

MTH 441A: Lab 5

P 1. Consider the **Electricity** data set.

- (a) Observe the residual plot.
- (b) Apply Box–Cox transformation on the response variable.
- (c) Fit the transformed model and then observe the residual plot.

P 2. Consider the **Windmill** data set.

- (a) Observe the residual plot.
- (b) Apply Box–Tidewell transformation on the regressor variable.
- (c) Fit the transformed model and then observe the residual plot.

P 3. Consider the **Weighted_Least_Squares** data set.

- (a) Observe the residual plot.
- (b) Divide the data set in appropriate groups by observing the regressor values.
- (c) Compute the sample mean and variance of each groups. Observe their scatter plot.
- (d) Fit an appropriate regression model (may be a quadratic term required).
- (e) Based in the above fitted model, compute the fitted values by inserting the original regressor values.
- (d) Use theses fitted values as reciprocal of the weights and fit a weighted least squares model. Observe the residual plot. If there as negative weights then take the absolute.