Epochs=10

L1=25 relu

L2=25 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=3 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 77 | 80 | 75 | 75 | 84 | 66 |
| Training Data | 75 | 78 | 75 | 67 | 83 | 66 |
| Testing Data | 75 | 75 | 75 | 67 | 80 | 67 |

Epochs=10

L1=input size relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=3 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 76 | 77 | 75 | 74 | 81 | 66 |
| Training Data | 75 | 75 | 75 | 67 | 80 | 60 |
| Testing Data | 74 | 74 | 74 | 66 | 78 | 66 |

Epochs=10

L1=400 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=2 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 82 | 83 | 81 | 80 | 80 | 80 |
| Training Data | 81 | 79 | 81 | 80 | 78 | 80 |
| Testing Data | 80 | 69 | 81 | 80 | 70 | 80 |

Epochs=10

L1=400 relu

L2=200 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=4 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 85 | 91 | 80 | 85 | 89 | 80 |
| Training Data | 80 | 88 | 80 | 80 | 88 | 80 |
| Testing Data | 79 | 74 | 79 | 79 | 73 | 79 |

Epochs=10

L1=400 relu

L2=200 relu

L3=100 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=3 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 86 | 89 | 84 | 84 | 88 | 81 |
| Training Data | 84 | 86 | 84 | 81 | 89 | 81 |
| Testing Data | 82 | 70 | 83 | 80 | 72 | 80 |

Epochs=10

L1=100 relu

L2=200 relu

L3=400 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=3 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 86 | 79 | 83 | 84 | 92 | 77 |
| Training Data | 83 | 86 | 83 | 78 | 92 | 77 |
| Testing Data | 82 | 71 | 82 | 77 | 76 | 77 |

Epochs=10

L1=400 relu

L2=200 relu

L3=100 relu

L4=drouput layer(0.5) also added kernal\_initializer

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=5 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 85 | 86 | 84 | 84 | 92 | 74 |
| Training Data | 84 | 83 | 84 | 75 | 92 | 75 |
| Testing Data | 83 | 70 | 83 | 74 | 79 | 74 |

Epochs=10

L1=200 relu

L2=200 relu

L3=200 relu

L4=200 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=3 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 86 | 89 | 83 | 84 | 93 | 76 |
| Training Data | 83 | 87 | 83 | 76 | 93 | 76 |
| Testing Data | 83 | 73 | 82 | 75 | 75 | 77 |

Epochs=10

L1=400 relu

L2=400 relu

L3=400 relu

L4=400 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=7 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 87 | 87 | 86 | 85 | 91 | 79 |
| Training Data | 86 | 84 | 86 | 79 | 90 | 79 |
| Testing Data | 85 | 70 | 85 | 78 | 75 |  |

Epochs=10

L1=500 relu

L2=400 relu

L3=300 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=20 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 87 | 84 | 90 | 85 | 89 | 80 |
| Training Data | 90 | 78 | 90 | 81 | 89 | 80 |
| Testing Data | 89 | 63 | 90 | 79 | 73 | 80 |

Epochs=24 for smote 20 for adasyn

L1=50 relu

L2=50 relu

L3=50 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K=5 | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 83 | 86 | 79 | 81 | 82 | 80 |
| Training Data | 80 | 83 | 79 | 80 | 80 | 80 |
| Testing Data | 79 | 74 | 79 | 79 | 72 | 79 |

Epochs=25

L1=100 relu

L2=200 relu

L3=80 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE K= unspecified | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 86 | 82 | 91 | 85 | 92 | 79 |
| Training Data | 90 | 79 | 91 | 79 | 91 | 79 |
| Testing Data | 89 | 62 | 90 | 78 | 75 | 78 |

Epochs=25

L1=500 relu

L2=350 relu

L3=280 relu

Estimated run time: 53 min

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 88 | 88 | 87 | 86 | 89 | 83 |
| Training Data | 87 | 85 | 87 | 83 | 90 | 83 |
| Testing Data | 86 | 66 | 87 | 82 | 71 | 82 |

Same as before but with specified SMOTE K value of 4 as it gave us very good results

