



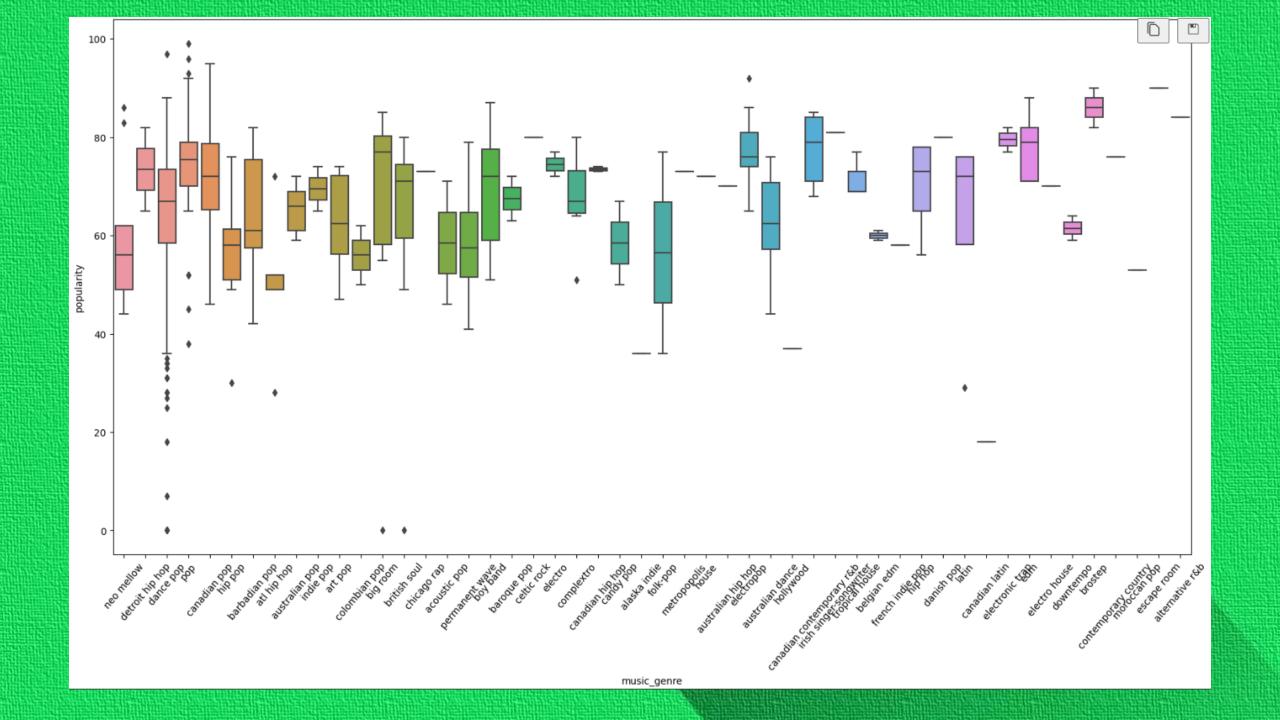
	track_name	artist_name	artist_pop	album	popularity	danceability	energy	loudness	mode	key	 acousticness	instrumentalness	liveness	valence
0	Running Up That Hill (A Deal With God)	Kate Bush	81.0	Hounds Of Love	95.0	0.629	0.547	-13.123	0.0	10.0	0.7200	0.003140	0.0604	0.197
1	As It Was	Harry Styles	91.0	As It Was	96.0	0.520	0.731	-5.338	0.0	6.0	0.3420	0.001010	0.3110	0.662
2	Sunroof	Nicky Youre	73.0	Sunroof	44.0	0.768	0.716	-5.110	1.0	10.0	0.3500	0.000000	0.1500	0.841
3	Heat Waves	Glass Animals	80.0	Dreamland (+ Bonus Levels)	89.0	0.761	0.525	-6.900	1.0	11.0	0.4400	0.000007	0.0921	0.531
4	About Damn Time	Lizzo	81.0	About Damn Time	92.0	0.836	0.743	-6.305	0.0	10.0	 0.0995	0.000000	0.3350	0.722

