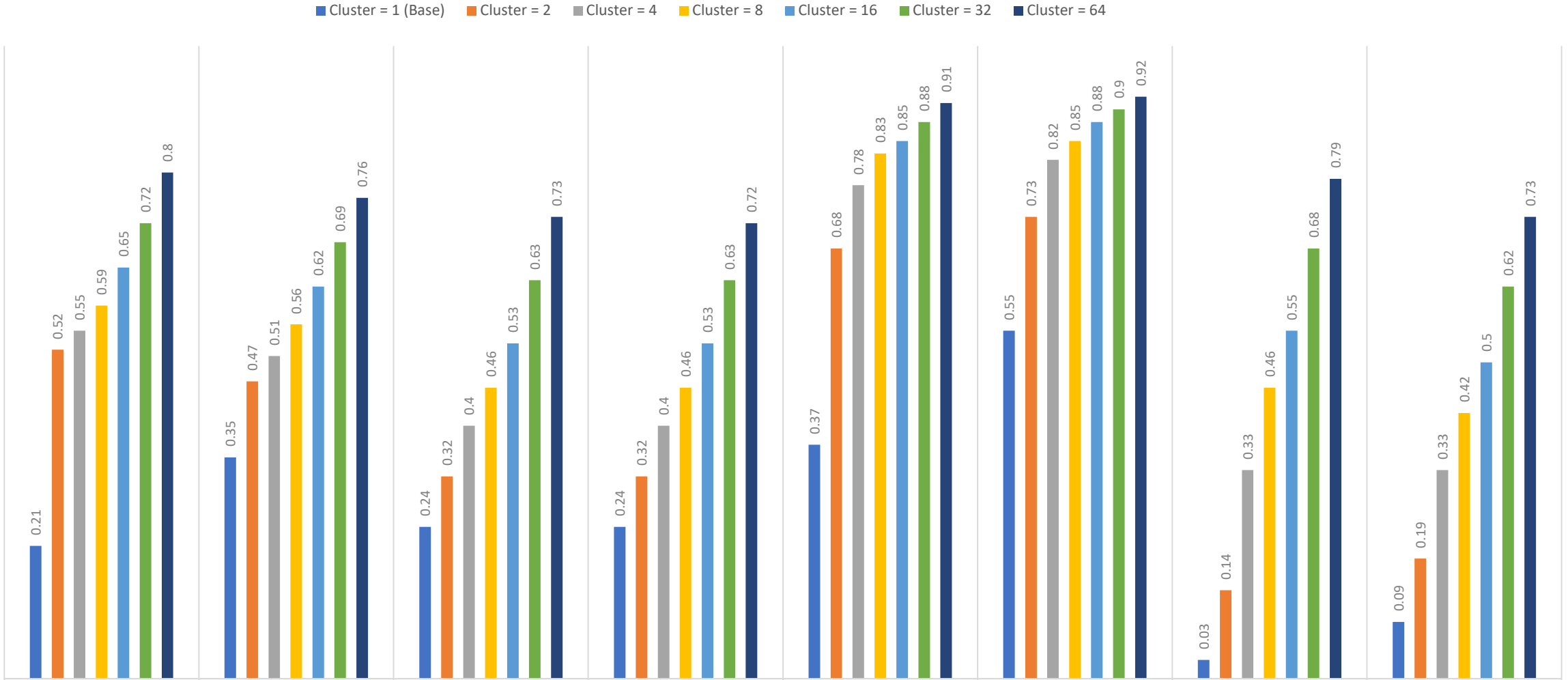
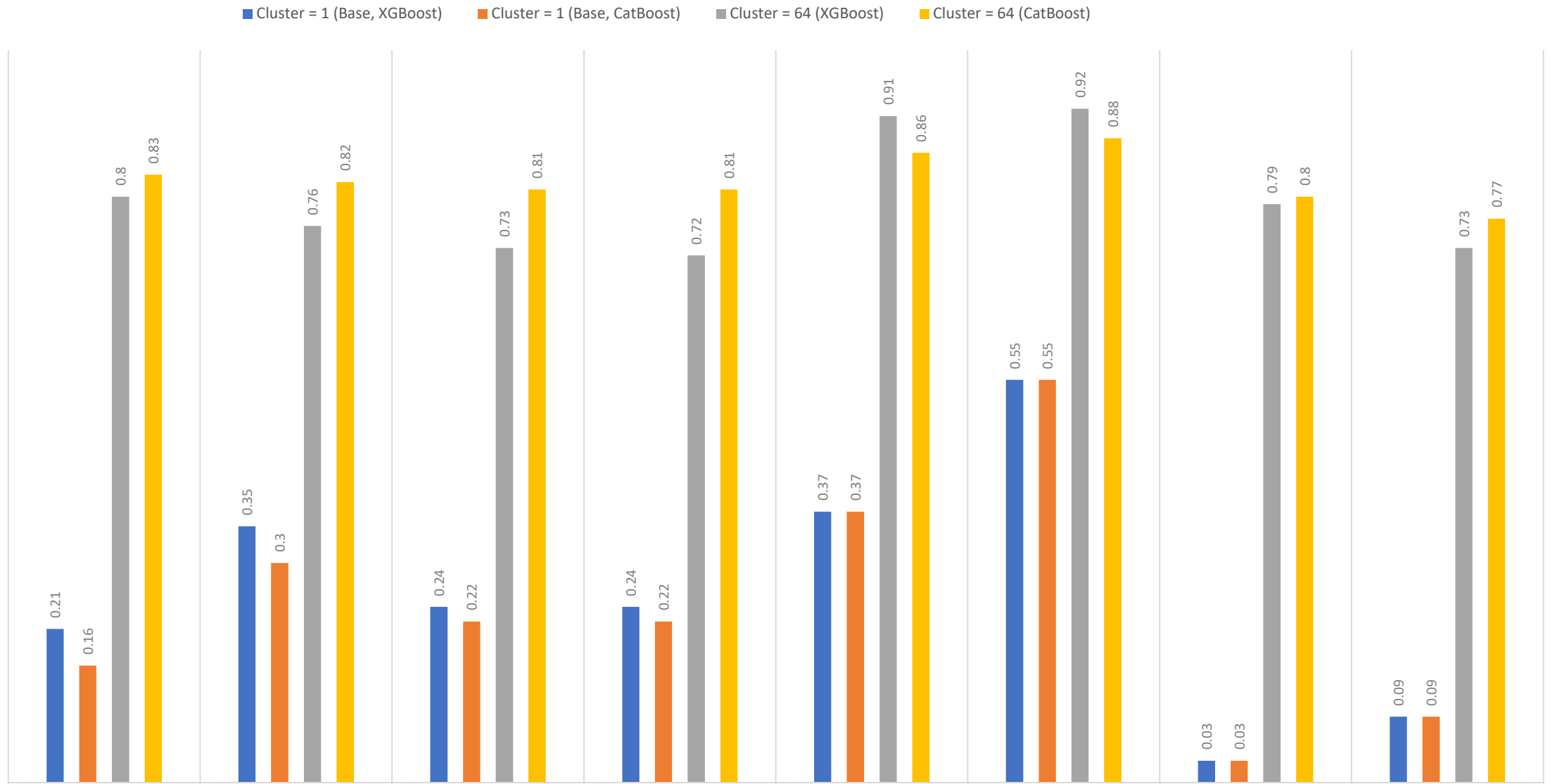
PREDICTION ACCURACY WITH DIFFERENT NUMBERS OF USER GROUPS (XGBOOST)