Epochs=25

L1=500 relu

L2=350 relu

L3=280 relu

Estimated run time: 53 min

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE | | | ADASYN | | |
|  | Total Accuracy | Accuracy of 1 | Accuracy of 0 | Total Accuracy | Accuracy of 1 | Accuracy of 0 |
| Balanced Data | 88 | 88 | 87 | 86 | 89 | 83 |
| Training Data | 87 | 85 | 87 | 83 | 90 | 83 |
| Testing Data | 86 | 66 | 87 | 82 | 71 | 82 |

Same for above but with normal weight given by algo

97, 29, 99

Same for above but with artificial weights in the NN in fraction

On train: 78, 82, 78

On test: 78,75,78

Same for above with artificial weights in a 1:27 ratio

Train: 76,85,75

Test: 75,79,75

Epochs=25

L1=500 relu

L2=350 relu

L3=280 relu

Estimated run time: 53 min

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE=4 | | | ADASYN | | | Built in weights dec | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 88 | 88 | 87 | 86 | 89 | 83 |  |  |  |
| Training Data | 87 | 85 | 87 | 83 | 90 | 83 | 78 | 82 | 78 |
| Testing Data | 86 | 66 | 87 | 82 | 71 | 82 | 78 | 75 | 75 |

ADASYN:

Has ratio of

1:344853

0:342023

Epochs=10

L1=1000 relu

Estimated run time: 53 min

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE = 4 | | | ADASYN: | | | Built in weights 7:193 | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 84 | 88 | 81 | 83 | 92 | 75 |  |  |  |
| Training Data | 81 | 83 | 81 | 75 | 89 | 75 | 78 | 77 | 78 |
| Testing Data | 81 | 73 | 81 | 74 | 77 | 74 | 78 | 72 | 78 |

Epochs=10

L1=1000 relu

L2=500 relu

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE = 4 | | | ADASYN:  With weights in fraction | | | Built in weight by fraction | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 84 | 86 | 83 | 82 | 91 | 73 |  |  |  |
| Training Data | 83 | 81 | 83 | 73 | 90 | 73 | 79 | 74 | 80 |
| Testing Data | 82 | 70 | 82 | 72 | 79 | 72 | 79 | 70 | 79 |

Epochs=10

L1=500 relu

L2=1000 relu

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE = 3 | | | ADASYN:  With weights in fraction | | | Built in weight by fraction | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 84 | 85 | 82 | 81 | 81 | 82 |  |  |  |
| Training Data | 82 | 81 | 82 | 82 | 80 | 82 | 77 | 77 | 77 |
| Testing Data | 81 | 71 | 82 | 81 | 71 | 81 | 77 | 73 | 77 |

**Started to experiment with undersampling as well as oversampling**

Epochs=10

L1=1000 relu

L2=500 relu

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | SMOTE = 3 | | | ADASYN:  With weights in fraction | | | Edited NN K=3  With added weight | | | Built in weight by fraction | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 84 | 81 | 86 | 82 | 91 | 73 | 72 | 62 | 82 |  |  |  |
| Training Data | 86 | 76 | 86 | 73 | 88 | 73 | 82 | 72 | 82 | 73 | 81 | 73 |
| Testing Data | 85 | 67 | 86 | 73 | 79 | 72 | 82 | 68 | 82 | 73 | 77 | 73 |
| Validation Data | 85 | 67 | 86 | 73 | 79 | 72 | 81 | 69 | 82 | 73 | 77 | 73 |

Epochs=10

L1=100 relu

L2=100 relu

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Edited NN = 3 | | | One sided =1 seed=200 | | | Near miss  Type 1, 3 nearest | | | Built in weight by fraction | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 97 | 25 | 100 | 97 | 20 | 100 | 86 | 76 | 97 |  |  |  |
| Training Data | 96 | 25 | 98 | 97 | 20 | 100 | 32 | 76 | 31 | 69 | 81 | 69 |
| Testing Data | 96 | 24 | 98 | 97 | 19 | 100 | 32 | 75 | 31 | 69 | 79 | 69 |

