

## Introduction

Over the course of the year, we have worked alongside USAA to determine patterns and trends within their data. We analyzed the trends in digital intensity across 12 months since the users began their membership. The digital intensity refers to the number of times users utilize USAA's resources.

## Future Goals

Using our findings and analysis, a future path of research would be to find specific demographics that USAA should target in order to increase digital activity among specific customer groups. We could also further stratify the data to figure out specific causes for changes in digital intensity over different months.

## Conclusion

At the end of our project, we found that the results we predicted before starting our analyses were not consistent with our final results. Although we expected customers who purchased more products to be more digitally active, we found various trends that did not align with this. Our biggest challenge during our research was finding an association between products purchased, digital intensity, and digital activity.

## Acknowledgments

Thanks to Mike Moya, Ohn Gordon, Ryan Knepfel, Jennifer Deming, Kali Lacy, and the rest of the Purdue Data Mine staff for constantly providing helpful feedback and guiding us throughout the year.

## Key Terms:

- Digital Intensity: a percentage of non-call sessions out of the overall sessions
- Digital adoption: Whether a user has had a digital session
- Digital activity: Whether a user had a digital session that month
- Digital count: the number of digital sessions a member had that month

## Research Methodology:

### Cleaning up the data:

- Removing members with obviously wrong ages and first product purchased dates
- Removing Members with conflicting info (ex. Minor who is widowed)
- Removing members who did not buy a product

### Segmenting the data:

- Seeing how digital intensity and digital adoption varies by generation, member type, military branch, and first product purchased
- Creating a function to be able to compare the digital adoption for any two segments
- Modeling the phone sessions (calling) vs mobile sessions vs internet sessions

Figure 1 on the right is Showing the effects of a user purchasing a product to their digital intensity. Tis graph shows that purchasing a product starts a decrease in digital intensity that is carried over to the month after.

