CS498 Applied Machine Learning HW6 Report

1. Latitude: Linear regression: R^2 = 0.2928092, max Lambda = 2
   Longitude: Linear regression: R^2 = 0.3645767, max Lambda = 0.989899
   Plots: Latitude: 117before.png, 117boxcox.png, 117after.png
   Longitude: 118before.png, 118boxcox.png, 118after.png

   After box-cox: Latitude: R^2 = 0.4147814 Longitude: R^2 = 0.3916395
   It is slightly better then the raw data because it does normalization

2. Lambda.min after box-cox transformation
   Latitude: L1 = 2.24, L2 = 41.02, L0.25 = 8.96, L0.5 = 4.91, L0.75 = 2.98
   Longitude: L1 = 0.2958, L2 = 4.09, L0.25 = 0.89, L0.5 = 0.40, L0.75 = 0.475
   Mean-square-error:
   Latitude:
   L1 = 118025.2, L2 = 116495.4, L0.25 = 117332.1, L0.5 = 116075.9, L0.75 = 117399.4
   Longitude:
   L1 = 1894.768, L2 = 1872.704, L0.25 = 1859.283, L0.5 = 1872.528, L0.75 = 1861.013

   Based on the mean-square-error, L0.25 and L0.5 works better than other alpha value

   Graphs: longL1, longL2, longL05, longL025, longL075
   latiL1, latiL2, latiL05, latiL025, longL075

3. For the logistic regression, please see the plots:
   P2L1.png
   P2L2.png
   P2L025.png
   P2L05.png
   P2L075.png
   As above, L2 regression seems to work the best, with lambda.min = 0.01323468