Diagram

Description automatically generated

1. Preprocess
   1. The list contains the following:
      1. ‘target’: the original series
      2. ‘series\_features’: a growing list of relevant attributes
         1. s,d,p,q,phi,theta, length
         2. We will add more here as our models grow.
2. Trend + Seasonality Transformer
   1. Trend Correction so far:
      * 1. Cochrane-Orcutt.R
           1. Differences the data based on p-value <.05
        2. K-Means Clustering
           1. Differences the series based on visual inspection of clusters.
      1. ‘Transformed’
         1. If trend is corrected, the newly transformed data is stored in here.
            1. Else the target data is copied into here.
   2. Seasonality correction so far:
      1. NA
3. Forecasting
   1. ARIMA
      1. Gets phis and thetas based on the top aic value.
      2. Forecasts on global ‘horizon’ variable found in main.
         1. Saves forecasts and series\_features to ‘ARIMA\_Forecasts’ object.
   2. MLP
      1. To come
   3. HW
      1. To come
4. Save Forecasts to disk
   1. This function saves everything as an RData File to disk so it can easily be read back in.
   2. write\_forecasts(<forecast object>,<folder name>,<forecast name>)
      1. forecast object is the object created in the Run Model section
      2. folder name can be the following:
         1. ARIMA\_Forecasts
         2. HW\_Forecasts
         3. MLP\_Forecasts
         4. More to come…
      3. Forecast name follows this convention.
         1. <Model>\_<Trend\_Remover>\_<Seasonality\_Remover>\_forecast<horizon>
         2. Ex) ARIMA\_CochraneDifference\_Something\_forecast2-18
5. Ensembler: Need to add.
6. Calculate sMAPE: Need to add.

Creating new functions for models:

* 1. Series data is pulled from json\_file[[x]]$target.
  2. Series parameters are pulled from json\_file[[x]]$series\_features$<your parameters>
  3. Try to use lapply() vs for loops. Trust me 😊
  4. Setup:
     1. Each call to the forecasting function should include 1 horizon length and all 1428 monthly series (or whichever we are working with)
        1. Get all forecasts for one horizon length before moving on to the next horizon.
        2. The return() from all forecasts for 1 horizon should include the forecasts and all relevant series features such as:
           1. Return(list('forecasts'=fores$f,'horizon'=horizon,'phi'=x$series\_features$phi)
           2. Table

              Description automatically generated