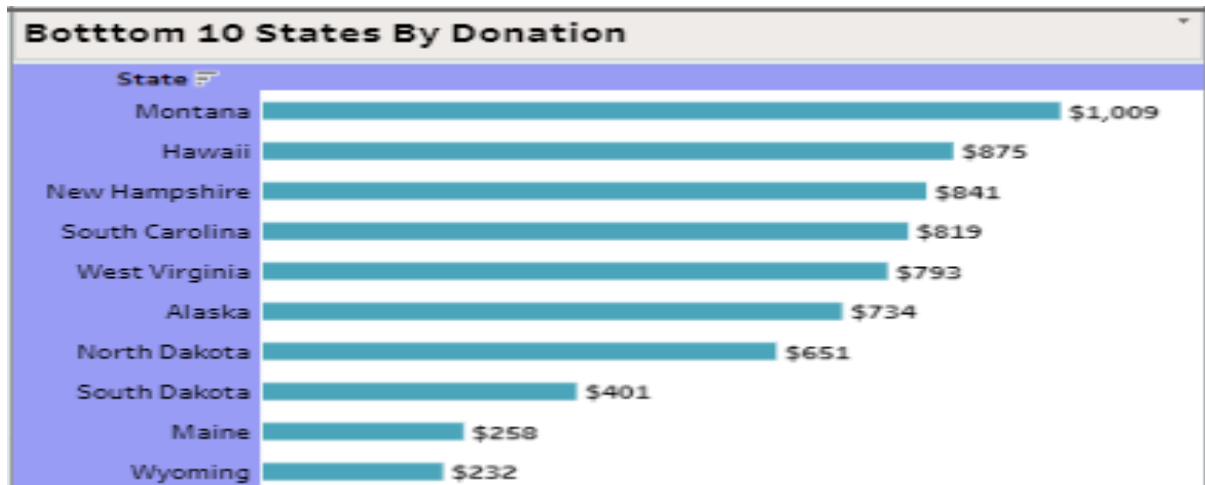
Figure 2 below is a graphical representation of the top 10 states and their donations.



3. The Bottom 10 States with their Total Donations

The Bottom 10 states based on donations are Montana with \$1,009 donations, Hawaii with \$875, New Hampshire with \$841 donations followed by South Carolina, West Virginia and the last Wyoming with \$232.

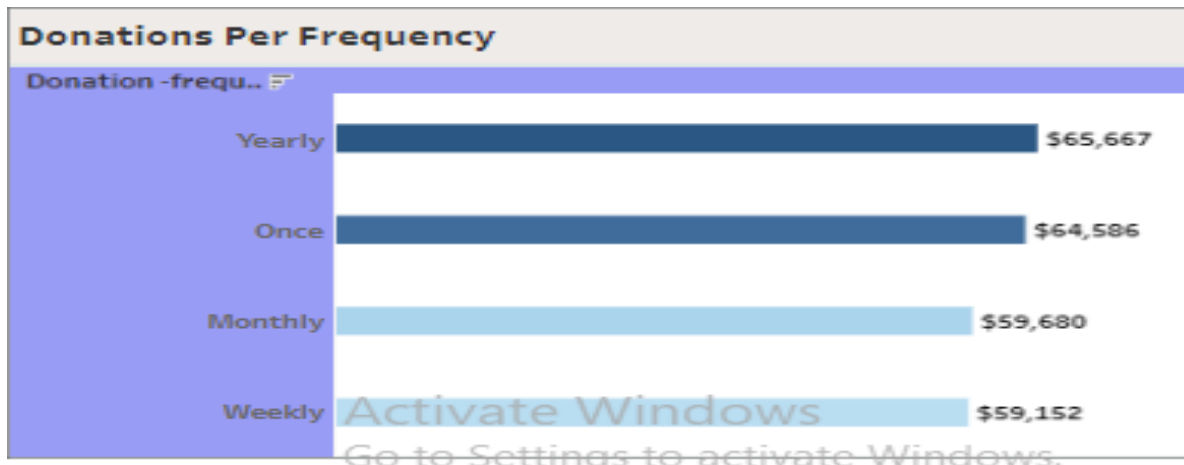
Figure 3 below is a graphical representation of the top 10 states and their donations.



