

VISUALIZING AND PREDICTION OF HEART DISEASES WITH AN INTERACTIVE DASH BOARD

Performance Metrics

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In [ ]: y_pred_rfe = rf_classifier.predict(X_test)

plt.figure(figsize=(10, 8))
CM=confusion_matrix(Y_test,y_pred_rfe)
sns.heatmap(CM, annot=True)

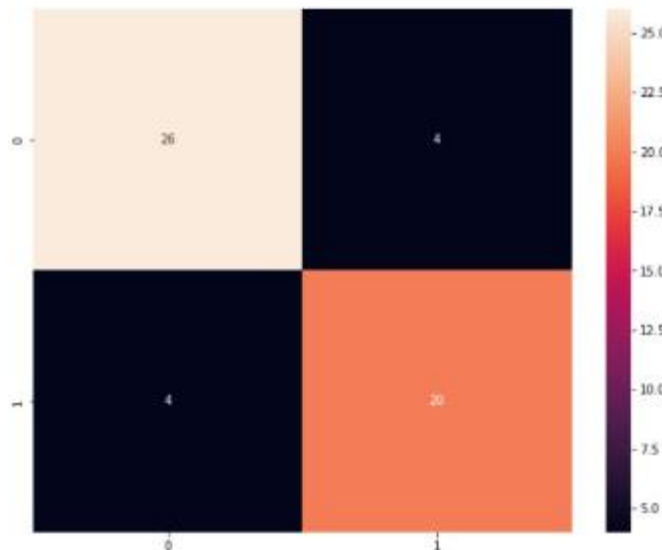
TN = CM[0][0]
FN = CM[1][0]
TP = CM[1][1]
FP = CM[0][1]
specificity = TN/(TN+FP)
loss_log = log_loss(Y_test, y_pred_rfe)
acc= accuracy_score(Y_test, y_pred_rfe)
roc=roc_auc_score(Y_test, y_pred_rfe)
prec = precision_score(Y_test, y_pred_rfe)
rec = recall_score(Y_test, y_pred_rfe)
f1 = f1_score(Y_test, y_pred_rfe)

matthew = matthews_corrcoef(Y_test, y_pred_rfe)
model_results =pd.DataFrame([['Random Forest',acc, prec,rec,specificity, f1,roc, loss_log,matthew]],
                             columns = ['Model', 'Accuracy', 'Precision', 'Sensitivity', 'Specificity', 'F1 Score', 'ROC', 'Log_Loss', 'matthew_corrcoef'])

model_results
```

```
Out[ ]:
```

	Model	Accuracy	Precision	Sensitivity	Specificity	F1 Score	ROC	Log_Loss	matthew_corrcoef
0	Random Forest	0.851852	0.866667	0.866667	0.866667	0.866667	0.85	19.188653	0.7

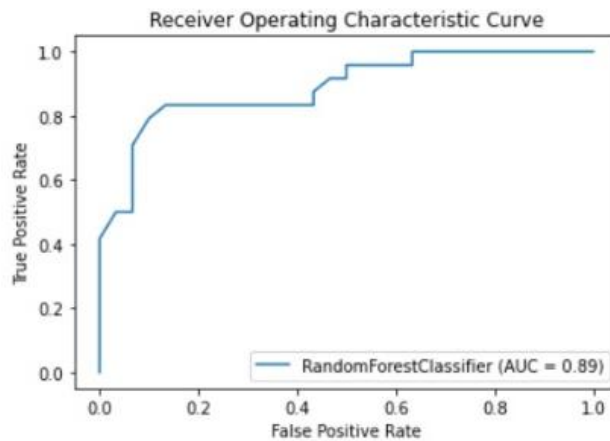


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In [ ]: Y_pred_rf = np.around(Y_pred_rf)
print(metrics.classification_report(Y_test,Y_pred_rf))
```

	precision	recall	f1-score	support
1	0.87	0.87	0.87	30
2	0.83	0.83	0.83	24
accuracy			0.85	54
macro avg	0.85	0.85	0.85	54
weighted avg	0.85	0.85	0.85	54

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!:\n\nplot_roc_curve(rf_classifier,X_test,Y_test)\nplt.xlabel('False Positive Rate')\nplt.ylabel('True Positive Rate')\nplt.title('Receiver Operating Characteristic Curve');\nplt.savefig("RF.png")
```



```
!:\n\ns_pred = rf_classifier.predict([[57,1,2,124,261,0,0,141,0,0.3,1,0,7]])\nif(int(s_pred)==2):\n    op="Present"\nelse:\n    op="Absent"\nprint("Predicted Heart condition:",op)
```

Predicted Heart condition: Present

```
s_pred = rf_classifier.predict([[40,1,2,120,200,1,0,150,0,0.3,1,1,4]])\nif(int(s_pred)==2):\n    op="Present"\nelse:\n    op="Absent"\nprint("Predicted Heart condition:",op)
```

Predicted Heart condition: Absent