Report

American University of Armenia

Marketing Analytics

Survival Analysis (Homework 3)

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Survival Analysis Report

The LogNormalAFTFitter is the preferred model, having the lowest AIC (2954.024) and BIC (2927.8395) values. As a final conclusion, both LogNormalAFTFitter and LogNormalFitter emerge as the best choices in their respective analyses. So for further work, I will be using the LogNormalAFTFitter().

The model only includes the significant variables identified from the previous analysis, namely 'address', 'age', 'custcat_E-service', 'custcat_Plus service', 'custcat_Total service', 'ed_High school degree', 'internet_Yes', 'marital_Unmarried', and 'voice_Yes', along with 'mu Intercept' and 'sigma Intercept'. Post-adjustment, the AIC value has decreased to 2944.20, signaling an improvement in the model's fit with these focused predictors. This decrease in AIC underscores the enhanced explanatory power and efficiency of the model by concentrating on these key variables.

- 'address' (Coef = 0.04): A positive coefficient suggests that a longer tenure at the same address slightly increases the duration until churn, indicating more stability.
- 'age' (Coef = 0.04): A positive coefficient indicates that older customers are slightly more likely to stay longer before churning.
- 'custcat_E-service' (Coef = 1.03): A large positive coefficient implies that customers in the E-service category are significantly more likely to churn later compared to the base category.
- 'custcat_Plus service' (Coef = 0.82): A positive coefficient suggests that customers in the Plus service category are likely to have a delayed churn compared to the base category.
- 'custcat_Total service' (Coef = 1.01): A positive coefficient indicates that customers in the Total service category are significantly more likely to churn later compared to the base category.

- 'internet_Yes' (Coef = -0.84): The negative coefficient here implies that having internet service is associated with a shorter duration before churning, a factor to consider in retention strategies.
- 'marital_Unmarried' (Coef = -0.45): A negative coefficient suggests that unmarried customers are more likely to churn sooner.
- 'voice_Yes' (Coef = -0.46): This negative value indicates that customers who have subscribed to voice services are at a higher risk of churning sooner.
- 'mu Intercept' (Coef = 2.53): A significant positive coefficient for the mu Intercept indicates a higher baseline churn risk.
- 'sigma Intercept' (Coef = 0.28): The significant sigma Intercept suggests a variance in churn times across indi

From a business perspective, these results suggest that customer loyalty is influenced by stability (address tenure) and demographics (age, marital status). Notably, service types (E-service, Plus, Total) greatly impact churn, with internet service increasing churn risk. This highlights the need for targeted retention strategies, especially for internet and voice service subscribers, and underscores the importance of understanding customer segments for effective business decision-making visuals.

Reporting CLV analysis findings

Marketing Analytics: Valuable Customer Segments

In the field of Marketing Analytics, a **valuable segment** is one that demonstrates high **Customer Lifetime Value (CLV)** and lower **churn risk**. Based on the analysis:

Service Category

- **Plus Service and E-Service** customers show higher and consistent CLVs, indicating higher engagement and profitability.

Marital Status

- **Married** customers have higher and more consistent CLVs, suggesting greater stability and value.

Educational Level

- Despite varied densities, all groups peak in the same CLV range, but **High School Degree** and **Did Not Complete High School** groups are more engaged.

Internet Service

- Customers **without internet service** tend to have lower and similar CLVs, indicating a segment less engaged or prioritizing basic telecom services.

Voice Service

- Customers **without voice services** often have a clustered lower CLV, suggesting less engagement with traditional voice communication.

Forward Service

- A large group **without forwarding services** shows homogeneity in CLV, highlighting the potential for targeted marketing to promote these services.

Region

- Customers in **Zone 2** exhibit slightly higher CLV, indicating a region-specific opportunity.

To calculate the annual retention budget, assuming the data represents the population, the focus should be on the CLV, survival probabilities, and identifying the number of at-risk subscribers within a year. With a survival probability threshold of 0.75, there are 135 customers identified as being at risk of churning within one year. Assuming a cost of 150 USD per customer for retention efforts, the calculated annual retention budget would be $20,250.

Final suggestion for customer retention

I recommend a personalized approach to customer retention. This involves tailoring communication and offers based on individual customer profiles, usage patterns, and preferences. Engaging customers through loyalty programs and offering incentives for long-term contracts can enhance retention. Additionally, implementing feedback mechanisms to understand customer dissatisfaction and promptly address issues is crucial. Proactive customer service, especially for high-risk segments identified in the analysis, can significantly reduce churn. Leveraging data analytics to predict and prevent potential churn before it happens is key in modern retention strategies. This comprehensive approach combines theoretical knowledge with practical experience in telecommunication customer retention.