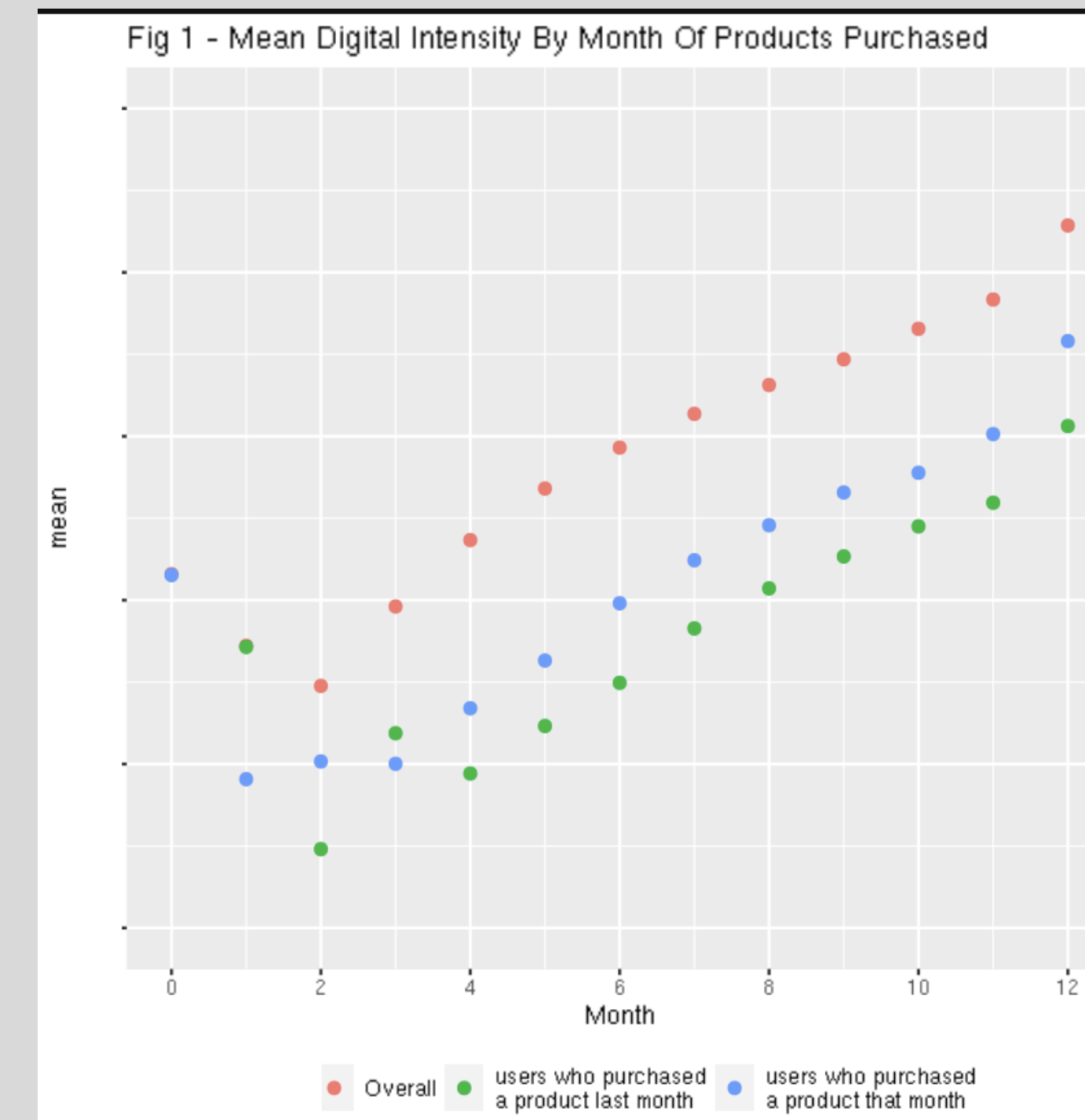


Fig. 2: Product Pathways Tree

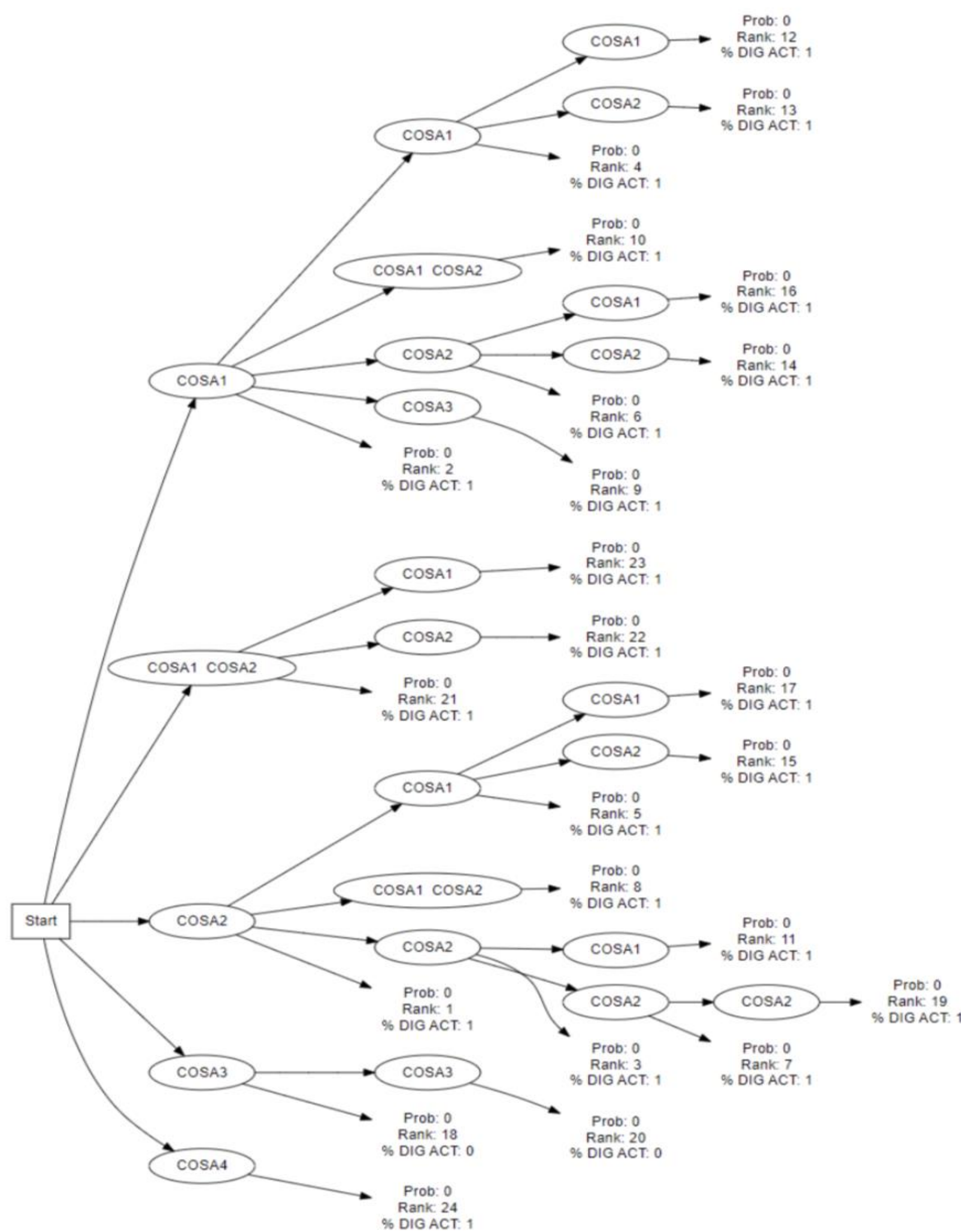


Fig. 2 - Function that generates tree graphs that display product purchase order alongside the probability of specific nodes within the purchase chain, ranking commonality of pathways. Each node represents a different month that an individual purchased a product in. There's also a built-in metric allowing the plotting of different characteristics alongside the tree. In the figure to the left, we've plotted the percentages of users choosing certain product pathways alongside the percentage of users who are digitally active at each purchase step (note: all data values and product paths are masked). The generality of this tree graph function allows for the illustration of 97% of the most common product pathways within the un-masked data set.