**DO NOT USE NEAR MISS TYPE 2 IT TOOK 50G + OF MEMORY AND TOOK OVER 30 MIN BEFORE FORCING IT TO STOP**

Epochs=10

L1=100 relu

L2=100 relu

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Edited NN = 2 | | | One sided =2 seed=200 | | | Near miss  Type 3, 3 nearest | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 97 | 14 | 100 | 96 | 15 | 100 | 68 | 60 | 76 |
| Training Data | 97 | 14 | 100 | 97 | 15 | 100 | 75 | 60 | 76 |
| Testing Data | 97 | 14 | 100 | 97 | 15 | 100 | 75 | 59 | 76 |

Epochs=10

L1=100 relu

L2=100 relu

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Edited NN = 12 | | | One sided =1 seed=400 | | | Near miss  Type 1, 7 nearest | | |
|  | Total | 1 | 0 | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 97 | 24 | 100 | 96 | 14 | 100 | 90 | 81 | 98 |
| Training Data | 96 | 24 | 99 | 97 | 14 | 100 | 21 | 81 | 19 |
| Testing Data | 96 | 24 | 99 | 97 | 14 | 100 | 21 | 82 | 19 |

Epochs=10

L1=100 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | One sided =4 seed=400 | | | Near miss  Type 3, 7 nearest | | |
|  | Total | 1 | 0 | Total | 1 | 0 |
| Balanced Data | 97 | 14 | 100 | 68 | 60 | 77 |
| Training Data | 97 | 14 | 100 | 76 | 60 | 77 |
| Testing Data | 97 | 13 | 100 | 76 | 60 | 77 |

**Change the N\_neighbors for class 3**

Epochs=10

L1=100 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 3 nearest | | |
|  | Total | 1 | 0 |
| Balanced Data | 67 | 61 | 74 |
| Training Data | 75 | 61 | 76 |
| Testing Data | 75 | 61 | 76 |

Epochs=10

L1=100 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 8 nearest | | |
|  | Total | 1 | 0 |
| Balanced Data | 81 | 75 | 88 |
| Training Data | 61 | 75 | 60 |
| Testing Data | 60 | 75 | 60 |

Epochs=10

L1=100 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 2 nearest | | |
|  | Total | 1 | 0 |
| Balanced Data | 63 | 59 | 66 |
| Training Data | 74 | 59 | 75 |
| Testing Data | 74 | 58 | 75 |

Epochs=10

L1=100 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 8 nearest with balancer | | |
|  | Total | 1 | 0 |
| Balanced Data | 81 | 73 | 90 |
| Training Data | 62 | 73 | 62 |
| Testing Data | 62 | 73 | 62 |

Epochs=20

L1=1000 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 6 nearest | | |
|  | Total | 1 | 0 |
| Balanced Data | 85 | 79 | 92 |
| Training Data | 59 | 79 | 59 |
| Testing Data | 59 | 76 | 59 |

Epochs=20

L1=1000 relu

L2=600 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 4 nearest | | |
|  | Total | 1 | 0 |
| Balanced Data | 86 | 79 | 93 |
| Training Data | 65 | 79 | 65 |
| Testing Data | 65 | 73 | 64 |

Epochs=20

L1=1000 relu

L2=600 relu

L3=280 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 4 nearest | | |
|  | Total | 1 | 0 |
| Balanced Data | 87 | 78 | 96 |
| Training Data | 68 | 78 | 67 |
| Testing Data | 67 | 72 | 67 |

Epochs=20

L1=100 relu

L2=600 relu

L3=880 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Near miss  Type 3, 2 nearest | | |
|  | Total | 1 | 0 |
| Balanced Data | 70 | 66 | 75 |
| Training Data | 68 | 66 | 68 |
| Testing Data | 68 | 62 | 68 |

Epochs=20

L1=100 relu

L2=600 relu

L3=300 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Near miss  Type 3, 2 nearest | | | Combination with smote and edited nearest neighbors | | |
|  | Total | 1 | 0 | total | 1 | 0 |
| Balanced Data | 70 | 60 | 81 | 96 | 96 | 96 |
| Training Data | 73 | 60 | 73 | 80 | 94 | 79 |
| Testing Data | 72 | 57 | 73 | 78 | 73 | 78 |

