TERADATA. University Network

DATA CHALLENGE

Tableau Analytics for TUN Data Challenge

Author(s):

Muhammad Fawad Akbar Khan

University of Engineering & Technology, Peshawar

m.fawad_akbar@live.com

Computer Engineering

Masters

Mian Ibad Ali Shah

University of Engineering & Technology, Peshawar

mianibad_kakakhel@outlook.com

Computer Engineering

Masters

Faculty Advisor:

Prof. Laiq Hasan

Computer Engineering

laiqhasan@uetpeshawar.edu.pk

Summary

Bike MS have made phenomenal contribution to NMSS. The reasons for the steady decline of participation are highlighted by our Tableau visualization & analytics of the Donations Datasets. State of Texas and California has been major contributor in the Bike MS fundraising events due to its charitable organization and health sensitive populations. Three of the highest grossing Corporations BP Foundation, Harmons & Fidelity Investment had major participation in Texas, Houston Bike MS 150. All the Bike MS 150 has been very successful. Princeton, Houston and New York were three of the top grossing cities in the campaign. Moreover, Matching Gift Programs, Retired, Self-Employed and Public Figures participations generated major funds.

Problem and Motivation

Bike MS has made extraordinary philanthropic efforts to fund Non-Profit NMSS which is helping cure the world from a disabling and threatening disease Multiple Sclerosis. Bike MS has seen a steady decline of participations due to competing charity bike campaigns. To counter the attrition Bike MS must come up with a better and calculated strategy based on concrete analytics.
The questions which we focused on for TUN Data Challenge are as follows:

CORPORATE ACQUISITION:
1. What are the greatest growth opportunities for new corporate teams?
2. Can we apply those opportunities to specific rides/markets, especially our biggest events?
3. What industries have had the strongest involvement in Bike MS in the last five years?
4. What occupations were responsible for most of our fundraising?
5. Can we tie together these industries and occupations to identify gaps/opportunities?
6. What is the common denominator for our top performing corporate teams? (Is it industry, culture, executive involvement, connection to MS, other?)

DIGITAL/ SOCIAL ACQUISITION:
1. What are the greatest opportunities for digital marketing investments? Where have we seen the greatest ROI?
2. Once someone is registered, what tactics and behaviors drive fundraising, and at what times leading up to the event?
3. What behavioral data do you see about usage of our fundraising tools and how it may or may not relate to performance of top fundraisers?
4. Despite increasing our digital advertising spend, acquisition continues to trend downward overall. Why? Is it an issue of needing more traffic, better targeting, or a conversion rate issue that needs to be addressed through the registration process? What can we do to reverse the trend?

MOTIVATION:
Bike MS is biking for a noble cause. Being philanthropist ourselves we are more than interested, we are super motivated and thrilled to use our skills as a Data Analysts in helping Bike MS reach its objectives. We have been using Tableau ("Fast analytics and rapid-fire business Intelligence tool") for 6 months. It is a tool used by many organizations to analyze the economic and social data and deduce solution and suggestion for improvements. We think the analytics obtained by Tableau will help Bike MS extract the reasons of the steady decline and devise a strategy to counter this phenomenon.

1) Approach

The first and foremost step in our project was our research about Bike MS. We have gone through official website, FAQs, Brochures, Ads, Manual, Social Media, News and any other kinds of publications related to Bike MS. We have also analyzed some of the Personalized Pages offered to participant for promotion.

OBSERVING DATASET:
After having enough understanding of the event we started looking through the donations datasets offered to us for analysis. We analyzed the dimensions (columns) and measures (rows) in each csv file and sought tools to clean and analyze the dataset. After going through the dataset we had clear understanding of what we were going to do and how we are going to do it.

TOOLS SELECTION:
After going through the dataset we came up with two tools to analyze the datasets:
1. **Matlab**: MATLAB is a multi-paradigm numerical computing environment. It is a programming as well as GUI based tool.
2. **Tableau**: Tableau can help anyone see and understand their data.

PERFORMING ANALYTICS:
1. **Cleaning Data**: Using Matlab to clean and arrange the data for visualizing in Tableau
2. **Visualizing/Analyzing:** Performing different visualizing on the dataset to dig out features and answers to the questions asked.

2) Tools and Analytics

TOOLS:
Two tools were selected for working on the dataset and performing visualizations and analytics:
1. **Matlab**: The dataset contained Nulls and Repetitions which needed to be removed. To clean and arrange the dataset we used Matlab.
2. **Tableau**: Tableau is a powerful GUI based visualizing tool which can be used for cleaning, arranging and visualize the data in a vivid and colorful plots and graphs. We used Tableau extensively throughout all of our project to clean and visualize the datasets and dig out answers to the business questions.