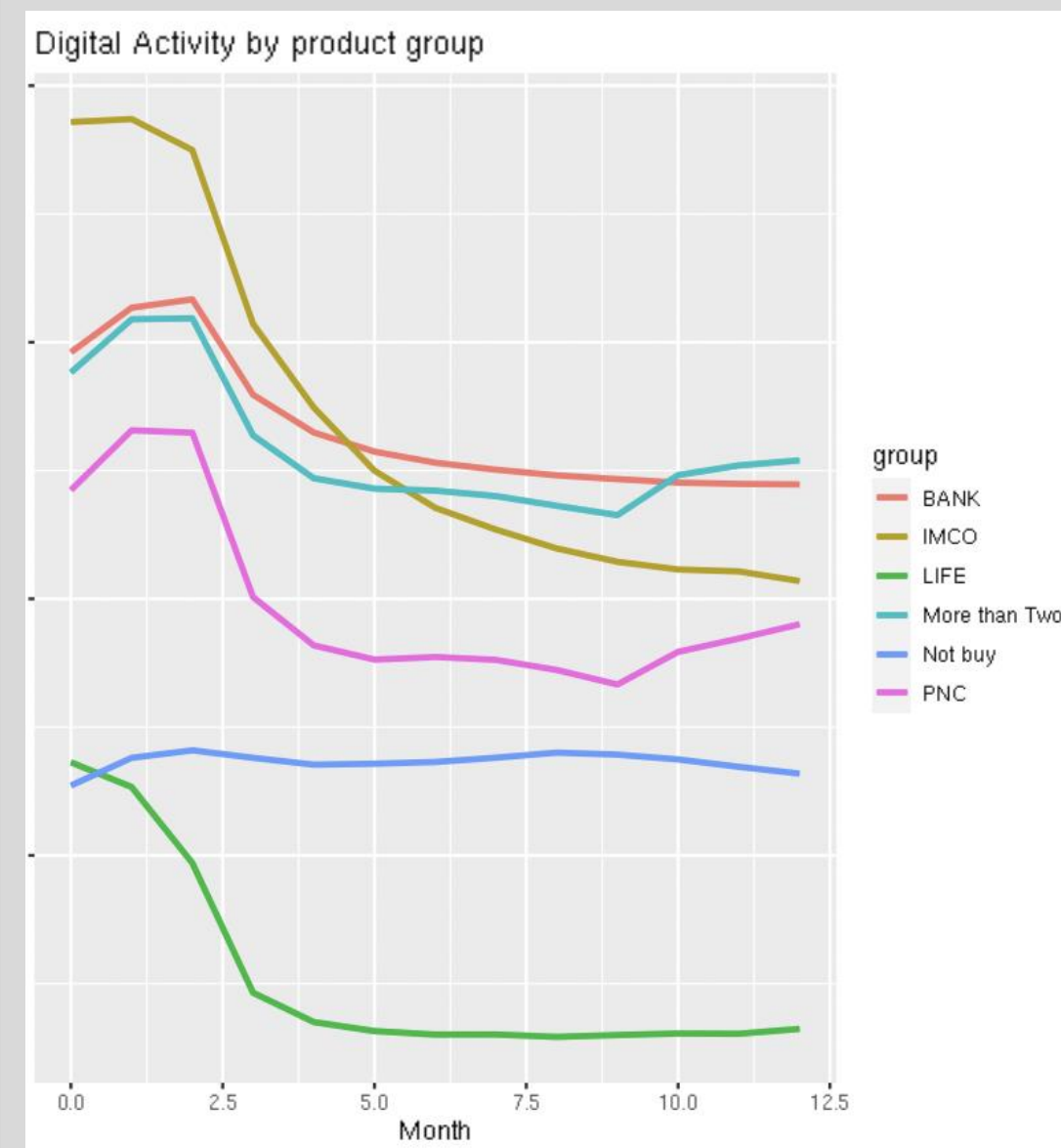


Fig. 3: Digital Activity by Product Group

Fig. 3 - We grouped digital activity by different product groups to see how digital activity is affected by a specific product purchased by a new customer. We found that customers that purchased IMCO are more digitally active during the beginning of the year, and those customers that purchased either Bank or more than one product are more digitally active throughout the year.

