Farmlink Analysis

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Client Description/Background: Farmlink

- Farmlink is a student-run non-profit organization that goes to individual farmers and finds out what they are doing with unused produce
    - In most cases, these unused produce is fit for human consumption but have a characteristic(s) that would deter consumers from buying it, such as discoloration, and most farmers don't have the resources to sell these rejected items at farmers markets
- Farmlink will go to a farm and buy unused produce/get it donated to them, and in turn donate this food to people in need
- Money comes from 2 sources: foundation grants (Krueger, NBA, etc.) and microgrants (donations from family trusts)
    - Growing portion from individual donors ($5-$10000), which are called household donations
    - Most of this money is put back into the operations
        - 4-5 operators, and a bunch of student volunteers

the farmlink project

Project Description

From Farmlink:
-   We have around 15K contacts in our email newsletter out of which our "emailable" pool is around 11K. We typically see around 35-40% open rate with a 0.5-1.2% click rate. We also provide a way for our newsletter subscribers to click a donation button and donate money and we typically used to average around $2500-$3000 in donations per newsletter but recently that number has tailed off in the $750-1500 range.

Tasks/Deliverables:
-   A ML driven approach (or any approach you see fit) to better segment our newsletter population in terms of their propensity to click the donation link and then donate. I know the population of donors who clicked on a donation button and clicked is thin (we only implemented link level tracking at an individual user level in June 2022) but we want to see what we can do
-   Does it make sense to cut back on emails for subscribers who do not engage with us so that we can go from say 4 times a month to a monthly newsletter? Will that boost engagement?
    -   In other words, figure out if its better to send different types of emails/adjust their frequency!

Data Description

Feature/Data Descriptions
- Sends – how many times an email was sent to the user.
- Opens – how many times the user opened the email.
- Clicks – how many times the user clicked on the donation button.
- Lifetodategiving – how much money they give all time
- Yeartodategiving – how much money they give in one year
- Lastgiftamount – the amount of money they most recently donated.
- Lastgiftdate – the date of their most recent donation
- ContactType – type of contact (donor or non-donor)
- MonetaryTier – ranking based on how much they donated
- DonorStatus – single donor or multiple donors
- IndividualDonorType – whether they had one donation or multiple at once
- Tier3Classification – same as IndividualDonorType?

|	A	B	C	D	E	F	G
1	id	status	Sends	Opens	Clicks	lifetodategiving	yeartodategiving
2	89ce7fad62fd5b95aaadaa1edb786cc0	subscribed	112	3	2	200	0
3	778fdf5a21efed6e372e0e0bc159f92d	subscribed	112	112	3	50	0
4	778fdf5a21efed6e372e0e0bc159f92d	subscribed	112	112	3	50	0
5	cec49095c9aef6252fbd30aae5345792	subscribed	112	29	2	200	0
6	778fdf5a21efed6e372e0e0bc159f92d	subscribed	112	112	3	50	0
7	6f6f6b553e98c17511288f863d274e4c	subscribed	113	42	0	0	0
8	c7c9e65b8729d427e68e71a209e8a0be	subscribed	112	43	3	200	0
9	6f6f6b553e98c17511288f863d274e4c	subscribed	113	42	0	0	0
10	85be7b6d968ac99800091726b107c887	unsubscribed	35	6	0	25	0
11	3ef677e12ddbc72a17996990f8da6202	subscribed	113	25	2	120	0
12	4e398381132c05c838eab0ca80389fe6	subscribed	113	139	4	100	0
13	d46b6cde82cc675bb5cbd1fa4cfe176c	subscribed	114	93	0	50	0
14	79ece5ac66ccad8e13ac7d2b3e10d4a1	subscribed	112	181	1	15	0
15	3039afd00fd3a6c4e94c3512500c86ef	subscribed	113	0	0	100	0
16	6d4ad80938bd0dab7089e02b387df85c	subscribed	114	31	4	250	0
17	6d4ad80938bd0dab7089e02b387df85c	subscribed	114	31	4	250	0
18	7244ab4036d24fd2560de91a281485ac	subscribed	113	122	0	500	0
19	73e0c0fb6a6cf5883b83631971510e56	subscribed	111	96	0	100	0
20	f6b8de6726f09d31830389e932c05741	subscribed	112	90	0	25	0

