How to Train and Test:

I have used individual cell for dataset 1,dataset 2 and dataset 3. So keeping one of them non-commented and remaining two commented, we can get our desired results. Data splitting is done in each of these cells individually to accommodate the variations in those datasets.

DATASET 1:

	Accuracy	Sensitivity	Specificity	Precision	F1-Score	AUROC	AUPR
LR	0.7966 ±0.0047	0.5347 ±0.0239	0.8841 ±0.0079	0.6070 ±0.0122	0.5682 ±0.0142	0.8458 ±0.0022	0.6281 ±0.0054
Voting Ensemble	0.795	0.5341	0.8822	0.6026	0.5663	0.7082	0.4385
Stacking Ensemble	0.7943	0.5824	0.8651	0.5908	0.5866	0.7238	0.4487

For LR model:

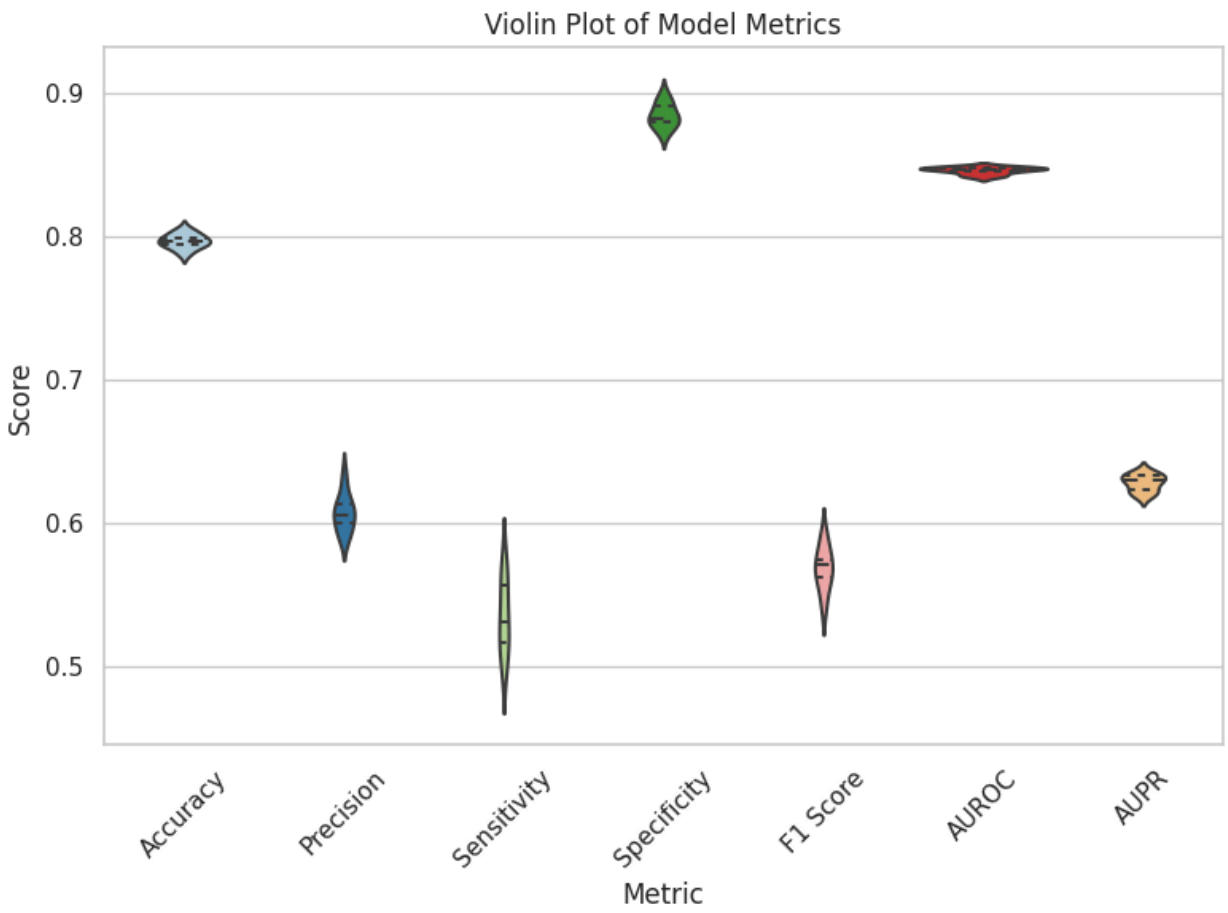
```
Mean and Standard Deviation of Metrics:
Accuracy: Mean = 0.7966, Std Dev = 0.0047
Precision: Mean = 0.6070, Std Dev = 0.0122
Sensitivity: Mean = 0.5347, Std Dev = 0.0239
Specificity: Mean = 0.8841, Std Dev = 0.0079
F1 Score: Mean = 0.5682, Std Dev = 0.0142
AUROC: Mean = 0.8458, Std Dev = 0.0022
AUPR: Mean = 0.6281, Std Dev = 0.0054
```