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artist_pop -	1	0.53	0.026	-0.18	0.12	0.0033	-0.032	-0.045	0.061	-0.073	-0.2	0.16	-0.043	-0.035	0.38	
popularity -	0.53	1	-0.1	-0.07	0.11	0.036	-0.15	-0.12	0.069	-0.085	-0.12	0.1	-0.026	0.049	0.28	-0.39
danceability -	0.026	-0.1	1	-0.018	0.16	-0.065	0.12	0.21	-0.11	-0.054	-0.17	0.36	-0.24	0.12	-0.14	0.091
energy -	-0.18	-0.07	-0.018	1	0.6	-0.093	0.094	-0.084	-0.5	0.098	0.14	0.12	0.11	0.093	-0.084	0.093
loudness -	0.12	0.11	0.16	0.6	1	-0.025	0.072	-0.088	-0.42	-0.055	0.041	0.24	0.051	0.059	0.026	-0.075
mode -	0.0033	0.036	-0.065	-0.093	-0.025	1	-0.082	-0.011	0.041	0.017	-0.058	-0.069	0.0078	-0.012	-0.0092	-0.062
key -	-0.032	-0.15	0.12	0.094	0.072	-0.082	1	0.067	-0.048	0.064	-0.034	0.052	0.0066	0.013	0.029	0.063
speechiness -	-0.045	-0.12	0.21	-0.084	-0.088	-0.011	0.067	1	0.075	-0.058	0.024	0.0061	0.11	0.11	-0.22	0.14
acousticness -	0.061	0.069	-0.11	-0.5	-0.42	0.041	-0.048	0.075	1	0.048	0.00074	-0.16	-0.091	-0.043	0.058	-0.1
instrumentalness -	-0.073	-0.085	-0.054	0.098	-0.055	0.017	0.064	-0.058	0.048	1	-0.036	0.025	-0.021	0.02	-0.063	0.068
liveness -	-0.2	-0.12	-0.17	0.14	0.041	-0.058	-0.034	0.024	0.00074	-0.036	1	-0.087	0.035	-0.005	-0.058	0.05
valence -	0.16	0.1	0.36	0.12	0.24	-0.069	0.052	0.0061	-0.16	0.025	-0.087	1	-0.039	0.055	0.036	-0.037
tempo -	-0.043	-0.026	-0.24	0.11	0.051	0.0078	0.0066	0.11	-0.091	-0.021	0.035	-0.039	1	-0.095	-0.0053	0.026
time_signature -	-0.035	0.049	0.12	0.093	0.059	-0.012	0.013	0.11	-0.043	0.02	-0.005	0.055	-0.095	1	-0.11	0.013
duration_ms -	0.38	0.28	-0.14	-0.084	0.026	-0.0092	0.029	-0.22	0.058	-0.063	-0.058	0.036	-0.0053	-0.11	1	-0.23
year -		-0.39	0.091	0.093	-0.075	-0.062	0.063	0.14	-0.1	0.068	0.05	-0.037	0.026	0.013	-0.23	1
	artist_pop -	popularity -	danceability -	energy -	loudness -	mode -	key -	speechiness -	acousticness -	instrumentalness -	liveness -	valence –	- odwat	time_signature -	duration_ms -	year -

- 1.0 - 0.8 - 0.6 - 0.4 - 0.2 - 0.0 - -0.2

- -0.4



Veo que mi mejor salida de profundidad es 25, vuelvo a entrenar mi modelo Random Forest

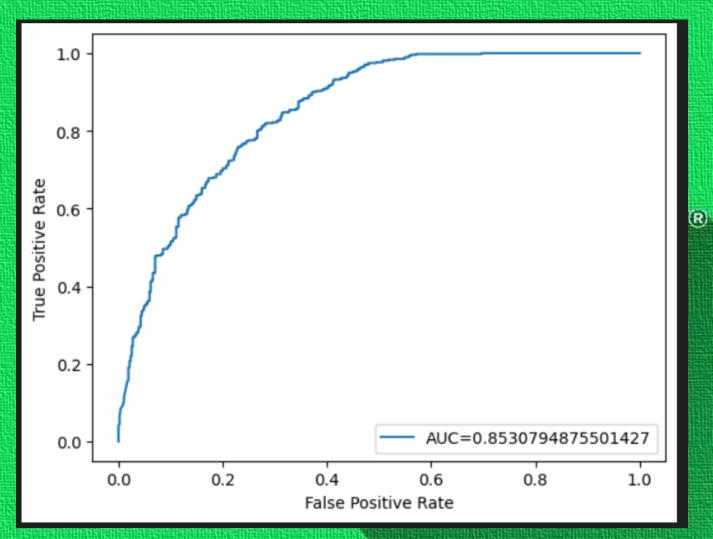
```
best rnd clf = RandomForestClassifier(n estimators=100, random state=42,
                                         max depth=25, min samples split=2, criterion='gini')
   best rnd clf.fit(X train, Y train)
   y_pred_rf = best_rnd_clf.predict(X_test)
   print('Accuracy ' , accuracy_score(Y_test, y_pred_rf))
   print('\n')
   print('F1 Score ' ,f1_score(Y_test, y_pred_rf))
   print('\n')
   print('ROC AUC Score ' ,roc_auc_score(Y_test, y_pred_rf))
   print('\n')
Accuracy 0.7927736450584485
F1 Score 0.8024316109422492
ROC AUC Score 0.7926258537819377
```