Epochs=10

L1=100 relu

L2=600 relu

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Near miss  Type 3, 3 nearest | | | Combination with smote and tomec | | |
|  | Total | 1 | 0 | total | 1 | 0 |
| Balanced Data | 72 | 56 | 89 | 87 | 91 | 83 |
| Training Data | 76 | 56 | 76 | 83 | 87 | 83 |
| Testing Data | 76 | 54 | 76 | 82 | 72 | 82 |

Epochs=20

L1=50 relu

L2=50 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and edited nearest neighbors reduce nodes to stop overfitting | | |
|  | total | 1 | 0 |
| Balanced Data | 89 | 94 | 82 |
| Training Data | 70 | 89 | 69 |
| Testing Data | 69 | 82 | 69 |

Epochs=10

L1=50 relu

L2=50 relu

L3= dropout (0.3)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and edited nearest neighbors reduce nodes to stop overfitting | | |
|  | total | 1 | 0 |
| Balanced Data | 87 | 91 | 84 |
| Training Data | 71 | 86 | 70 |
| Testing Data | 70 | 81 | 70 |

Epochs=10

L1=50 relu

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and tomec | | |
|  | total | 1 | 0 |
| Balanced Data | 78 | 78 | 79 |
| Training Data | 78 | 74 | 79 |
| Testing Data | 78 | 71 | 78 |

Epochs=50

L1=50 relu

L2= dropout (0.3)

L3=50 relu

L4= dropout (0.3)

l5=50 relu

L6=dropout(0.3)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and enn | | |
|  | total | 1 | 0 |
| Balanced Data | 85 | 87 | 83 |
| Training Data | 70 | 85 | 69 |
| Testing Data | 69 | 82 | 69 |

Epochs=50

L1=120 relu

L2= dropout (0.1)

L3=212 relu

L4= dropout (0.1)

l5=320 relu

L6=dropout(0.1)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and tomec | | |
|  | total | 1 | 0 |
| Balanced Data | 88 | 92 | 84 |
| Training Data | 84 | 90 | 84 |
| Testing Data | 82 | 72 | 83 |

Reduce epochs for less overfit data

Epochs=10

L1=120 relu

L2= dropout (0.1)

L3=212 relu

L4= dropout (0.1)

l5=320 relu

L6=dropout(0.1)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and tomec | | |
|  | total | 1 | 0 |
| Balanced Data | 85 | 89 | 80 |
| Training Data | 80 | 87 | 79 |
| Testing Data | 79 | 76 | 79 |

Epochs=10

L1=1000 relu

L2= dropout (0.1)

L3=500 relu

L4= dropout (0.1)

Attempting the SGD optimizer with mse loss

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and tomec | | |
|  | total | 1 | 0 |
| Balanced Data | 80 | 86 | 75 |
| Training Data | 75 | 83 | 74 |
| Testing Data | 74 | 78 | 74 |

Epochs=3

L1=500 relu

L2= dropout (0.1)

L3=1000 relu

L4= dropout (0.1)

Using the normal adam optimizer

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and tomec | | |
|  | total | 1 | 0 |
| Balanced Data | 84 | 87 | 82 |
| Training Data | 81 | 84 | 81 |
| Testing Data | 81 | 73 | 81 |

Epochs=3

L1=1000 relu

L2= dropout (0.1)

L3=500 relu

L4= dropout (0.1)

Using the normal adam optimizer

|  |  |  |  |
| --- | --- | --- | --- |
|  | Combination with smote and tomec | | |
|  | total | 1 | 0 |
| Balanced Data | 84 | 83 | 85 |
| Training Data | 84 | 79 | 84 |
| Testing Data | 84 | 69 | 84 |

Epochs=3

L1=1000 relu

L2= dropout (0.1)

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 82 | 86 | 78 | .817 |
| Training Data | 78 | 81 | 78 | .793 |
| Testing Data | 77 | 75 | 78 | .763 |

Epochs=3

L1=500 relu

L2= dropout (0.1)