For Voting Ensembling(Majority Voting):

```
Voting Ensemble Accuracy:  0.795017793594306
Accuracy: 0.7950
Precision: 0.6026
Sensitivity (Recall): 0.5341
Specificity: 0.8822
F1-Score: 0.5663
AUROC: 0.7082
AUPR: 0.4385
```

For Stack Ensembling:

```
Stacking Ensemble Accuracy:  0.7943060498220641
Accuracy: 0.7943
Precision: 0.5908
Sensitivity (Recall): 0.5824
Specificity: 0.8651
F1-Score: 0.5866
AUROC: 0.7238
AUPR: 0.4487
```



DATASET 2:

	Accuracy	Sensitivity	Specificity	Precision	F1-Score	AUROC	AUPR
LR	0.8466 ±0.0006	0.5732 ±0.0062	0.9312 ±0.0020	0.7204 ±0.0039	0.6384 ±0.0027	0.8989 ±0.0003	0.7463 ±0.0009
Voting Ensemble	0.8464	0.5699	0.9319	0.7214	0.6367	0.7509	0.5127
Stacking Ensemble	0.8455	0.5579	0.9344	0.7246	0.6304	0.7462	0.5087

For LR Model:

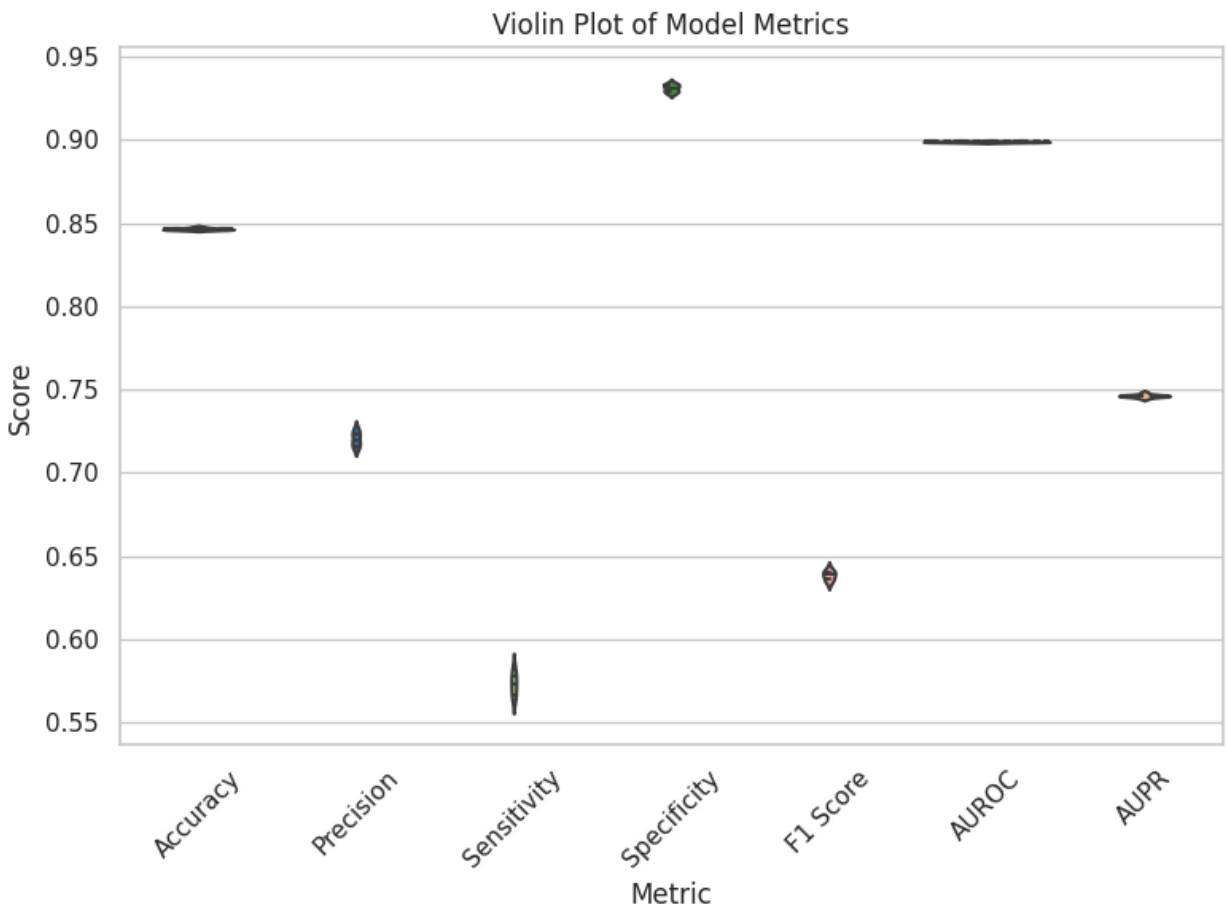
```
Mean and Standard Deviation of Metrics:
Accuracy: Mean = 0.8466, Std Dev = 0.0006
Precision: Mean = 0.7204, Std Dev = 0.0039
Sensitivity: Mean = 0.5732, Std Dev = 0.0062
Specificity: Mean = 0.9312, Std Dev = 0.0020
F1 Score: Mean = 0.6384, Std Dev = 0.0027
AUROC: Mean = 0.8989, Std Dev = 0.0003
AUPR: Mean = 0.7463, Std Dev = 0.0009
```

