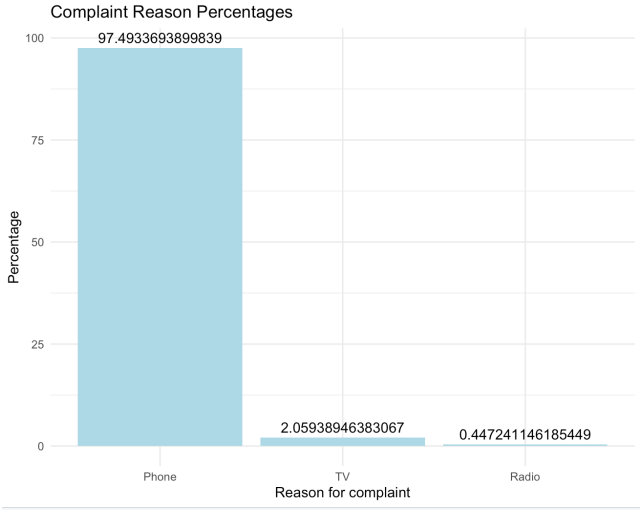
An Analysis of the Spam Call Market and Pricing Recommendation

This document provides an in-depth look at the demand for unwanted spam calls in the California market as a means of determining an optimal pricing strategy for the company going forward.

For a brief overview of the data used for this analysis, the final dataset was a by-product of merging two separate datasets: one from the FCC and one from ACS. If you're not familiar, the FCC (Federal Communications Commission) is an independent agency of the United States that monitors and regulates communication mediums such as radio, phone, television, wire, satellite, and cable across the United States. With their goal being to ensure a robust and competitive market, they make all their user complaint data open source and easy to access thus making them a very reliable source for unbiased, properly kept information. The ACS (American Community Survey) is an annual survey conducted by the U.S. Census and Bureau that maintains a record of key demographic information on the United States. Because they're a key part of the U.S. Federal Statistics System they are also a very reliable source of information that helped greatly for understanding such key parameters as median income and median ages of our targeted users. These two datasets in combination were used for final analysis and determining a pricing strategy.

Key points of note are that the data only details the 2021 calendar year and is restricted to only the state of California. Not all counties/cities in California are represented in the data, only those that were the source of a complaint to the FCC, and the sets were merged by zip codes. Zip codes were the main form of delineating locations of complaints due to a great amount of variation in how city names were reported in the dataset.

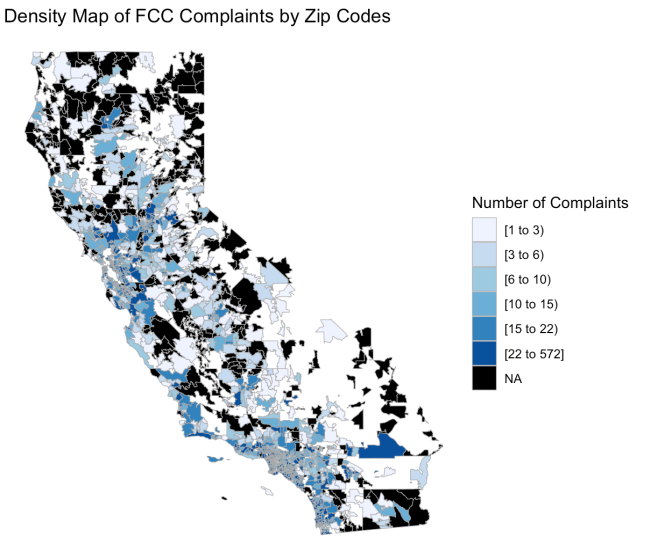
One of the first few steps when preparing the data for analysis was making sure that only complaints related to phone instances were used. The FCC keeps a log of all complaints on all mediums with the most prevalent complaints stemming from the mediums of phone, television, and radio. One of the first interesting observations in this regard is just the sheer volume of complaints to the FCC regarding phone related cases.