4. Donations Based on Frequency

The donations made by donors were grouped into 4 categories based on frequency which are Once, Weekly, Monthly and Yearly. The frequency with the highest donation were recorded yearly while the total amount of donations that were made sums up to \$249,085.

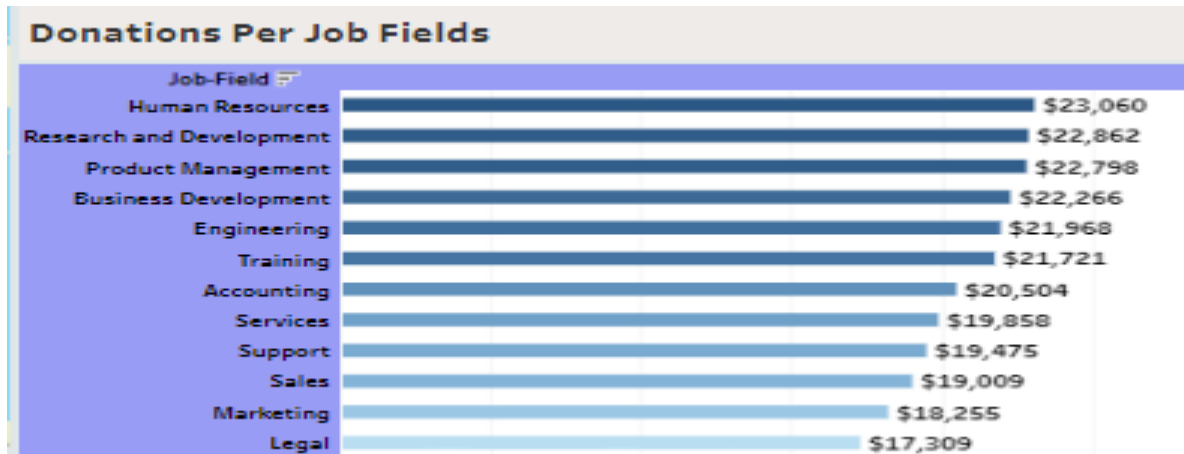
Figure 4 below is a graphical representation of the Donations Based on Frequency



5. Donations per Job Field

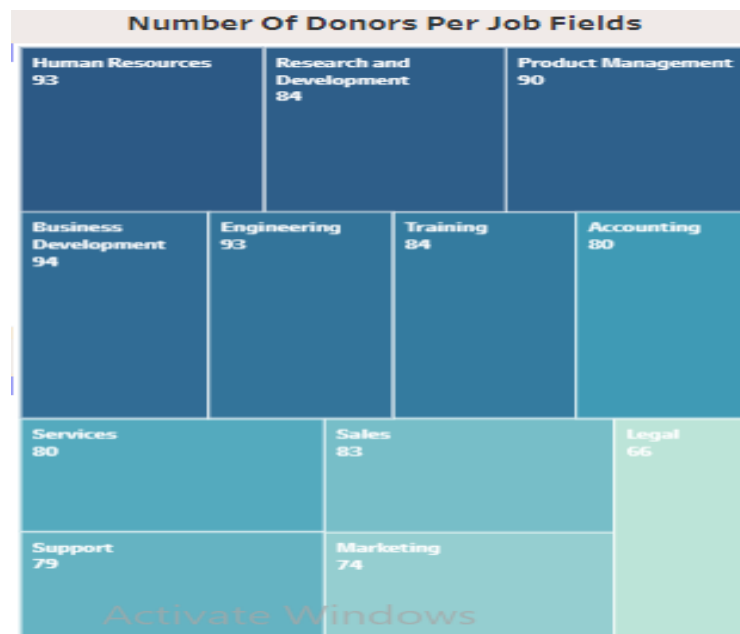
The below graphical representation shows the total donations gotten from donors in each job field. Human resources job field recorded the highest donations from Donors with \$23,060 followed by Research and development with \$22,862 while Legal gave the lowest with \$ 17,309.

