

Decision Tree Classifier

HIGHEST: 81% Pred Actual

13 EU_Sales 754 NA_Sales 157 EU_Sales 1286 EU_Sales 453 EU_Sales 223 NA_Sales 683 NA_Sales 878 NA_Sales 454 NA_Sales 454 NA_Sales 455 NA_Sales 1247 NA_Sales 1247 NA_Sales 200 NA_Sales 777 EU Sales	466	NA_Sales
157 EU_Sales 1286 EU_Sales 453 EU_Sales 223 NA_Sales 683 NA_Sales 878 NA_Sales 454 NA_Sales 454 NA_Sales 455 NA_Sales 1247 NA_Sales 200 NA_Sales	13	EU_Sales
1286 EU_Sales 453 EU_Sales 223 NA_Sales 683 NA_Sales 878 NA_Sales 454 NA_Sales 454 NA_Sales 45 NA_Sales 1247 NA_Sales 200 NA_Sales	754	NA_Sales
453 EU_Sales 223 NA_Sales 683 NA_Sales 878 NA_Sales 454 NA_Sales 454 NA_Sales 45 NA_Sales 1247 NA_Sales 200 NA_Sales	157	EU_Sales
223 NA_Sales 683 NA_Sales 878 NA_Sales 454 NA_Sales 455 NA_Sales 364 EU_Sales 1247 NA_Sales 200 NA_Sales	1286	EU_Sales
683 NA_Sales 878 NA_Sales 454 NA_Sales 45 NA_Sales 364 EU_Sales 1247 NA_Sales 200 NA_Sales	453	EU_Sales
878 NA_Sales 454 NA_Sales 45 NA_Sales 364 EU_Sales 1247 NA_Sales 200 NA_Sales	223	NA_Sales
454 NA_Sales 45 NA_Sales 364 EU_Sales 1247 NA_Sales 200 NA_Sales	683	NA_Sales
45 NA_Sales 364 EU_Sales 1247 NA_Sales 200 NA_Sales	878	NA_Sales
364 EU_Sales 1247 NA_Sales 200 NA_Sales	454	NA_Sales
1247 NA_Sales 200 NA_Sales	45	NA_Sales
200 NA_Sales	364	EU_Sales
_	1247	NA_Sales
777 EU Sales	200	NA_Sales
	777	EU_Sales

466 NA_Sales 13 NA_Sales 754 NA_Sales 157 EU_Sales 1286 EU_Sales 453 EU_Sales 223 NA_Sales 683 NA_Sales 878 NA_Sales 454 NA_Sales 454 NA_Sales 455 NA_Sales 1247 NA_Sales 1247 NA_Sales 1247 NA_Sales 1247 NA_Sales 1247 NA_Sales

LOWEST: 76% Pred Actual

466	Other_Sales
13	JP_Sales
754	EU_Sales
157	NA_Sales
1286	JP_Sales
453	JP_Sales
223	JP_Sales
683	JP_Sales
878	EU Sales
454	JP_Sales
45	JP Sales
364	JP_Sales
1247	JP_Sales
200	JP_Sales
777	JP_Sales
_	_

466	Other_Sales
13	JP_Sales
754	EU_Sales
157	NA_Sales
1286	JP_Sales
453	JP_Sales
223	JP_Sales
683	EU_Sales
878	EU_Sales
454	JP_Sales
45	Other_Sales
364	JP_Sales
1247	JP_Sales
200	JP_Sales
777	JP_Sales







MLP Classifier

HIGHEST: 82% Pred Actual

466	JP_Sales
13	NA_Sales
754	NA_Sales
157	EU_Sales
1286	EU_Sales
453	EU_Sales
223	NA_Sales
683	NA_Sales
878	JP_Sales
454	NA_Sales
45	NA_Sales
364	EU_Sales
1247	NA_Sales
200	NA_Sales
777	NA_Sales

466 NA_Sales 13 NA_Sales 754 NA_Sales 157 EU_Sales 1286 EU_Sales 453 EU_Sales 223 NA_Sales 683 NA_Sales 878 NA_Sales 454 NA_Sales 454 NA_Sales 455 NA_Sales 1247 NA_Sales 1247 NA_Sales 1247 NA_Sales 1247 NA_Sales 1247 NA_Sales 1247 NA_Sales

