Customer Support Chat Preliminary Forecast Model Results

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| |  | | --- | | **Christopher Madsen <christopher.madsen@klaviyo.com>** | | AttachmentsDec 13, 2023, 9:57 AM (1 day ago) |  |  |
| |  | | --- | | to Customer Success Operations | | | |

Hi team,  
  
I’m excited to share the results of our newest predictive models on Customer Chat volumes!

First off, our new daily SARIMAX model accurately predicted the total 3-month call volume to within 1% of the actual volume! (AIC 1.3e4, MAE 167) This will help us predict our future support staffing needs and shows promise for giving us accurate daily forecasts in the near future.

Second, the hourly OLS regression model predicted hourly call volume to within 8 calls per hour, on average (AIC:1.8e5, R^2 .894, MAE 7.57). Had we deployed this, we would have been staffed to handle the customer call volume almost 86% of the time! It currently underpredicts some of the highest call volume times so it’s only directionally useful for those cases right now, but rest assured that’ll be addressed in the upcoming V2 of the model.

Third, chat volume prediction is shaping up to be a perfect use case for machine learning! While our near-term focus will be on continuing to tune the SARIMAX and OLS models, those may end up feeding into more powerful XGBoost models in a future state of chat prediction. Stay tuned!

For those of you who are interested in getting into the weeds of it, you can follow [this link](https://github.com/cjmadsen/Klaviyo) to my GitHub repository and see for yourself!

Let me know if you have any questions in the meantime!

Chris

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