For Voting Ensemble:

```
Voting Ensemble Accuracy:  0.8463766329800345
Accuracy: 0.8464
Precision: 0.7214
Sensitivity (Recall): 0.5699
Specificity: 0.9319
F1-Score: 0.6367
AUROC: 0.7509
AUPR: 0.5127
```

For Stacking Ensemble:

```
Stacking Ensemble Accuracy:  0.8454523046586148
Accuracy: 0.8455
Precision: 0.7246
Sensitivity (Recall): 0.5579
Specificity: 0.9344
F1-Score: 0.6304
AUROC: 0.7462
AUPR: 0.5087
```



DATASET 3:

	Accuracy	Sensitivity	Specificity	Precision	F1-Score	AUROC	AUPR
LR	0.9969 ±0.0001	0.901 ±0.008	0.9991 ±0.002	0.9615 ±0.0088	0.9302 ±0028	0.9816 ±0.0019	0.9372 ±0.0049

Voting Ensemble	0.9970	0.9022	0.9992	0.9651	0.9326	0.9507	0.8730
Stacking Ensemble	0.996	0.9130	0.9130	0.9231	0.9180	0.9556	0.8448

For LR Model:

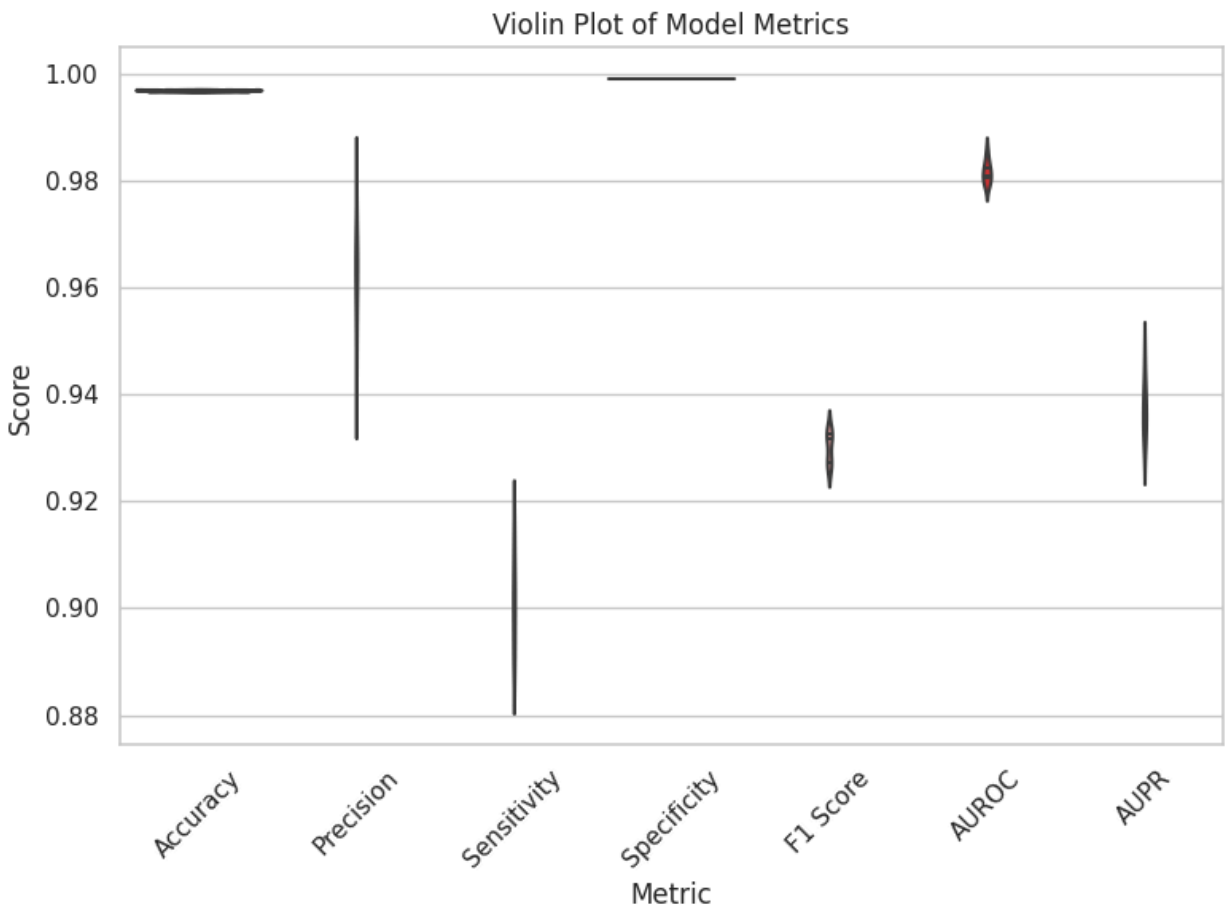
```
Mean and Standard Deviation of Metrics:
Accuracy: Mean = 0.9969, Std Dev = 0.0001
Precision: Mean = 0.9615, Std Dev = 0.0088
Sensitivity: Mean = 0.9010, Std Dev = 0.0080
Specificity: Mean = 0.9991, Std Dev = 0.0002
F1 Score: Mean = 0.9302, Std Dev = 0.0028
AUROC: Mean = 0.9816, Std Dev = 0.0019
AUPR: Mean = 0.9372, Std Dev = 0.0049
```

For Voting Ensemble:

```
Voting Ensemble Accuracy:  0.9969704620045443
Accuracy: 0.9970
Precision: 0.9651
Sensitivity (Recall): 0.9022
Specificity: 0.9992
F1-Score: 0.9326
AUROC: 0.9507
AUPR: 0.8730
```

For Stack Ensemble:

```
Stacking Ensemble Accuracy:  0.9962130775056803
Accuracy: 0.9962
Precision: 0.9231
Sensitivity (Recall): 0.9130
Specificity: 0.9982
F1-Score: 0.9180
AUROC: 0.9556
AUPR: 0.8448
```


Violin Plot of Model Metrics
1.00
0.98
0.96
0.94
0.92
0.90
0.88
Score
Accuracy
Precision
Sensitivity
Specificity
F1 Score
AUROC
AUPR
Metric