Figure 5 below is a graphical representation of the Donations Based on Job Field



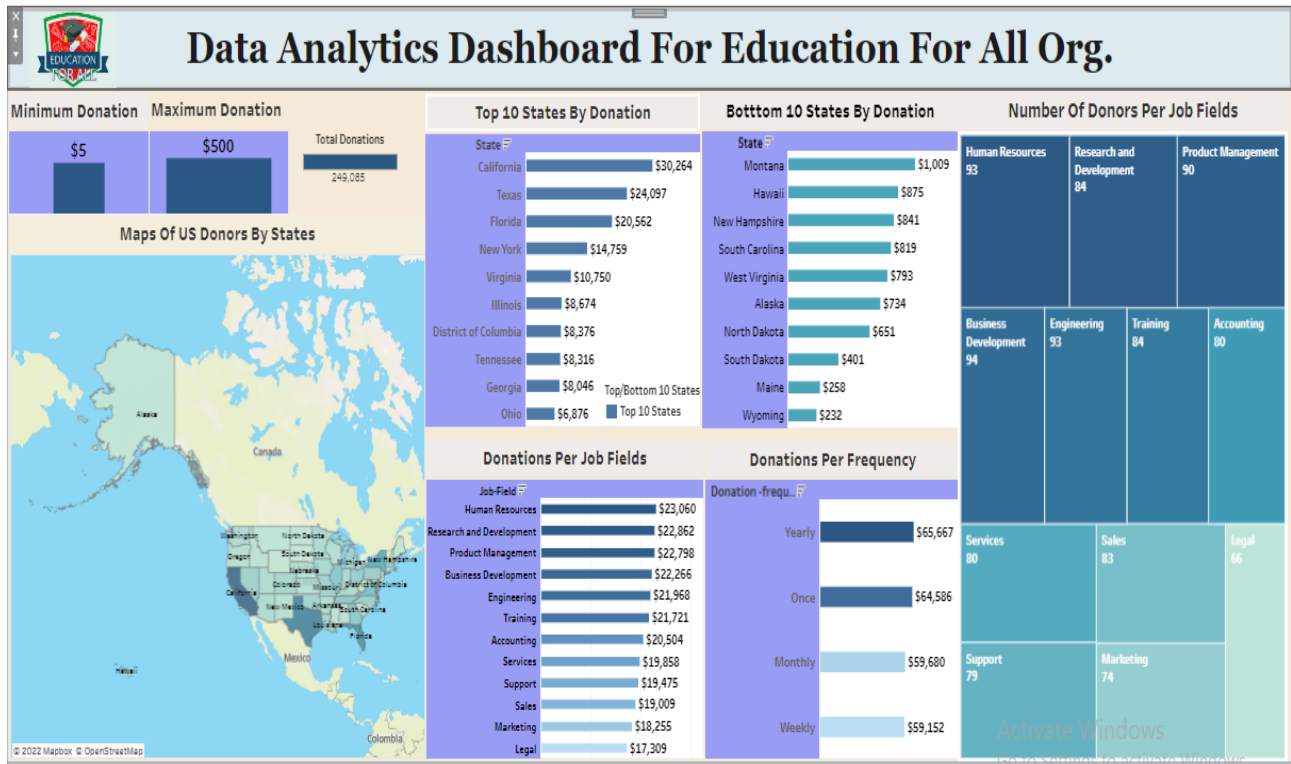
6. Number of Donors per Job Field

The below graphical representation shows the total number of donors in each job field. Business Development has the highest number of donors, followed by Human Resources and Engineering. Though Engineering has the third highest number of donors, the field is not in the top 3 with the highest donations.