EDA

- One issue we found out was that the majority of the donors are single donors and very little amount are recurring donors
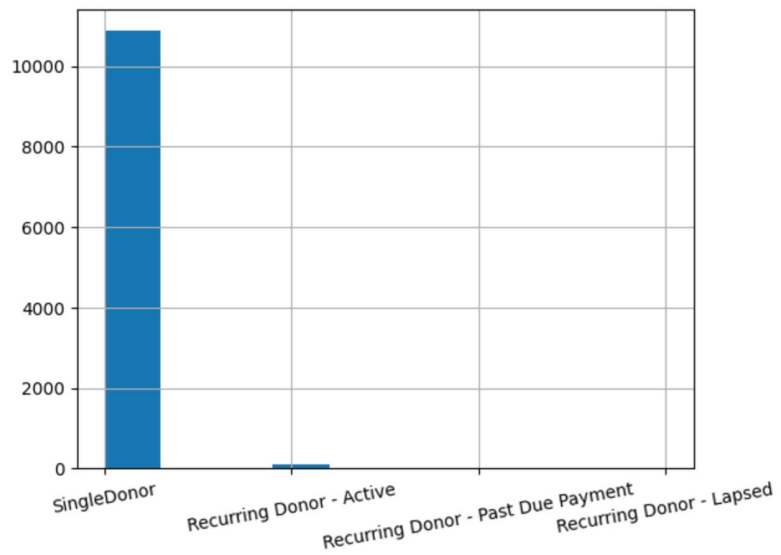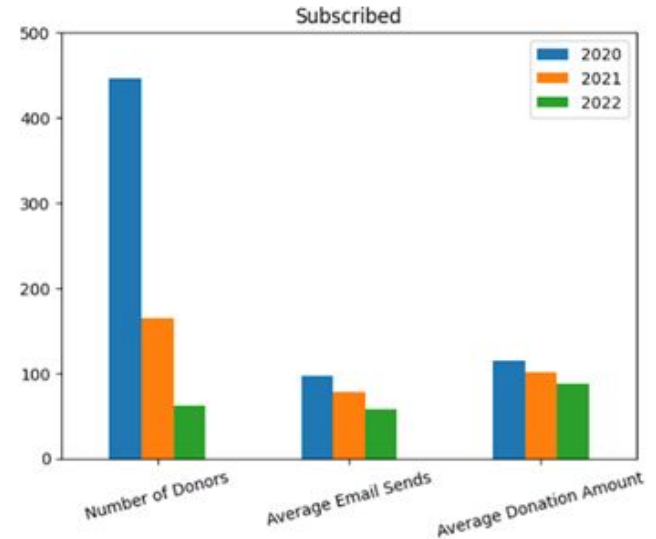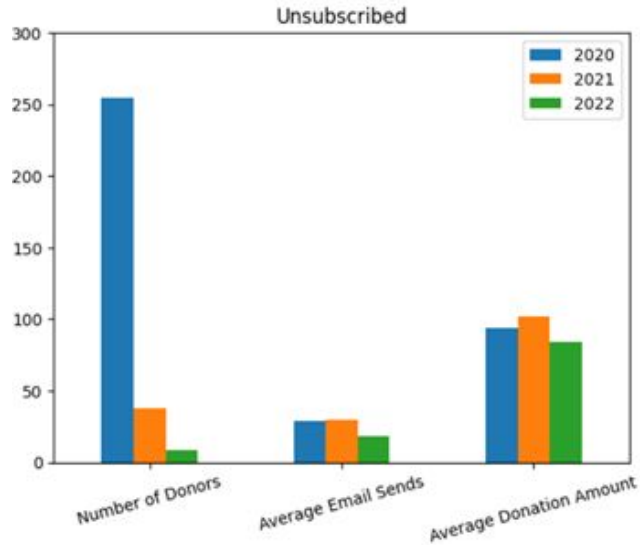
EDA