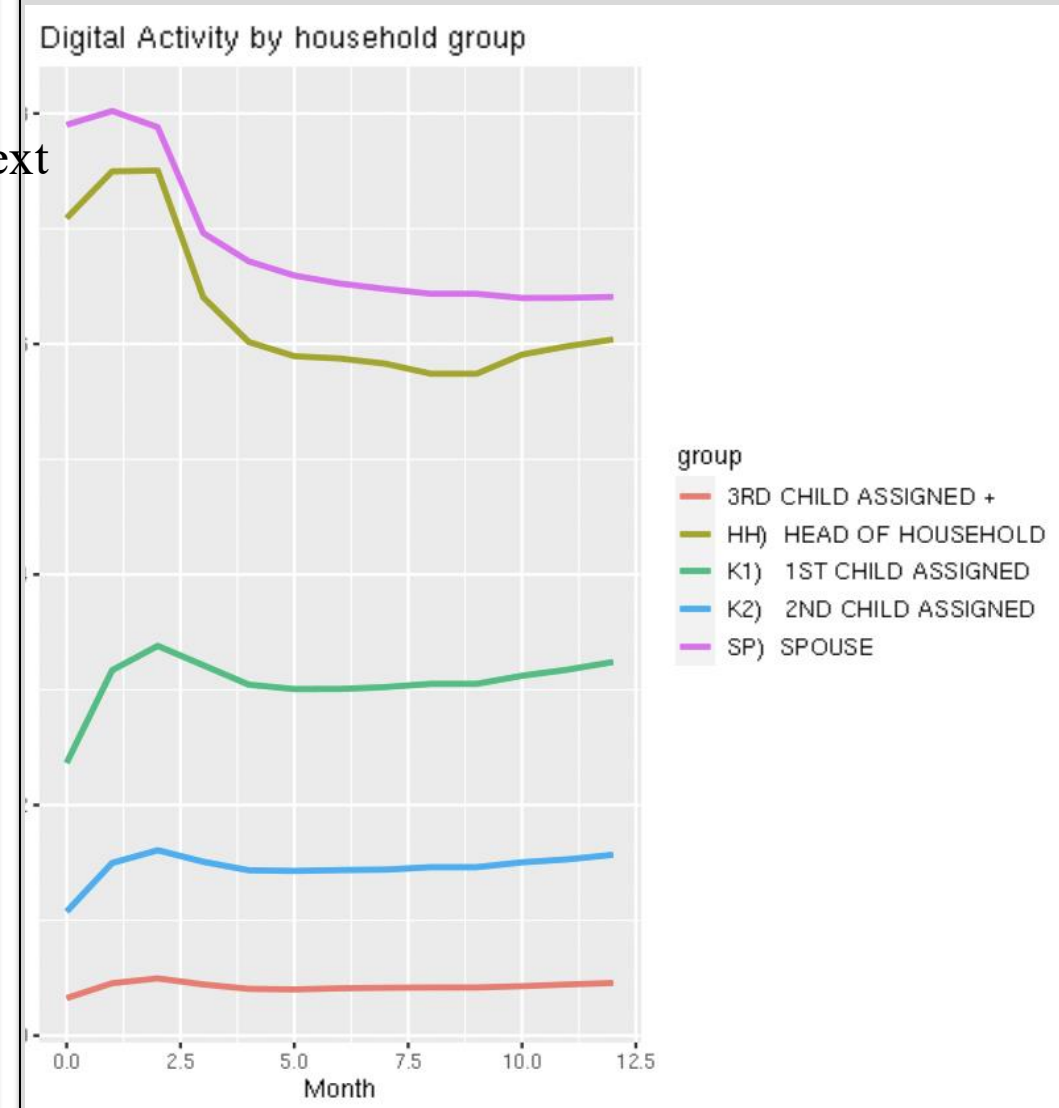


Fig. 4: Digital Activity by Household Group

Fig. 4 - We plotted the digital activity based on the household group to see how digital activity varies among families. We found that the head of the household is more digitally active than any other group. These plots will allow USAA to understand which products or household members are more digitally active than others, and how they can target specific product groups or household groups to increase digital activity levels.

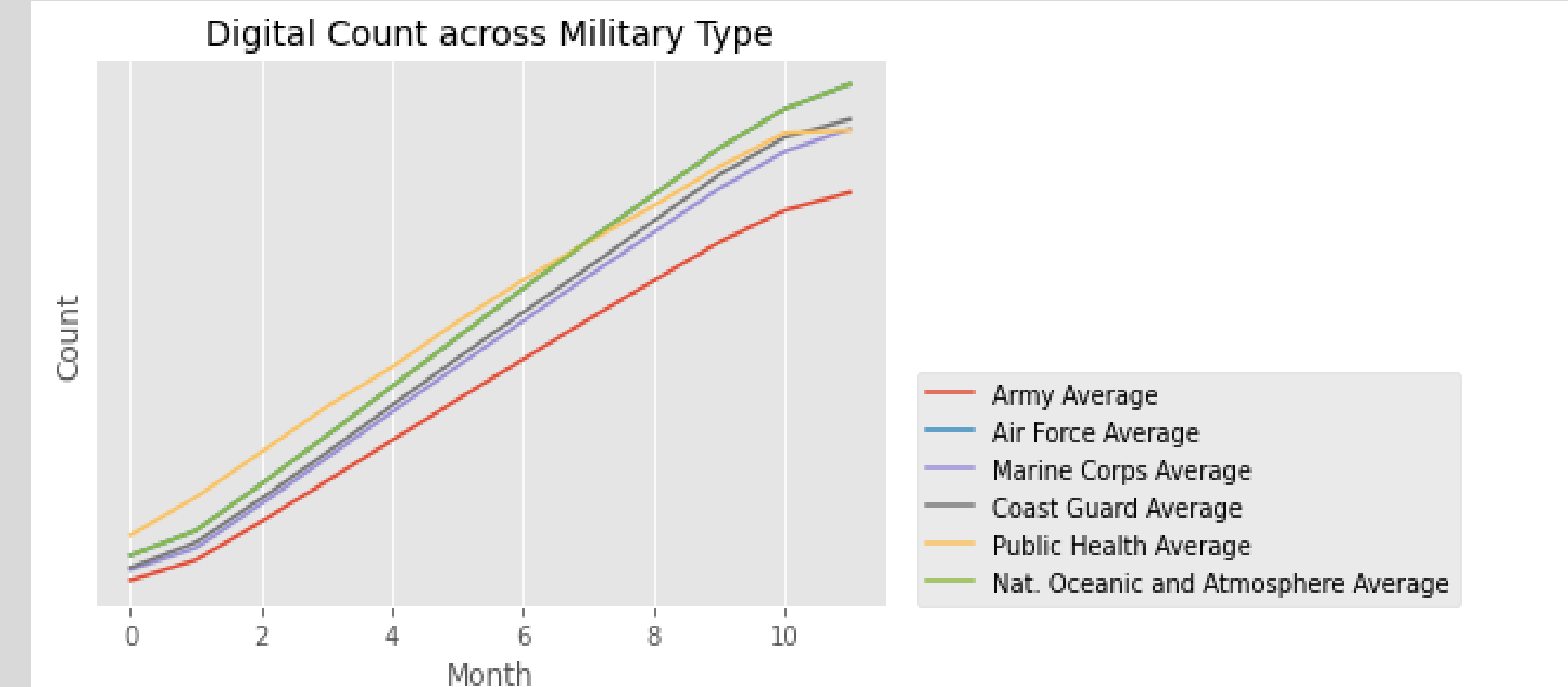


Fig. 5: Digital Count across Military Type

Fig. 5 - We graphed the averages per month of digital intensity based on customers who were in a certain branch of the military. Our future plans include, graphing the digital usage based on the type of product purchased instead of military branch.

