

HEART DISEASE Model ENVALUATION

Different ML Models Evaluation without Hyperparameter tuning for Under sampling

	Model Name	Train Accuracy	Test Accuracy	Precision	Recall	f1 Score	AUC	mean abs error
6	GradientBoost	0.883200	0.883530	0.924616	0.830552	0.875063	0.882603	0.116470
7	XGBOOST	0.880920	0.878010	0.931149	0.811617	0.867284	0.876852	0.121986
8	ADABOOST	0.875120	0.875020	0.914377	0.822529	0.866025	0.874101	0.124980
4	RandomForest	0.975840	0.856260	0.859192	0.845956	0.852523	0.856084	0.143735
2	SGD	0.855180	0.853900	0.910386	0.779204	0.839703	0.852594	0.146099
5	DecisionTree	0.975960	0.850590	0.858466	0.833119	0.845603	0.850285	0.149409
0	Logestic Regression	0.852430	0.850120	0.901968	0.779525	0.836289	0.848883	0.149882
1	SVMLinear	0.851560	0.849490	0.908507	0.771181	0.834230	0.848118	0.150512
3	KNN	0.880010	0.832780	0.924411	0.718228	0.808380	0.830777	0.167218
9	LDA	0.816570	0.814660	0.908938	0.691913	0.785714	0.812509	0.185343

Different ML Models Evaluation without Hyperparameter tuning for Oversampling (SMOTETomek)

	Model Name	Train Accuracy	Test Accuracy	Precision	Recall	f1 Score	AUC	mean abs error
4	RandomForest	0.997750	0.913800	0.905739	0.923178	0.914375	0.913828	0.086199
5	DecisionTree	0.997790	0.874010	0.867596	0.881877	0.874678	0.874036	0.125987
3	KNN	0.897900	0.857080	0.810300	0.931384	0.866633	0.857298	0.142916
6	GradientBoost	0.811740	0.812620	0.791752	0.846914	0.818405	0.812722	0.187377
7	XGBOOST	0.811520	0.812000	0.791370	0.845924	0.817738	0.812101	0.187997
8	ADABOOST	0.779650	0.780440	0.765876	0.805980	0.785416	0.780510	0.219564
1	SVMLinear	0.741500	0.742880	0.710292	0.817826	0.760276	0.743093	0.257124
0	Logestic Regression	0.741700	0.742730	0.719228	0.793863	0.754705	0.742873	0.257275
9	LDA	0.741650	0.742730	0.711931	0.812893	0.759069	0.742936	0.257267
2	SGD	0.730750	0.732120	0.680826	0.871005	0.764262	0.732517	0.267884

Model Evaluation with Artificial Neural Network with Under sampling

	ANN	0	1	2	3	4	5	6	7	8
0	measures	Train Accuracy	Train loss	Test Accuracy	Test loss	Precision	Recall	F1 Score	AUC	mean abs error
1	values	0.881034	0.290853	0.878329	0.298178	0.940933	0.802632	0.866297	0.877005	0.121671

Different ML Models Evaluation with Hyperparameter tuning for Under sampling

	Model Name	Train Accuracy	Test Accuracy	Precision	Recall	f1 Score	AUC	mean abs error
6	GradientBoost	0.90444	0.89567	0.936966	0.844352	0.888251	0.894768	0.104334
4	RandomForest	0.91634	0.89456	0.956360	0.822850	0.884595	0.893308	0.105437
5	DecisionTree	0.91350	0.88274	0.938609	0.814506	0.872165	0.881548	0.117258
7	XGBOOST	0.88092	0.87801	0.931149	0.811617	0.867284	0.876852	0.121986
8	ADABOOST	0.87512	0.87502	0.914377	0.822529	0.866025	0.874101	0.124980
2	SGD	0.85313	0.85028	0.920419	0.760911	0.833099	0.848712	0.149724
1	SVMLinear	0.85325	0.84996	0.903130	0.777920	0.835862	0.848700	0.150039
0	Logestic Regression	0.85310	0.84965	0.899483	0.781130	0.836139	0.848447	0.150355
3	KNN	0.89557	0.83420	0.954626	0.695443	0.804679	0.831772	0.165800
9	LDA	0.81657	0.81466	0.908938	0.691913	0.785714	0.812509	0.185343

Different ML Models Evaluation with Hyperparameter tuning for Oversampling (SMOTETomek)

	Model Name	Train Accuracy	Test Accuracy	Precision	Recall	f1 Score	AUC	mean abs error
6	GradientBoost	0.997670	0.937160	0.934172	0.940212	0.937182	0.937171	0.062838
4	RandomForest	0.997760	0.913280	0.904601	0.923433	0.913920	0.913305	0.086724
5	DecisionTree	0.997790	0.875290	0.868901	0.883106	0.875946	0.875317	0.124706
3	KNN	0.902660	0.863410	0.819689	0.930777	0.871708	0.863606	0.136589
7	XGBOOST	0.811520	0.812000	0.791370	0.845924	0.817738	0.812101	0.187997
8	ADABOOST	0.779650	0.780440	0.765876	0.805980	0.785416	0.780510	0.219564
1	SVMLinear	0.741870	0.742860	0.714078	0.807593	0.757962	0.743048	0.257139
9	LDA	0.741650	0.742730	0.711931	0.812893	0.759069	0.742936	0.257267
0	Logestic Regression	0.741690	0.742700	0.719203	0.793847	0.754684	0.742849	0.257299
2	SGD	0.733370	0.733600	0.747526	0.703120	0.724643	0.733508	0.266404

Model Evaluation with Artificial Neural Network with Oversampling

	ANN	0	1	2	3	4	5	6	7	8
0	measures	Train Accuracy	Train loss	Test Accuracy	Test loss	Precision	Recall	F1 Score	AUC	mean abs error
1	values	0.76184	0.498876	0.763483	0.49758	0.747705	0.793256	0.769808	0.763569	0.236517