# Automated Teller Machine and Residential Power Use Forecasts

Preparer: Steven Gonzalez

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## ATM Prompt

I want you to forecast how much cash is taken out of 4 different ATM machines for May 2010. The data is given in a single file. The variable ‘Cash’ is provided in hundreds of dollars, other than that it is straight forward. Explain and demonstrate your process, techniques used and not used, and your actual forecast. I am giving you data via an excel file, please provide your written report on your findings, visuals, discussion and your R code via an RPubs link along with the actual .rmd file. Also please submit the forecast which you will put in an Excel readable file.

## Findings

* ATM data had a few empty entries that had to be taken care of; some were removed since they couldn’t be linked to any machine while the rest were imputed using the values of neighboring entries
* ATM1 consists of seasonal data with a pretty consistent frequency, forecasts predict that the overall pattern will continue into the future
* ATM2 data was also seasonal but seemed to have an inconsistent variation throughout the series, calling for a lambda transformation
* ATM3 seemed to not have been in use for the majority of the time frame, just three entries at the very end were useful for analysis making the forecast pretty unreliable
* ATM4 had a huge transaction sometime in February 2010 that had the potential of rendering any analysis inconsistent with expectation and therefore we simply adjusted it using the median of the entire series

## A graph with a blue circle AI-generated content may be incorrect.A graph of a graph showing the time of a month AI-generated content may be incorrect.Visuals

A graph of a graph showing the time of a storm

AI-generated content may be incorrect.

## Discussion

ETS forecasts were used for each ATM time series, and we believe the resulting predictions for the month of May 2010 are pretty accurate.

## Residential Power Use Prompt

This consists of a simple dataset of residential power usage for January 1998 until December 2013. Your assignment is to model these data and a monthly forecast for 2014. The data is given in a single file. The variable ‘KWH’ is power consumption in Kilowatt hours, the rest is straight forward. Add this to your existing files above.

## Findings

* Power consumption data had an issue with date formatting and one missing value, but this was taken care of through formatting and imputation similar to the ATM data set
* The power time series overall consists of seasonal data with a pretty consistent frequency; forecasts predict that the overall pattern will continue into the future

## Visuals

A graph showing a wave of a graph

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## Discussion

An ETS forecast was used for the power consumption time series, and we believe the resulting prediction for the year of 2014 is pretty accurate.