LOWEST: 76% Pred Actual

466	NA_Sales	4
13	JP_Sales	1
754	EU_Sales	7
157	NA_Sales	1
1286	JP_Sales	1
453	JP_Sales	4
223	JP_Sales	2
683	EU_Sales	6
878	EU_Sales	8
454	JP_Sales	4
45	JP_Sales	4
364	NA_Sales	3
1247	JP_Sales	1
200	JP_Sales	2
777	JP_Sales	7

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466	Other_Sales
13	JP_Sales
754	EU_Sales
157	NA_Sales
1286	JP_Sales
453	JP_Sales
22 3	JP_Sales
683	EU_Sales
878	EU_Sales
454	JP_Sales
45	Other_Sales
364	JP_Sales
1247	JP_Sales
200	JP_Sales
777	JP_Sales







Hist Gradient Boosting Classifier

HIGHEST: 86%

Pred Actual

744	NA_Sales
1094	JP_Sales
224	NA_Sales
2530	NA_Sales
655	NA_Sales
2209	JP_Sales
3114	JP_Sales
908	NA_Sales
2334	NA_Sales
1184	NA_Sales
329	NA_Sales
2674	JP_Sales
1876	EU_Sales
607	JP_Sales
2418	NA_Sales

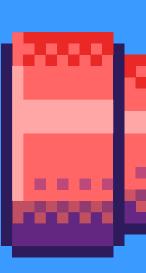
744	NA_Sales
1094	JP_Sales
224	NA_Sales
2530	EU_Sales
655	NA_Sales
2209	JP_Sales
3114	JP_Sales
908	NA_Sales
2334	NA_Sales
1184	NA_Sales
329	EU_Sales
2674	JP_Sales
1876	NA_Sales
607	JP_Sales
2418	NA_Sales

LOWEST: 83% Pred Actual

744	JP_Sales
1094	NA_Sales
224	JP_Sales
2530	JP_Sales
655	JP_Sales
2209	NA_Sales
3114	NA_Sales
908	JP_Sales
2334	JP_Sales
1184	JP_Sales
329	EU_Sales
2674	NA_Sales
1876	Other_Sales
607	NA_Sales
2418	JP_Sales

744	JP_Sales
1094	NA_Sales
224	JP_Sales
2530	JP_Sales
655	JP_Sales
2209	NA_Sales
3114	NA_Sales
908	JP_Sales
2334	JP_Sales
1184	JP_Sales
329	NA_Sales
2674	NA_Sales
1876	Other_Sales
607	NA_Sales
2418	JP_Sales







Highest Classification Report

											_			
	precision	recall	f1-score	support		precision	recall	f1-score	support		precision	recall	f1-score	support
EU_Sales JP_Sales NA_Sales Other Sales	0.61 0.83	0.56 0.31 0.94 0.00	0.64 0.41 0.88 0.00	275 91 989 10	EU_Sales JP_Sales NA_Sales Other_Sales	0.73 0.53 0.87 0.25	0.64 0.51 0.91 0.10	0.68 0.52 0.89 0.14	275 91 989 10	EU_Sales JP_Sales NA_Sales Other_Sales	0.80 0.86 0.88 0.25	0.62 0.87 0.92 0.06	0.70 0.87 0.90 0.10	497 765 2066 16
accuracy macro avg weighted avg		0.45 0.81	0.81 0.48 0.80	1365 1365 1365	accuracy macro avg weighted avg	0.60 0.81	0.54 0.82	0.82 0.56 0.81	1365 1365 1365	accuracy macro avg weighted avg	0.70 0.86	0.62 0.86	0.86 0.64 0.86	3344 3344 3344

Lowest Classification Report

	precision	recall	f1-score	support		precision	recall	f1-score	support		precision	recall	†1-score	support
EU_Sales JP_Sales NA_Sales Other Sales	0.58 0.81 0.68 0.60	0.44 0.91 0.55 0.47	0.50 0.86 0.61 0.52	207 891 132 135	EU_Sales JP_Sales NA_Sales Other_Sales	0.55 0.86 0.66 0.56	0.54 0.84 0.65 0.66	0.54 0.85 0.66 0.60	207 891 132 135	EU_Sales JP_Sales NA_Sales Other_Sales	0.73 0.87 0.85 0.70	0.67 0.90 0.88 0.57	0.70 0.88 0.87 0.63	543 1698 890 213
accuracy macro avg weighted avg	0.67 0.74	0.59 0.76	0.76 0.62 0.75	1365 1365 1365	accuracy macro avg weighted avg	0.66 0.76	0.67 0.76	0.76 0.66 0.76	1365 1365 1365	accuracy macro avg weighted avg	0.79 0.83	0.76 0.83	0.83 0.77 0.83	3344 3344 3344

