Slice wants to analyze customers' retention/churn patterns. Use the attached [dataset of customer orders](#) to answer the following questions.

1. Define Customer Cohorts. Group the customers in the dataset into cohorts/segments based on their first-order characteristics and the month of their first order. These cohorts should be actionable, helping lead to business insights. Make hypotheses about how churn rates will differ across cohorts, which you can reflect on after performing your analysis.

2. What are the customer retention/churn rates over time for the customer groups that you defined in Part 1? Is there a significant difference in retention/churn based on different promotion values? What insights do you find from this analysis?

3. What are the dollar value retention rates over time for each customer group? What insights can you derive from your answers to Parts 2 and 3?

4. Are there any caveats to this analysis using only the provided data? What other data would be ideal to have?

Please provide comments and visualizations so we can follow along with your thinking.

Dataset: The dataset contains one row per order submitted by Slice customers. You can assume that every customer in the provided dataset is a new customer (i.e. each customer's first order in the dataset is their first Slice order). Columns are defined as:
- order_id: The ID of the order.
- source: The platform/tool through which the order was placed.
- date_purchased: The timestamp of when the order was placed, in UTC.
- shipping_type: The shipping option used by the customer.
- payment_method: The payment method used by the customer.
- promo_value: The dollar value discount a customer received by using a promo code on their order (in USD). For example, a promo_value of 4 indicates that the customer used a promo code to get a $4 USD discount on their order.
- restaurant_total: The total dollar value received by the restaurant for the order (in USD).
- customer: The ID of the customer who placed the order.
- shops_id: The ID of the shop from which the order was placed.
- state: The state/geo abbreviation of the location of the shop.
- postal_code: The postal code of the shop.

Submitting your work: Submit both your coding notebook (Jupyter notebook, R Markdown, etc.) **and** the compiled HTML copy of the notebook. Please send/upload your work as a zip file.

How we'll evaluate your submission: This exercise is representative of the type of work you'll do in this role, and we'll evaluate it as if it's a real project. This means that, while assessing your submission, we care much more about the quality of your analysis and your ability to clearly present it than we do about the quantity of work you produce. While you won't be penalized for approaching the analysis in multiple ways, it's entirely sufficient to spend a few hours on just a single, well-justified approach — a few hours won't be enough time to create a *perfect* analysis, but it should be enough to get most of the way there. Time constraints are common, and our grading rubric accounts for this.