- This issue is also evident in the distribution of donors' monetary tier
- Majority of people donate once with a good amount of money and earn a diamond tier or below if donated less
- However, since almost no one donates consistently, people do not move up tiers
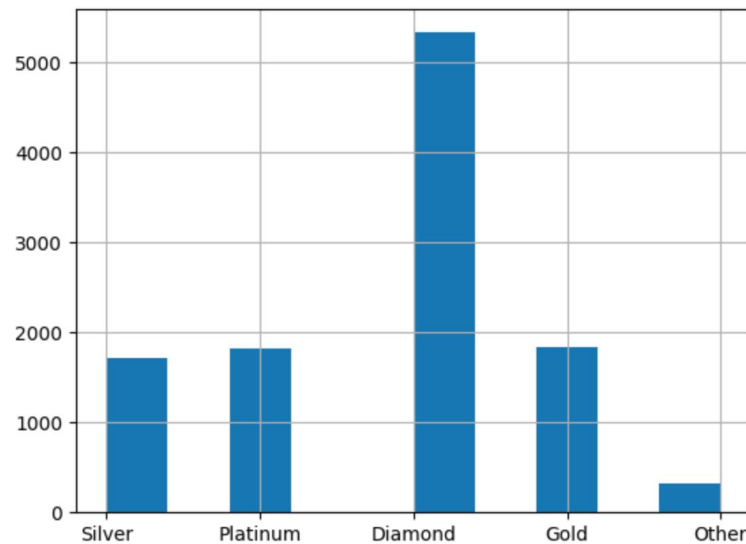
EDA

Number of Donors shown is 10% of actual value

Unsubscribed

Subscribed

- There is a correlation between the average number of sends and average donation amount
- For both Unsubscribed and Subscribed donors, the average number of emails sent to each donor seems to correlate directly to the average donation amount
- Although, increasing the number of emails sent will not likely increase the number of donors it may prove useful in increasing the donation amount of those who donate