Dashboard

Below is the dashbard showing thevarious insights and the link for review



https://public.tableau.com/app/profile/umeboxi.chisom/viz/EducationForAllDashboard_16710655267570/Dashboard12

Findings and Recommendations

After analyzing the data the following findings were discovered:

- The total registered number of donors we have in the database is 1000
- The sum of donations we collected is \$249,085
- The maximum amount of donations is \$500
- The minimum amount of donation is \$5
- The average amount of donation is \$250
- The total number of states the donors donated from are 49 states
- The Donors in California gave a total of \$30,264 which is the highest donation and it was noted that California has the highest number of donors (113), followed by Texas (95). States like Wyoming, Maine, and South Dakota have only a single donor each where Wyoming recorded the

lowest donation of \$232.

- Out of the total registered donors which is 1000, 508 are females which is (51%) of the population and 492 males which is (49%). However female donors are more, 49% of the donations came from females while 51% from males. Hence based on this insight it is not certain to determine if gender plays a role or is a factor regarding the donation amount.
- In an attempt to find a defining factor, the donors were categorized based on their job fields, it was observed that Business Development, Human Resources and Engineering fields have the highest number of donors to the charity, while legal has the lowest number of donors.
- The donors were also categorized according to the gender and also those that went to university and does that did not. Out of 508 females we have 378 females that have a university education with total donation of \$91,460 and 130 females with no university education with a total donation of \$29,997. On the other hand out of 492 males we have 370 that have a university education with total donation of \$95,996 and 122 males with no university education with a total donation of \$31,632. Further analysis is required to determine if the university education or gender plays a role in amount of donations, as there are currently not enough data provided to deduce this.
- The frequency of donations made by donors was further grouped into Once, Weekly, Monthly and Yearly. The donors that donated once are 264 with a total donation of \$64,586, Weekly donors are 245 and the total donation of \$59,152, Monthly donors are 232 with a total donation of \$59,680 and Yearly donors are 259 with a total donations of \$65,657. However this insight shows that more of the donations from the donor were provided yearly, although more of the donors donated Once

Recommendations

Based on the insights gotten from the analysis, below are some recommendations to meet the business objectives:

1. The Organization fundraising team could come up with avenues and strategies that would attract more donors from other states with low donor records, since now majority of them are from Florida, California and Texas. This strategies would be applied in all states but more emphasis on the sate with with little donors to give individuals there a chance to be a part of the organization and its motive.
2. Since the current minimum and maximum donation is \$5 and \$500 respectively, the charity could consider increasing the range of individual donation amount, and this could help increase donations. However it should not be enforced but instead a willing act.
3. Further analysis and information is required to determine if job fields or state of residency plays a role in frequency and amount of donations. Also to determine if gender plays a role as female donors are more than male but their total donations is the reverse.
4. Also the frequency of Yearly and Once donations is much higher than Monthly and Weekly frequency which is very low. So, we need to work on improvement of donation frequency, especially Weekly donations.
5. Information such as donor's favorite color, genre of movies, shirt size and car type wasn't useful in descriptively analyzing this data and getting more insights in understanding the business problem but they might be put in consideration as an option or suggestion for the targeted fundraising strategies
6. Also we noticed that people, who are educated themselves are happy to support others to get education. Some people with NULL education also provide big amounts, but not a big number of them.
7. We must find useful channels for promoting our charity organization. Since we have good support among educated people, we could try to spread the word in university graduates' societies about us

8. In addition, the charity could also consider expanding its reach to include donors from other job fields such as education, politics, etc. Social media ads and publicity could be put in place for the job fields with the low donor record and also other targeted audience like business developers and owners, human resource personals, product managers, researchers and engineers by introducing the charity organization to them since they are the top donating job fields

Conclusion

For the charity to increase its outreach to other job fields and states the stated recommendations could help create more awareness for the charity **“Education for all”** in all the states in US and influence the frequency and amount of donations to the charity as well as number of donors therefore meeting their donations objectives for next year and thus achieving their goal to fund the education of more individuals in the US. More recommendations could still be put in place if more relevant information's could be made available so as to provide further insight analysis so as to increase the donations for the charity organization.