

# Large Scale Machine Learning - Assignment 3

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### 1 Q1

- Model:  $\ell_1$  regularized logistic regression
- Private Score: 0.896

For this question we generated additional features from the original categorical features. All pairs and triples of the original categorical features were generated. Also used one-hot encoding.

### 2 Q2: XGBoost

- Model: Boosted Decision Trees.
- Private Score: 0.883

All pairs and triples of the original categorical features and their frequencies (i.e, number of times a particular pair or a triple occurred) were used to train the model. Doesn't use one-hot encoding. Best parameters found using cross validation:  $learning\_rate = 0.2$ ,  $n\_estimators = 100$ ,  $colsample\_bytree = 0.1$ ,  $max\_depth = 6$

### 3 Q2: XGBoost with one-hot encoding

### 4 Q3

*Random Forests..*  
*Ensemble..*