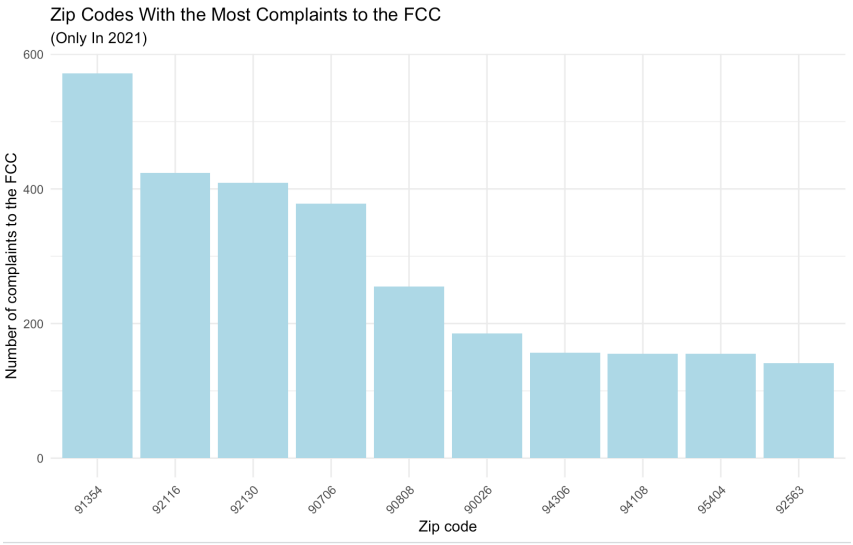


From this figure we can see that out of all the complaints to the FCC, 97.5% of them were about phone related cases with only 2% being about TV and half a percent being the radio. Taking an even deeper delve into that statistic, out of those complaints stemming from a phone use case 99.91% of them were related to 'unwanted calls' or spam calls. This means that ROBOSTPR has a pretty large potential target audience. A product

like that of ROBOSTPR's could be in very high demand!

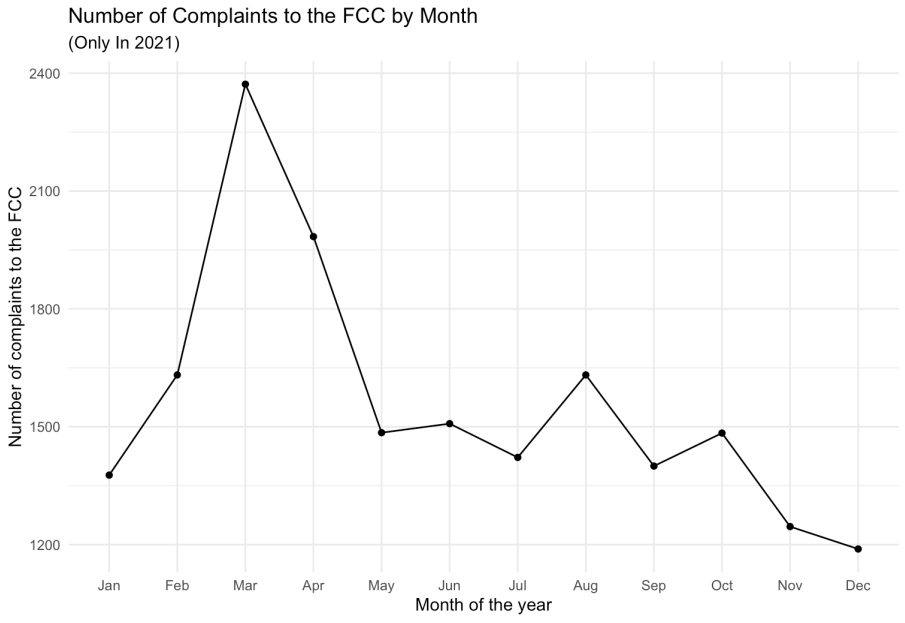
Once we filtered out the data to only include phone related complaints about 'unwanted calls', we went on to take a deeper look into which areas in the state have the highest volume of complaints.





From the visualizations we can see that the top 5 zip codes with the highest volume of spam complaints to the FCC correspond with the cities of **1. Santa Clarita 2. San Diego 3. Bellflower 4. Long Beach 5. Palo Alto/Los Altos**. From the map visualization we can also get a general sense that there are a fair amount of reported complaints near major cities such as San Diego, Los Angeles, and San Francisco. This is where we should focus our efforts in terms of delineating resources and marketing.

Another important variable to take into account in terms of when ROBOSTPR should be ramping up its marketing efforts is the time of year when spam calls are the most reported.



From the visualization we can see that spam call complaints spike in the early part of the year with a peak in March. Complaints tend to slow down as the year ends. This means ROBOSTPR should aim to have a pricing plan picked and final ends wrapped up before late winter/early spring of next year in order to make sure supply is maximized to the most amount of people.

