==========Part 1: Imbalanced Data Set==========

Confusion Matrix:
[[40 0 0]
 [0 26 4]
 [0 0 50]]

a.Accuracy: 0.9666666666666667
b.Class Balanced Accuracy (slide 16): 0.9308641975308642
c.Balanced Accuracy (slide 16): 0.9805621224060941
d.Balanced Accuracy (sklearn function): 0.9555555555555556

==========Part 2: Oversampling==========

a. Random Oversampling:
Confusion Matrix:
[[50 0 0]
 [0 47 3]
 [0 1 49]]
Accuracy: 0.9733333333333334

b. SMOTE Oversampling:
Confusion Matrix:
[[50 0 0]
 [0 46 4]
 [0 0 50]]
Accuracy: 0.9733333333333334

c. ADASYN Oversampling:
Handling run-time error: Not any neigbours belong to the majority class. This case will induce a NaN case with a division by zero.
ADASYN is not suited for this specific dataset. Use SMOTE instead.

Using SMOTE instead:
Confusion Matrix:
[[50 0 0]
 [0 46 4]
 [0 1 49]]
Accuracy: 0.9666666666666667

==========Part 3: Undersampling==========

a. Random Undersampling:
Confusion Matrix:

[[30 0 0]
 [0 28 2]
 [0 0 30]]
Accuracy: 0.9777777777777777

b. Cluster Undersampling:
Confusion Matrix:
[[30 0 0]
 [0 28 2]
 [0 0 30]]
Accuracy: 0.9777777777777777

c. Tomek Undersampling:
Confusion Matrix:
[[40 0 0]
 [0 26 4]
 [0 0 49]]
Accuracy: 0.9663865546218487