EDA
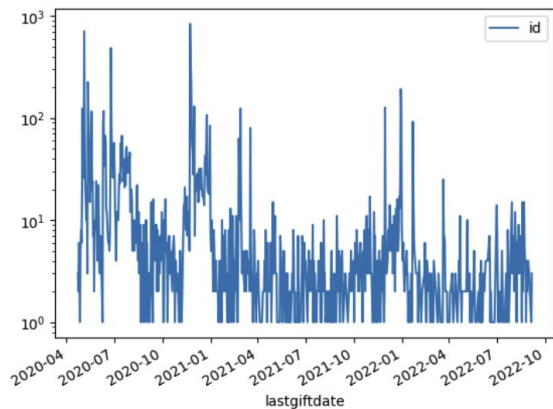

count of donations over time
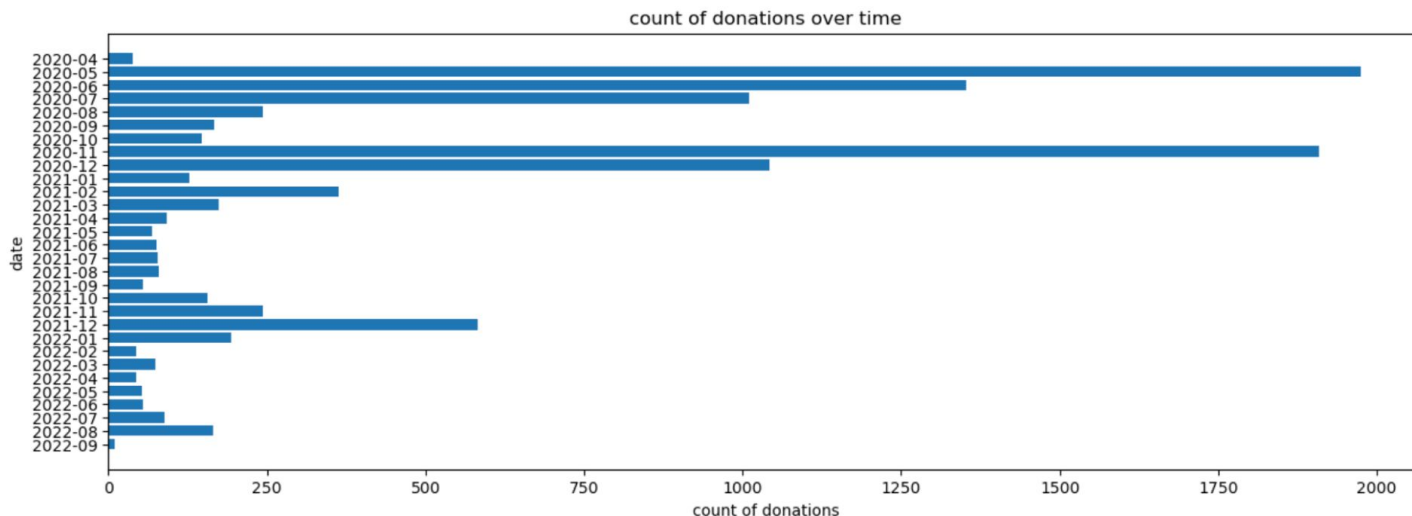
- Again, just showing how Farmlink's number of donations have dramatically decreased from 2020 to 2022
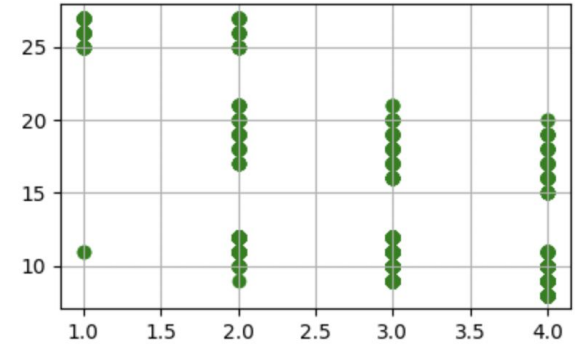- Also see peaks in donation counts around the holiday season

EDA
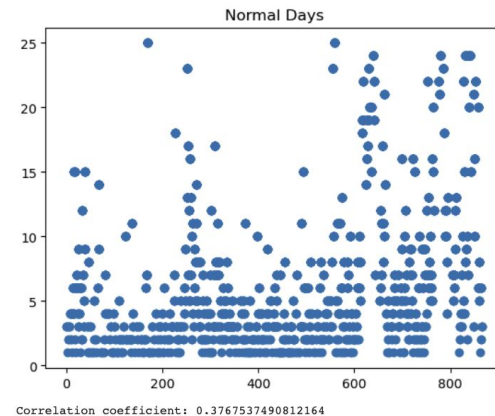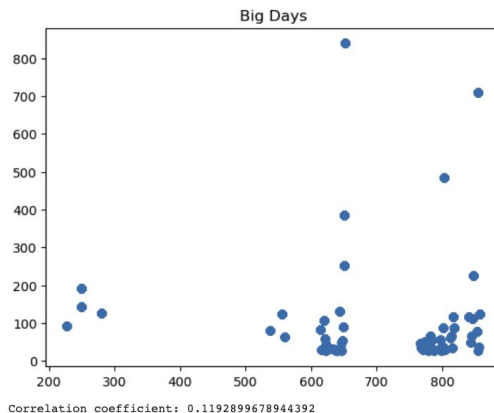
- Number of emails is highly variable → can divide into "big" and "normal" days (arbitrary separation of ~25 emails)
- Both are declining, but normal days are declining faster → focus on both major events *and* day-to-day donations