ALGORITHMS:
Tableau have many useful built-in algorithms which helped us in extracting our conclusion from the datasets. The algorithms used can easily be observed in the attached visual presentation, In general we performed:

1. Exclusion of unwanted data
2. Performing Summation, Count, Count Distinct on measure
3. Visualizing user specified measure in user specified manners
4. Plotting different measure against different dimensions

Results

Artifacts Generated (Presentation of Visualization):

Slide #	Content Description
1	Title slide
2	This slide contains summary of the last 5 Years of Bike MS campaign. It shows that Matching gift corporation has generated most revenues. It is also evident that Bike MS 150 has been the most successful event in creating interests from these corporations. Corporations with huge amount of small teams did not always received large donations while corporations with lesser and large teams were more successful.
3	This slide summarizes all kinds of transactions from donations of top corporations. The data is evidence that a huge bulk of fundraising came from corporations with matching gifts programs. It also shows that some corporation with small number of large teams have raise a large amount funds e.g Harmons.
4	Fundraising isn't always proportional with the geographical diversity of an event. This slide is evidence of the fact that events focused on 1 or 2 states generated huge revenues. Large sums of donations from top corporation came from a small number of cities including Huston, Princeton and Cincinnati.
5	This slide summarizes that huge cash transactions occurred through credit card. Major amount of participants in corporate teams were prior participants. Teamraiser Participant Gift had highest numbers except in Harmons which had less number of teams. Harmons had highest number of Teamraiser Event Gifts.

6	Bike MS had a successful fundraising campaign in state of Texas & California but both differ by a huge amount. 4 out of 5 top corporations had highest participations in state of Texas, Ohio, Utah and New Jersey. Overall large majority of donations were received from Houston, Princeton, New York and Denver.
7	Slide 7 summarizes the total participant that registered and opted out during each month of the last 5 years. It shows that there has been an unparalleled numbers of high deregistration's and low registrations during 2017 Bike MS Events.
8	Slide 8 show the Participant Id of the highest grossing participant which has been hugely successful in the events. Most of these participants were persistent during last 5 years and in corporate teams with best social and public statures. Their strategy was better and must be analyzed.
9	This slide summarizes Bike MS in each year. We can see a decline in Number of Participant, Net Transactions and Number of Teams but the Number of Events has also decreased. If Bike MS could focus on Health Sensitive, Corporate, Prior Participant Dense populations and host more Bike MS 150 rides more donations can be generated.

Digital/ Social Acquisition:

We observed that the decline in Digital Acquisition can be countered with better targeting. Bike MS major fundraiser are corporate teams. Next year, higher funds can be raised if Bike MS hosts inter-corporate competition to salvage corporate interests in the events. YouTubers can also attract a lot of donors and participant. Bike MS should invest in YouTubers to participate in these event and promote Bike MS on their channels. Tarun Bali a YouTuber was successful in attracting donors with his "1mile for 5$" video [2]. Fox4 feature of Ken Ballard "Rides for his Bride (MS Patient)" was successful in generating huge donations. Participant should be advised to promote their stories on YouTube, Facebook, Instagram, Twitter and all other social media websites along with their Personalized Pages. The participant fundraising goal limit should be lowered to make it easier for new participants.

How will it Help NMSS?

We analyzed the When's? Why's? How's? of the decline in the Bike MS fundraising campaign during the last five years. Now the question is, how it will help NMSS? When Bike MS event is a success, it generates more funds and help meet the needs of NMSS. We have observed that Bike MS can receive more participation next year if it focusses on the following points:

1. Targeting States like Texas, California, Ohio and Utah and Cities like Princeton, Houston, New York, Denver and Dallas.
2. Targeting charitable corporations and corporations with Matching Gifts programs, like BP, Fidelity and Johnsons and Johnsons etc. It is also important to notifying the participants about the Matching Gift program if their employer offers it because some participant doesn't realize that their employer has this program and fail to benefit the Non-Profit from it.
3. More MS 150 Events state specific events like the Texas, Houston MS 150. Events centered in more prosperous states with higher GDP and more financial stability were more successful.
4. Public figures can be very beneficial in these events. Promoting stories like "Ken Ballar: Rides for his Bride" [1] to attract more donations and participations. Participants who were more active on Twitter, Facebook, YouTube etc. have generated more donations. Making videos, sharing MS stories online, with nears and dears and with colleges helps in fundraising.
5. An advertisement strategy based on analytics of all the participant of TUN Data Challenge should be devised.
6. Targeting corporate dense cities and states with a culture of philanthropy, health and wellness. For example, targeting health sensitive retired, self-employed or a corporate employee, living in Houston or Princeton.
7. Retired and Self Employed people had greatest participation in Bike MS campaigns. Special deals for these occupations can help get more of them next year.

FINALLY:

If possible a huge breakthrough would be to go to Europe. Bike MS in Europe will definitely generate more donations. Furthermore, if Bike MS is still on a steady decline, starting a Marathon or a Motorbike tour campaign could help reverse this.

3) Presentation:

*< Please submit a separate power point presentation of **no more than 10 slides**, including title slides, capturing the visualizations and analytical work of the team. **Teams submitting more than 10 slides for the power point will not be evaluated. Slides may contain notes**.>*

>

4) References

[1] https://www.youtube.com/watch?v=6P89WUw7gxA

[2] https://www.youtube.com/watch?v=9gkq_ZwaBss