Quadratic Skills Assessment

**Instructions:**

Your client is a local non-profit organization that funds their efforts through donations. They have provided you with an Excel file that contains data on their donations, the donors themselves, and the advertising strategies through which they have received the donations.

Below are 5 questions from the client. Please choose and answer 3.

For your final product, provide slides in either PowerPoint or Keynote with your insights as well as supporting evidence.

Quadratic is platform agnostic. You may use Excel, any programming language (Python, R, Julia, etc), or other software like Tableau to complete the assessment. If you have written code, please provide us with the code itself.

In the case of any question, do not hesitate to contact casey\_steele@quadraticinsights.com

**Question 1**

The client would like to understand how the geographic locations of their donors change their donation behavior. Please visualize several cuts of the data in such a way that the visuals reveal non-obvious insights.

**Question 2**

The client believes it would be in their best interest to consolidate their advertising efforts from 3 separate campaigns (“General”, “Homelessness”, and “Poverty”) into only two campaigns. Do you believe this to be a wise choice? If so, why? If not, why not?

**Question 3**

Statistically/logically prove or disprove the following hypothesis from the client:

1. The client has noticed that a larger percentage of donors to their “Poverty” campaign - relative to their other campaigns - are recurring donors. They believe this difference to be statistically significant.
2. The client has a strong belief that the “Homelessness” advertising campaign must be the best because it brings in the most donation revenue.

**Question 4**

The client has recently gained the ability to be targeted with their advertisements. To assist with the targeted advertisements, the client would like to understand the profiles of the “most valuable” and the “least valuable” types of donors.

**Question 5**

Build a model that explains how the various aspects of the advertising and the customers impact the donation revenue that the client receives.

Provide an interpretation of your model as well as validations.

Validations include:

1. Analysis of residuals
2. Confirmation of model assumptions