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c743h357@ENGR1005-11:~/EECS658/ChetanHiremath_Assignment5$ python
ImbalancedDatasets.py
IMBALANCED DATA SET:
NEURAL NETWORK - Imbalanced Data Set
Accuracy: 0.975
Confusion Matrix:
[[40  0  0]
 [ 0 27  3]
 [ 0  0 50]]
Class Balanced Accuracy: 0.9477987421383647
Balanced Accuracy: 0.9761904761904763
Scikit-learn Balanced Accuracy: 0.9666666666666667

OVERSAMPLING:
NEURAL NETWORK - Random Oversampling
Accuracy: 0.9666666666666667
Confusion Matrix:
[[50  0  0]
 [ 0 47  3]
 [ 0  2 48]]

NEURAL NETWORK - SMOTE Oversampling
Accuracy: 0.98
Confusion Matrix:
[[50  0  0]
 [ 0 47  3]
 [ 0  0 50]]

NEURAL NETWORK - ADASYN Oversampling
Accuracy: 0.9361702127659575
Confusion Matrix:
[[40  0  0]
 [ 0 46  5]
 [ 0  4 46]]

UNDERSAMPLING:
NEURAL NETWORK - Random Undersampling
Accuracy: 0.9222222222222223
Confusion Matrix:
[[30  0  0]
 [ 0 27  3]
 [ 0  4 26]]

NEURAL NETWORK - Cluster Undersampling
Accuracy: 0.9777777777777777
Confusion Matrix:
[[30  0  0]
 [ 0 28  2]
 [ 0  0 30]]

NEURAL NETWORK - Tomek Links Undersampling
Accuracy: 0.9663865546218487
Confusion Matrix:
[[40  0  0]
 [ 0 26  4]
 [ 0  0 49]]
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```