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 81 | 85 | 76 | .8073 |
| Training Data | 76 | 81 | 76 | .7844 |
| Testing Data | 76 | 76 | 76 | .7593 |

Epochs=20

L1=500 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 85 | 85 | 84 | .8476 |
| Training Data | 84 | 78 | 84 | .8130 |
| Testing Data | 83 | 68 | 84 | .7568 |

Epochs=5

L1=500 relu

L3= 200 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 85 | 84 | 85 | .8451 |
| Training Data | 85 | 79 | 85 | .8209 |
| Testing Data | 84 | 69 | 85 | .7678 |

Epochs=5

L1=500 relu

L3=10

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 83 | 84 | 82 | .8286 |
| Training Data | 82 | 79 | 82 | .8056 |
| Testing Data | 81 | 72 | 81 | .7662 |

Epochs=5

L1=500 relu

L3=500 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 85 | 89 | 82 | .8544 |
| Training Data | 82 | 85 | 82 | .8313 |
| Testing Data | 81 | 72 | 81 | .7642 |

Epochs=5

L1=200 relu

L3=500 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 85 | 87 | 84 | .8521 |
| Training Data | 83 | 83 | 83 | .8317 |
| Testing Data | 82 | 71 | 83 | .7676 |

Epochs=5

L1=5000 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 84 | 85 | 82 | .8379 |
| Training Data | 82 | 81 | 82 | .8151 |
| Testing Data | 81 | 72 | 82 | .7653 |

Epochs=5

L1=5000 tanh

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 73 | 75 | 71 | .73 |
| Training Data | 71 | 74 | 71 | .7268 |
| Testing Data | 71 | 73 | 71 | .7231 |

Epochs=20

L1=50 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 79 | 79 | 78 | .7881 |
| Training Data | 78 | 75 | 78 | .7637 |
| Testing Data | 78 | 71 | 78 | .7470 |

Epochs=20

L1=50 tanh

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 77 | 75 | 80 | .7739 |
| Training Data | 79 | 72 | 80 | .7596 |
| Testing Data | 79 | 69 | 80 | .7450 |

Epochs=10

L1=500 tanh

L2=Dropout(0.1)

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 74 | 79 | 69 | .7431 |
| Training Data | 69 | 78 | 69 | .7374 |
| Testing Data | 69 | 78 | 69 | .7327 |

Epochs=10

L1=500 relu

L2=Dropout(0.1)

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 82 | 86 | 79 | .8235 |
| Training Data | 79 | 81 | 78 | .7952 |
| Testing Data | 78 | 75 | 78 | .7661 |

Epochs=20

L1=500 relu

L2=Dropout(0.1)

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 83 | 88 | 79 | .8322 |
| Training Data | 79 | 82 | 79 | .8025 |
| Testing Data | 78 | 74 | 78 | .7617 |

Epochs=10

L1=1500 relu

L2=Dropout(0.1)

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 84 | 89 | 79 | .8390 |
| Training Data | 79 | 84 | 79 | .8131 |
| Testing Data | 78 | 75 | 78 | .7653 |

Epochs=10

L1=500 relu

L2=Dropout(0.1)

L3= 500 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 86 | 89 | 84 | .8494 |
| Training Data | 84 | 86 | 84 | .8494 |
| Testing Data | 83 | 72 | 83 | .7749 |

Epochs=10

L1=100 relu

L2=Dropout(0.1)

L3= 50 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 83 | 82 | 83 | .8252 |
| Training Data | 83 | 77 | 83 | .8032 |
| Testing Data | 83 | 71 | 83 | .7679 |

Epochs=10

L1=100 relu

L2=Dropout(0.1)

L3= 50 relu

Using the normal adam optimizer attempting with one relu layer

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Combination with smote and tomec | | |  |
|  | total | 1 | 0 | ROC |
| Balanced Data | 81 | 85 | 77 | .8110 |
| Training Data | .77 | 81 | 77 | .7923 |
| Testing Data | 77 | 76 | 77 | .7621 |

ADDED HOT ENCODING HOPEFULLY

TRY ADDING keras.layers.Embedding WITH ONE HOT ENCODING