

## Apollo Hospital Forecasting - After class

BUS AN 516

Team 9

### Note:

- For the below models, we have split the data into training data (90%) and test data (10%). This was done as we observed a big surge during New Year days, and this might affect our validation.

Model #	Model Description	Performance Metric
Moving Average	The moving average model is more presenting the trend of the data, and most of the time it won't provide the most accurate forecast.	MAPE = 0.0839
Simple ETS	We experimented with different values for the smoothing constant to test the model MAPE. Ultimately, we opted to utilize the library's built-in optimized-TRUE parameter to identify the most suitable value for the smoothing constant, ensuring avoidance of overfitting on the test set.	MAPE = 0.08715739790723998
ETS – Holt Model	We experimented with different values for the smoothing constant to test the model MAPE. Ultimately, we opted to utilize the library's built-in optimized-TRUE parameter to identify the most suitable value for the smoothing constant, ensuring avoidance of overfitting on the test set.	MAPE = 0.08191732186507027
ETS – Winter Model Winter	We experimented with different values for the smoothing constant to test the model MAPE. Ultimately, we opted to utilize the library's built-in optimized-TRUE parameter to identify the most suitable value for the smoothing constant, ensuring avoidance of overfitting on the test set.	MAPE = 0.11429565900517401

ARIMA (Model chose)	We observed no seasonality in the Continental breakfast data, leading us to apply an ARIMA model. Through the auto-arma model library, we determined the parameters with the lowest AIC to be (2,0,0).	MAPE = 0.08211194365546058