**Skills Test: Analytics**

**Introduction**

Thank you for taking the time to take this skills test. Before you begin, please take a few minutes to learn more about KOKO and our technology:

* [KOKO Fuel website](https://kokonetworks.com/koko-fuel/)
* [KOKO Corporate website](https://kokonetworks.com/)
* [Dalberg Advisors report on ethanol cooking](https://www.dalberg.com/our-ideas/new-dalberg-study-shows-social-economic-and-environmental-viability-scaling-ethanol)

The exercise uses a fictional scenario to test your ability to (1) analyze data, (2) visualize data, and (3) translate data into business insights.

**Context**

KOKO’s business uses a “razor and blades” model, where it earns the majority of its profit by selling KOKO Fuel. KOKO Fuel can only be used in a KOKO Cooker, and KOKO Cookers can only operate with KOKO Fuel. Therefore, KOKO must first sell customers its Cooker and then ensure they have a positive experience so that they adopt KOKO as their primary cooking solution and continue to buy Fuel regularly.

The KOKO Cooker is sold through three channels:

1. **Direct Sales:** this channel consists of full-time KOKO employees called Customer Sales Reps (CSRs) who sell cookers door-to-door in an assigned territory. They are paid a commission for each cooker sold plus a fixed monthly salary. They receive in-depth product and sales training and have access to demonstration cookers to use during their sales pitch. In total, KOKO has 50 CSRs.
2. **Agents:** this channel consists of shopkeepers who own and operate small retail outlets where KOKOpoint fuel dispensers are installed. They are paid a commission for each cooker sold as well as commission for fuel sold. They receive basic product training. In total, KOKO has 500 Agents.
3. **Referrals:** this channel consists of existing KOKO customers who sell cookers as a side hustle. They are paid a commission for each cooker sold. They receive no product training. In total, KOKO has 10,000 customers.

**Exercise**

KOKO wants your help to better understand the performance of these three sales channels:

* What is the sales productivity for each channel?
  + Which channel is the most productive?
  + Is the most productive channel also the most efficient channel? Why or why not?
  + What opportunities might exist to increase sales productivity?
  + What additional data would you want to better answer the above questions?
* What is the average monthly fuel consumption per cooker for each channel?
  + Which channel produces the most satisfied customers?
  + Why might fuel consumption differ by sales channel?
  + What opportunities might exist to increase fuel consumption?
  + What additional data would you want to better answer the above questions?

Please use your preferred data analysis and visualization packages to produce a short presentation that includes answers to the 10 questions listed above, along with graphs or tables to support your analysis. Please attach the SQL code used for the analysis to your submission.  
Though this dataset may be small enough to be analysed on Excel or Google Sheets, for the purposes of the test we request that you perform your analysis through coding and/or using a visualization package to the greatest extent possible.

The [**attached data set**](https://drive.google.com/file/d/12ocpJk8ZK5SqN18_zu1SacJrYV81hwr1/view?usp=sharing) contains three tables:

1. **Sellers:** data with details on all individuals active across KOKO’s three sales channels.
2. **Cooker Sales:** data with details on each cooker sold in January 2019.
3. **Fuel Sales:** data with details on all fuel sold from January - March 2019.

Please document any further assumptions you made above and beyond the background provided here.