Decision Tree Classifier

MLP Classifier

Hist Gradient Boosting Classifier

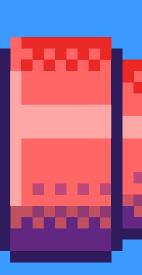




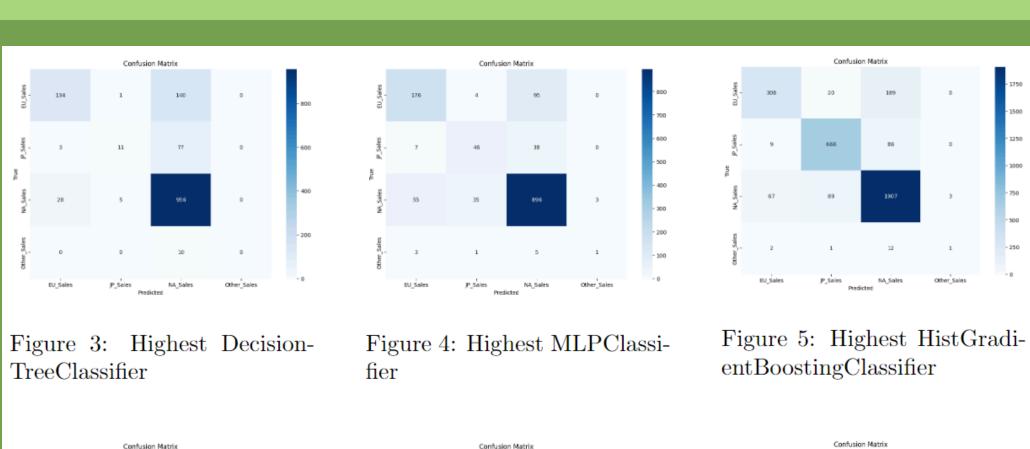
Results

	Highest	Highest	Highest	Lowest	Lowest	Lowest
	Decision	MLP	Hist	Decision	MLP	Hist
	Tree	Classifier	Gradient	Tree	Classifier	Gradient
	Classifier		Boosting	Classifier		Boosting
			Classifier			Classifier
accuracy	0.81	0.82	0.86	0.76	0.76	0.83
Precision (weighted avg)	0.80	0.81	0.86	0.74	0.76	0.83
Recall (weighted avg)	0.81	0.82	0.86	0.76	0.76	0.83
f1-score (weighted avg)	0.80	0.81	0.86	0.75	0.76	0.83
Precision (macro avg)	0.55	0.60	0.70	0.67	0.66	0.79
Recall (macro avg)	0.45	0.54	0.62	0.59	0.67	0.76
f1-score (macro avg)	0.48	0.56	0.64	0.62	0.66	0.77





Results



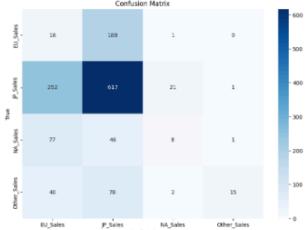


Figure 6: Lowest Decision-TreeClassifier

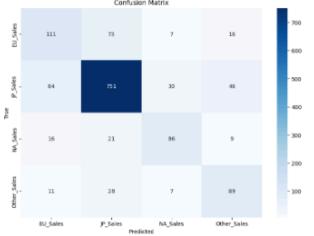


Figure 7: Lowest MLPClassifier

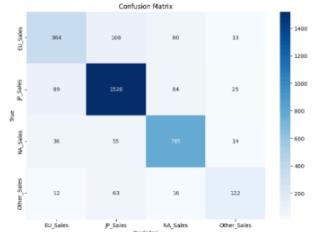


Figure 8: Lowest HistGradientBoostingClassifier