RFM Analysis

RFM Score for each Tier (1 = Platinum, 4 = Silver)

Lower tier number (higher rank) = higher RFM

- RFM = Recency, Frequency, Monetary
- Using Percentile Rank function in Excel, categorized each customer id into different RFM categories
- Using these values, added columns "R", "F", "M", and "Total RFM" to dataframe
- RFM 7-9 = loyal customers, RFM 4-6 = regular/used to donate, RFM 0-3 = donated once but are indifferent about the company

RFM Analysis
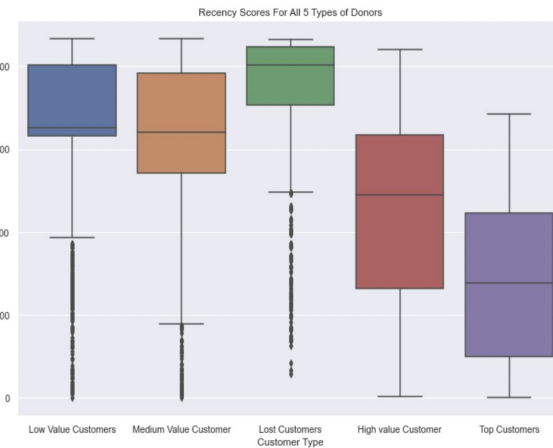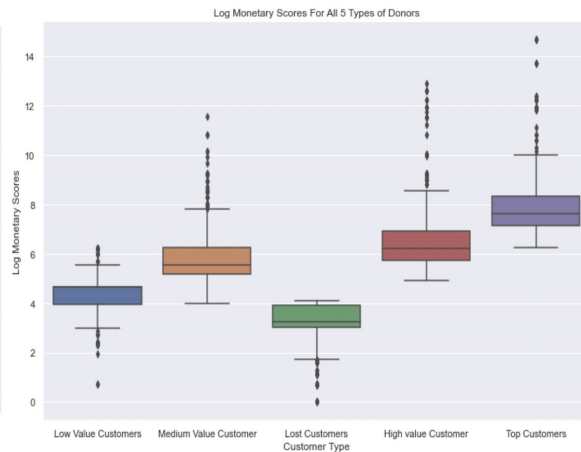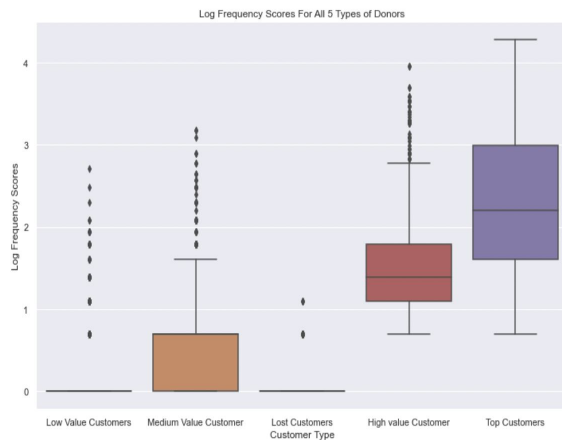
From the three graphs above, we can deduce that top customers are not donating as recently as other, lower-tier donors. We see an opposite trend of what we would expect from top donors in recency scores, especially compared to the other two categories.

Recommendations for Farmlink

- Most customers in dataset had RFM 0-3 – better to ignore these customers since they are not likely to donate
- Send more emails to customers with RFM 7-9 and make sure all of them are Platinum members (some are silver despite the large number of donations)
- Since the strategy of trying to milk new donors who donate less at a higher rate seems unsustainable, either target new donors and/or target old top donors who don't donate as much/at all currently (business strategy).

Thank you for listening!