

Ultimate Technologies Challenge Report

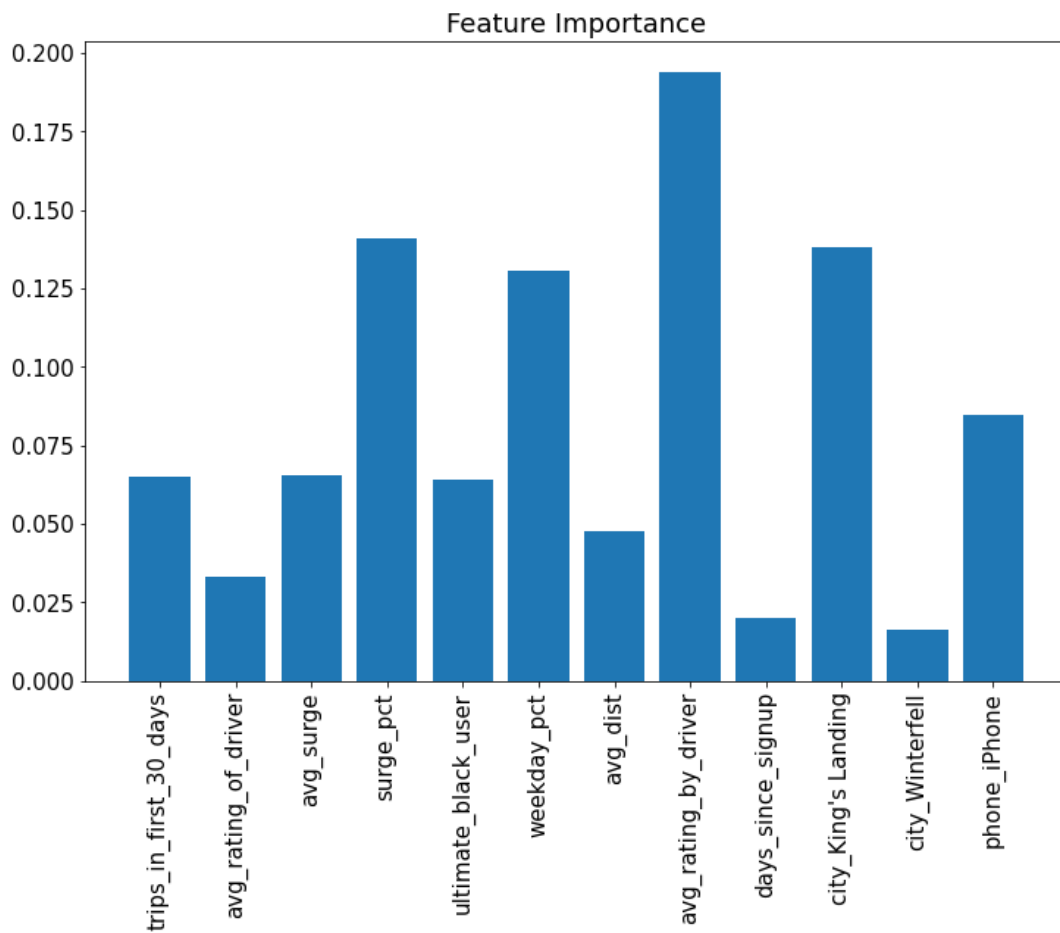
Final Model Metrics

By Aisling Casey – July 2, 2021

The final model selected was a gradient boosting model with a probability threshold set to 38.5%, which yielded the best f1 score on the training data.

Model Parameters

```
{'ccp_alpha': 0.0, 'criterion': 'friedman_mse', 'init': None,
 'learning_rate': 0.1, 'loss': 'deviance', 'max_depth': 5,
 'max_features': 'sqrt', 'max_leaf_nodes': None,
 'min_impurity_decrease': 0.0, 'min_impurity_split': None,
 'min_samples_leaf': 1, 'min_samples_split': 2,
 'min_weight_fraction_leaf': 0.0, 'n_estimators': 300,
 'n_iter_no_change': None, 'random_state': 42, 'subsample': 1.0,
 'tol': 0.0001, 'validation_fraction': 0.1, 'verbose': 0,
 'warm_start': False}
```



Results

	precision	recall	f1-score	support
0	0.84	0.80	0.82	7750
1	0.69	0.75	0.72	4651
accuracy			0.78	12401
macro avg	0.77	0.77	0.77	12401
weighted avg	0.79	0.78	0.78	12401

Note: The probability threshold has been set to 38.5% to yield these results.

Confusion Matrix – Testing Data

	Predicted Inactive	Predicted Active
Actual Inactive	6163	1587
Actual Active	1147	3504

Note: The probability threshold has been set to 38.5% to yield these results.

