**Round2Day7 - Holt-Winters**

1. Exponential Smoothing
   1. Useful for non-seasonal data that is level (no evidence of trend)
2. Holt-Winters Forecasting Method
   1. Forecasting technique can be largely classified as judgmental, univariate or multivariate. Judgmental forecasts are made by experts. Univariate forecasts involve just one explanatory variable, whilst multivariate forecasts involve more than one explanatory variable. Holt-Winters is a univariate method
   2. Holt-Winters is generally viewed as an automatic forecasting procedures but user can intervene if required
   3. Popular for mass produced forecasts, for example in production planning, because of its simplicity
   4. Uses simple exponential smoothing in order to forecast
      1. Weighted average of past observed values
      2. Three components: trend, seasonal, and irregular
         1. Irregular component is the residual after trend and seasonality have been removed
   5. Accounts for only the trend and irregular components
   6. Forecasted values are dependent on the level, slope and seasonal components of the series being forecast
3. Holt’s Model (with trend)
   1. This model enhances the previous Forecast model by adding in a trend term. It is useful when there is no seasonality
4. Winter’s Model (trend and additive seasonality)
   1. This model enhances the previous Forecast model by adding in a seasonality term