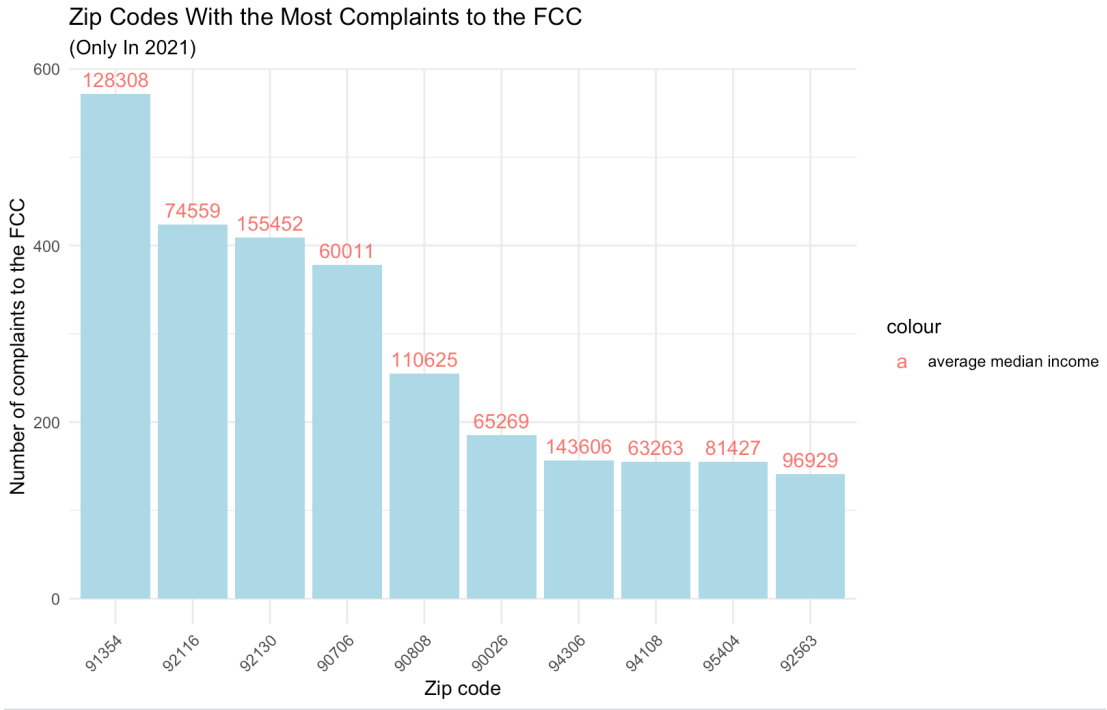
To determine a pricing strategy a few variables were taken into consideration. First we examined what the average median income and average median age were for the individuals that had filed an unwanted calls complaint to the FCC. The average median age came to be **38.7** and average median income came to be **$90,142.59**. Individuals were then classified as being below/above the average median income and below/above the average median age. This was done as a way of getting a more general sense of individuals' age and income range.

	Age Level	Number of Complaints to the FCC
1	Below Average Median Age	10161
2	Above Average Median Age	8569

	Income Level	Number of Complaints to the FCC
1	Below Average Median Income	10543
2	Above Average Median Income	8149

From these tables we can see that individuals, on average, tend to be **below the average median age** and tend to be **below the average median income**. This lets us know that we generally should be leaning more towards devising a pricing strategy that lends itself to younger individuals below the age of **38** and that also make less than **$90,000** a year.

One of the final key pieces of analysis done to determine a pricing strategy was looking at what the average median incomes were for the cities/zip codes that filed the most complaints to the FCC for spam calls. By overlapping these two variables together we can get a good sense of how to most effectively pick a pricing strategy that would play to the strengths of our biggest potential markets in California.



Overlapping the average median incomes over the zip codes with the top 10 highest number of complaints to the FCC reveals that out of those cities listed half are above the median income and half are below the median income. It is interesting to note, however, that the average median income for these top 10 cities (**$97,944.9**) is *above* what the total average median income was calculated for *all* the cities (**$90,142.59)**. This means we can pick a fairly competitive pricing strategy. Considering all of the analysis undertaken and looking at the current market for such products we recommend offering customers a base monthly plan of **$35.00**. If more lines wanted to be added to the plan then we recommend charging an additional **$5-10** fee per additional line wanting to be added by the customer. This subscription model is becoming a very popular means of payment for younger people so it would fit into the demographic we're targeting, and by keeping the price low but competitive with other companies we also target our income demographic of individuals as well.

If there is additional analysis needed or follow up questions please do reach back.

Best,
Omkar Hanamsagar