	Age Unbalanced Macro Accuracy	Age Unbalanced Weighted Accuracy	Age Balanced Macro Accuracy	Age Balanced Weighted Accuracy	Gender Macro Accuracy	Gender Weighted Accuracy	Power Macro Accuracy	Power Weighted Accuracy
Cluster = 1 (Base)	0.21	0.35	0.24	0.24	0.37	0.55	0.03	0.09
Cluster = 2	0.52	0.47	0.32	0.32	0.68	0.73	0.14	0.19
Cluster = 4	0.55	0.51	0.4	0.4	0.78	0.82	0.33	0.33
Cluster = 8	0.59	0.56	0.46	0.46	0.83	0.85	0.46	0.42
Cluster = 16	0.65	0.62	0.53	0.53	0.85	0.88	0.55	0.5
Cluster = 32	0.72	0.69	0.63	0.63	0.88	0.9	0.68	0.62
Cluster = 64	0.8	0.76	0.73	0.72	0.91	0.92	0.79	0.73

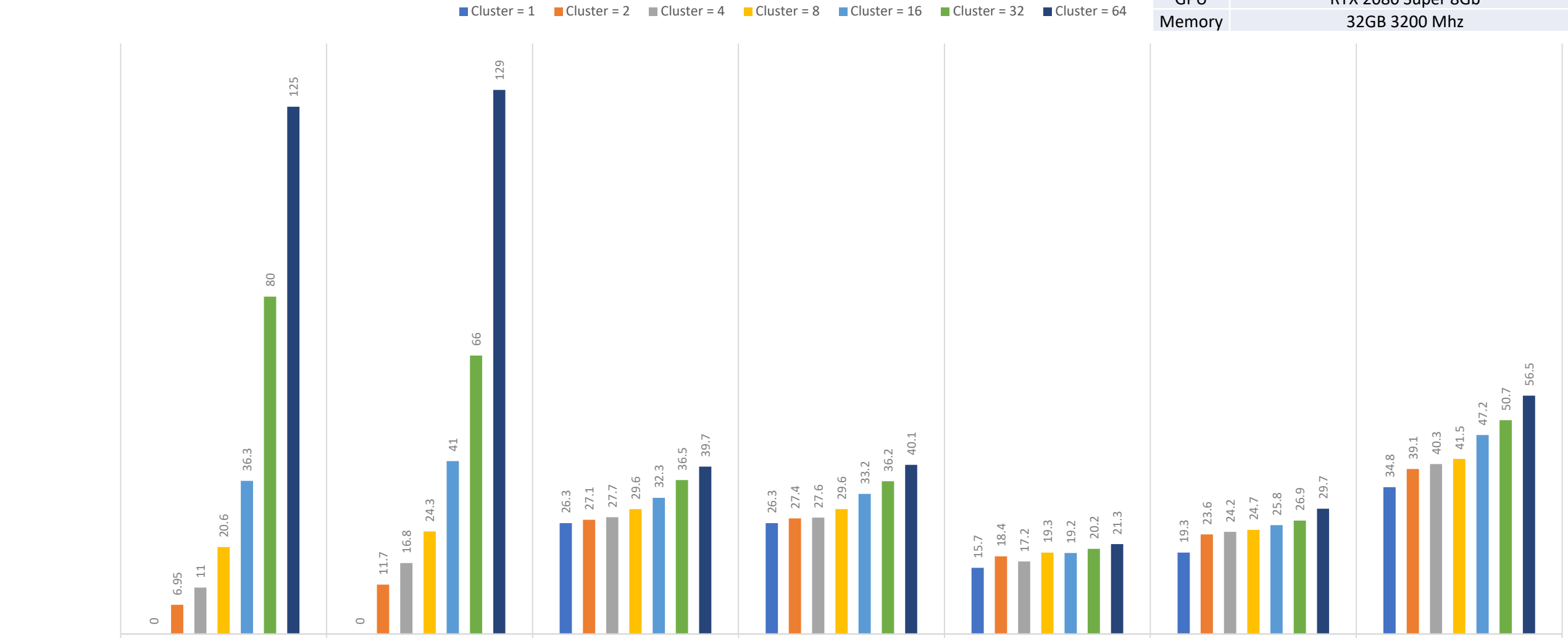
XGBOOST VS CATBOOST IN USER INFO PREDICTION BASED ON PATH CLUSTERING



	Age Unbalanced Macro Accuracy	Age Unbalanced Weighted Accuracy	Age Balanced Macro Accuracy	Age Balanced Weighted Accuracy	Gender Macro Accuracy	Gender Weighted Accuracy	Power Macro Accuracy	Power Weighted Accuracy
Cluster = 1 (Base, XGBoost)	0.21	0.35	0.24	0.24	0.37	0.55	0.03	0.09
Cluster = 1 (Base, CatBoost)	0.16	0.3	0.22	0.22	0.37	0.55	0.03	0.09
Cluster = 64 (XGBoost)	0.8	0.76	0.73	0.72	0.91	0.92	0.79	0.73
Cluster = 64 (CatBoost)	0.83	0.82	0.81	0.81	0.86	0.88	0.8	0.77

MODELING TIME (UNIT: SECOND)

System Information	
CPU	AMD Ryzen 9 3900X 12 Core at 3.8 Ghz
GPU	RTX 2080 Super 8Gb
Memory	32GB 3200 Mhz



	KMeans Clustering CPU	PCA CPU	CatBoost (Age Unbalanced) GPU	CatBoost (Age Balanced) GPU	CatBoost (Age Regression) GPU	CatBoost (Gender) GPU	CatBoost (Power) GPU
Cluster = 1	0	0	26.3	26.3	15.7	19.3	34.8
Cluster = 2	6.95	11.7	27.1	27.4	18.4	23.6	39.1
Cluster = 4	11	16.8	27.7	27.6	17.2	24.2	40.3
Cluster = 8	20.6	24.3	29.6	29.6	19.3	24.7	41.5
Cluster = 16	36.3	41	32.3	33.2	19.2	25.8	47.2
Cluster = 32	80	66	36.5	36.2	20.2	26.9	50.7
Cluster = 64	125	129	39.7	40.1	21.3	29.7	56.5