Tree Health Results

Logistic Regression Unbalanced

	precision	recall	f1-score	support
0.0	0.00	0.00	0.00	603
1.0	0.00	0.00	0.00	5173
2.0	0.52	0.85	0.64	103354
3.0	0.49	0.17	0.25	92642
accuracy			0.51	201772
macro avg	0.25	0.26	0.22	201772
weighted avg	0.49	0.51	0.45	201772

Logistic Regression Oversampled

	precision	recall	f1-score	support
0.0	0.00	0.60	0.01	603
1.0	0.02	0.11	0.04	5173
2.0	0.56	0.36	0.43	103354
3.0	0.00	0.00	0.00	92642
accuracy			0.19	201772
macro avg	0.15	0.27	0.12	201772
weighted avg	0.29	0.19	0.22	201772

Logistic Regression Undersampled

	precision	recall	f1-score	support
0.0	0.00	0.60	0.01	603
1.0	0.03	0.40	0.05	5173
2.0	0.45	0.06	0.10	103354
3.0	0.00	0.00	0.00	92642
accuracy			0.04	201772
macro avg	0.12	0.26	0.04	201772
weighted avg	0.23	0.04	0.05	201772

Random Forest Classifier Unbalanced

	precision	recall	f1-score	support
0.0	0.79	0.38	0.51	603
1.0	0.75	0.47	0.57	5173
2.0	0.78	0.80	0.79	103354
3.0	0.77	0.76	0.77	92642
accuracy			0.77	201772
macro avg	0.77	0.60	0.66	201772
weighted avg	0.77	0.77	0.77	201772

Random Forest Classifier Oversampled

	precision	recall	f1-score	support
0.0	0.84	0.57	0.68	603
1.0	0.75	0.66	0.70	5173
2.0	0.81	0.82	0.82	103354
3.0	0.80	0.80	0.80	92642
accuracy			0.81	201772
macro avg	0.80	0.71	0.75	201772
weighted avg	0.80	0.81	0.80	201772

Random Forest Classifier Oversampled (100 trees)

	precision	recall	f1-score	support
0.0	0.84	0.57	0.68	603
1.0	0.74	0.65	0.70	5373
2.0	0.81	0.82	0.82	103854
3.0	0.80	0.79	0.80	92642
accuracy			0.80	201772
macro avg	0.80	0.71	0.75	201772
weighted avg	0.80	0.80	0.80	201772

Random Forest Classifier Oversampled (300 trees)

	precision	recall	f1-score	support
0.0	0.83	0.58	0.68	603
1.0	0.75	0.66	0.70	5173
2.0	0.82	0.82	0.82	103354
3.0	0.80	0.80	0.80	92642
accuracy			0.81	201772
macro avg	0.80	0.71	0.75	201772
weighted avg	0.81	0.81	0.81	201772

Random Forest Classifier Oversampled (100 trees) With new data

	precision	recall	f1-score	support
0.0	0.85	0.47	0.61	603
1.0	0.73	0.56	0.63	5173
2.0	0.80	0.81	0.80	103354
3.0	0.78	0.78	0.78	92642
accuracy			0.79	201772
macro avg	0.79	0.66	0.71	201772
weighted avg	0.79	0.79	0.79	201772

Random Forest Classifier Oversampled (500 trees) With new data

	precision	recall	f1-score	support
0.0	0.85	0.46	0.60	603
1.0	0.73	0.55	0.63	5173
2.0	0.80	0.80	0.80	103354
3.0	0.78	0.79	0.78	92642
accuracy			0.79	201772
macro avg	0.79	0.65	0.70	201772
weighted avg	0.79	0.79	0.79	201772

Random Forest Entropy 1000 trees (grid search best one)

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              precision    recall  f1-score   support

         0.0       0.84      0.59      0.69       603
         1.0       0.76      0.67      0.71      5173
         2.0       0.82      0.83      0.82    103354
         3.0       0.80      0.80      0.80     92642

    accuracy                           0.81    201772
   macro avg       0.80      0.72      0.76    201772
weighted avg       0.81      0.81      0.81    201772
```

Random Forest Classifier Undersampled

	precision	recall	f1-score	support
0.0	0.02	0.78	0.04	603
1.0	0.06	0.55	0.11	5173
2.0	0.57	0.34	0.42	103354
3.0	0.55	0.41	0.47	92642
accuracy			0.38	201772
macro avg	0.30	0.52	0.26	201772
weighted avg	0.55	0.38	0.44	201772

'mean_fit_time': array([79.52576151, 86.13717837]),

 'std_fit_time': array([1.09218088, 0.73392889]),

 'mean_score_time': array([4.85432987, 4.86475325]),

 'std_score_time': array([0.07725953, 0.07512442]),

 'param_criterion': masked_array(data=['gini', 'entropy'],

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        fill_value='?',

               dtype=object),

 'param_n_estimators': masked_array(data=[50, 50],

               mask=[False, False],

        fill_value='?',

               dtype=object),

'params': [{'criterion': 'gini', 'n_estimators': 50},

  {'criterion': 'entropy', 'n_estimators': 50}],

 'split0_test_score': array([0.90293727, 0.90295842]),

Random Forest 50 trees with new data

	precision	recall	f1-score	support
0.0	0.84	0.47	0.60	603
1.0	0.72	0.57	0.64	5173
2.0	0.80	0.81	0.80	103354
3.0	0.78	0.78	0.78	92642
accuracy			0.79	201772
macro avg	0.78	0.66	0.71	201772
weighted avg	0.79	0.79	0.79	201772