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Training score Accuracy: 1.0 F1: 1.0 Precision: 1.0 Recall: 1.0 Test score Accuracy: 0.7927736450584485 F1: 0.8024316109422492 Precision: 0.7689320388349514 Recall: 0.8389830508474576

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XGB0056



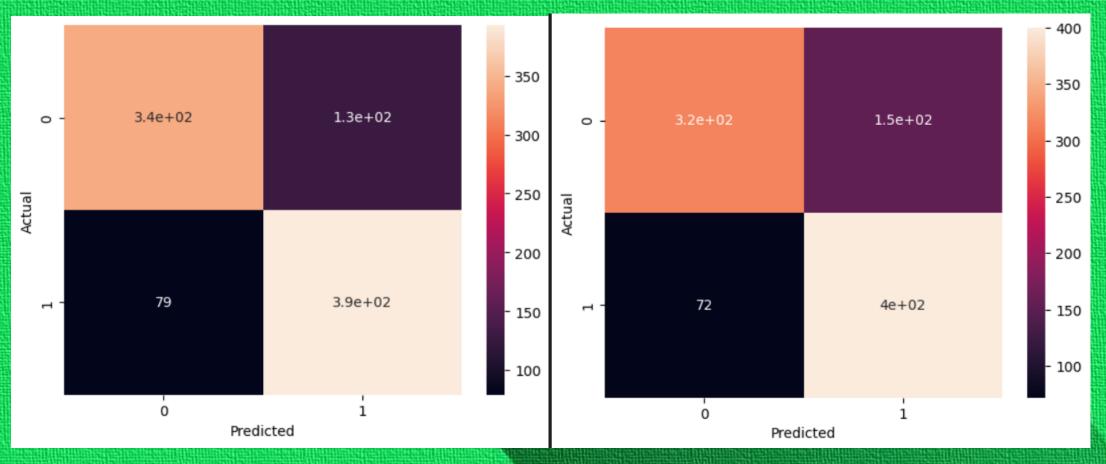
XGB0053

```
booster[0]:
0:[loudness<-12.0079994] yes=1,no=2,missing=1,gain=659.903687,cover=752.25
        1:[energy<0.421499997] yes=3,no=4,missing=3,gain=30.4569092,cover=162.5
                3:[speechiness<0.0295000002] yes=7,no=8,missing=7,gain=2.93438721,cover=148
                        7:[danceability<0.460000008] yes=15,no=16,missing=15,gain=2.72724104,cover=2.75
                                15:leaf=-0.0199998394,cover=1.25
                                16:leaf=-0,cover=1.5
                        8:[danceability<0.558500051] yes=17,no=18,missing=17,gain=1.57971191,cover=145.25
                                17:[acousticness<0.721500039] yes=29,no=30,missing=29,gain=0.17755127,cover=132
                                        29:[danceability<0.488999993] yes=47,no=48,missing=47,gain=0.799982071,cover=5
                                                47:leaf=-0.0199999493,cover=4
                                                48:leaf=-0.00999989919,cover=1
                                        30:[speechiness<0.0318500027] yes=49,no=50,missing=49,gain=0.392089844,cover=127
                                                49:leaf=-0.0159999356,cover=2.5
                                                50:leaf=-0.0199999977,cover=124.5
                                18:[acousticness<0.0617499985] yes=31,no=32,missing=31,gain=2.84790039,cover=13.25
                                        31:leaf=-0,cover=1
                                        32:[valence<0.270999998] yes=51,no=52,missing=51,gain=1.36285019,cover=12.25
                                                51:leaf=-0.00999994949,cover=2
                                                52:leaf=-0.0190243721,cover=10.25
                4:[instrumentalness<0.0164499991] yes=9,no=10,missing=9,gain=17.7736111,cover=14.5
                        9:[danceability<0.594500005] yes=19,no=20,missing=19,gain=7.25936317,cover=9.75
                                19:[instrumentalness<1.80499992e-05] yes=33,no=34,missing=33,gain=3.68417311,cover=4.75
                                        33:leaf=-0.0199998394,cover=1.25
                                        34:[danceability<0.430000007] yes=53,no=54,missing=53,gain=5.59995365,cover=3.5
                                                68:leaf=-0,cover=2
                                        44:leaf=-0.0199997984,cover=1
```

28:leaf=-0.00666662212,cover=1.5

RANDOM FOREST

XGBOOST CLASSIFIER



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Sample Footer Text

iiiMUCHAS GRACIAS!!!



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