# Ecommerce User Analysis

**Requirements:**

- Create conversion funnel to understand how users interact with the website
- Build acquisition cohorts based on the month of a user's first purchase, and track cohort metrics month by month
    - Filter for purchases
    - Calculate first purchase dates
    - Set up monthly data to build and track cohorts
- Calculate retention rates
    - Group data into cohorts
    - Calculate overall retention rates
- Organize and document spreadsheet
    - Format for readability
    - Provide results and analysis in Executive Summary

**Data Source:**

- BusinessAnalyticsProject.xls file containing raw user activity

**Tools Used:**

- Google Sheets / Excel

**Steps:**

1. Using data from the "raw_user_activity" sheet, created the funnel in a pivot table as a new sheet called "conversion_funnel"
2. Used formulas to create two new columns in the pivot table: total conversion rates and conversion rates to the next step
3. Created a new blank sheet tab called "purchase_activity"
4. Using the filters in the "raw_user_activity" sheet, selected only event types that are purchases
5. After applying the filter, copied the entire sheet and pasted the data into the "purchase_activity" sheet
6. Using the "purchase_activity" sheet data, inserted a pivot table as a new sheet called "first_purchase"
7. Configured the settings of the pivot table to calculate the minimum event_date for each user
8. Entered first_purchase_date as a column header in cell G1 of the "purchase_activity" sheet
9. In cell G2, wrote a formula that uses the VLOOKUP() function to find the date from the "first_purchase" sheet that corresponds to the user ID in cell A2

10. Ensured the ranges of the formula in G2 are configured correctly and then copied the formula to every row in column G
11. Created three new columns in the “purchase_activity” sheet to help build the cohorts: event_month, first_purchase_month, and cohort_age
12. Used the TEXT() function to create event_month in column H and first_purchase_month in column I
13. Used the DATEDIF() function to create cohort_age in column J as the number of months between the first purchase and the event
14. Using the data from the “purchase_activity” sheet, inserted another pivot table as a new sheet called “cohort_analysis”
15. Configured the pivot table so that each represents one cohort, which are based on the month in which customers made their first purchase
16. Determined the count of unique users for each cohort_age in the columns of the pivot table
17. Created a new blank sheet called “retention_rates”
18. Added row labels in cells A3 to A7 for each cohort in chronological order
19. Added column labels in cells B2 to E2 that represent the cohort ages from 1 to 4 months
20. In cell B3, wrote a formula that calculates the retention rate for each cohort at each cohort age in the table I created, based on the starting cohort sizes
21. Filled in the results synopsis and analysis descriptions in the “Executive Summary” sheet
22. Reordered the sheets tabs so that the “Table of Contents” and “Executive Summary” sheets come first, followed by the sheets with analytical results, then the sheets used for calculations, and finally the raw data sheets last
23. Formatted the spreadsheets for readability

**Results, conclusions and recommendations:**

- About 30% of users who view the website progress to the shopping cart landing page. Of those users, 36% of them actually follow through with making a purchase.
- The retention rates are highest over time for users whose first purchase was made in September 2020. From there, the retention rate for Month 1 drops for each subsequent group who made a first purchase between October-December 2020, with the rates dropping over time for each group as well. Once we get to the January 2021 user group, however, the Month 1 retention rate begins to rise slightly.