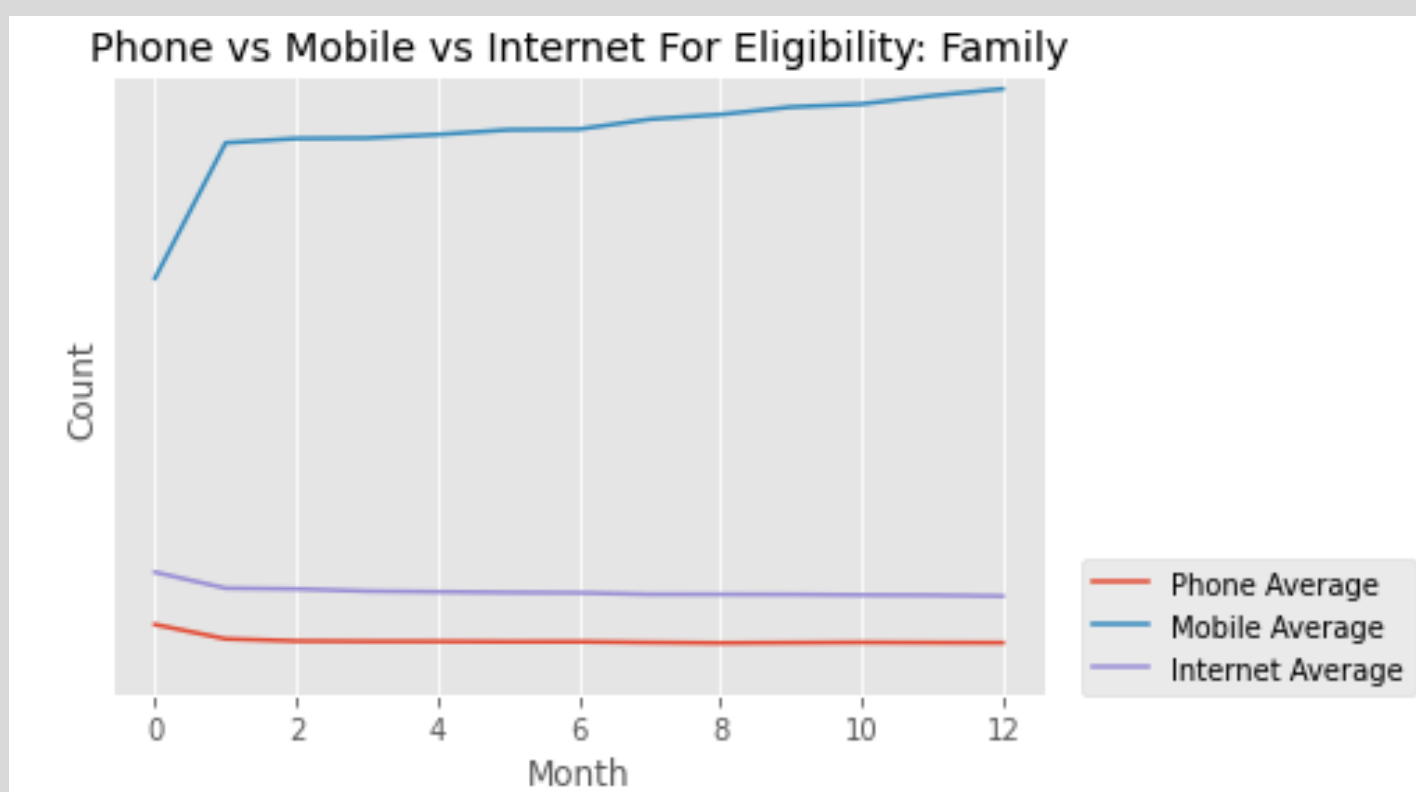


Fig. 6: Phone vs Mobile vs Internet by Eligibility

Fig 6 - We compared the phone calls, mobile app and web app usage amongst different type of people across 12 months. Our future plans are to perform the same analysis on digital intensity.