Table: Model performance comparison (GPT-o4-mini and Deepseek-R1) across Baseline and CompeteRAG configurations.

	GPT - o4 - mini																								Deepseek-R1																								Goal				
	Baseline								CompeteRAG																Baseline								CompeteRAG																Human				
	Zero-Shot								RAG								RAG + Keras Tuner								Zero-Shot								RAG								RAG + Keras Tuner												
Competitions	Public Score	Private Score	Training Accuracy	Validation Accuracy	Training RMSE	Validation RMSE	Training Time	Attempts	Public Score	Private Score	Training Accuracy	Validation Accuracy	Training RMSE	Validation RMSE	Training Time	Attempts	Public Score	Private Score	Training Accuracy	Validation Accuracy	Training RMSE	Validation RMSE	Training Time	Attempts	Public Score	Private Score	Training Accuracy	Validation Accuracy	Training RMSE	Validation RMSE	Training Time	Attempts	Public Score	Private Score	Training Accuracy	Validation Accuracy	Training RMSE	Validation RMSE	Training Time	Attempts	Public Score	Private Score	Training Accuracy	Validation Accuracy	Training RMSE	Validation RMSE	Training Time	Attempts	Public Score	Accuracy	RMSE	Training Time	Attempts
CR1	0.06	0.06	-	-	3.68	3.63	341.00	1	0.22	0.22	-	-	36.03	18.51	363.35	1	0.06	0.06	-	-	3.88	3.62	1342.35	1	0.06	0.06	-	-	3.6128	3.668	625.006	2	0.08	0.08	-	-	6.22	3.7091	30.33	1	0.06	0.06	-	-	3.57	3.64	216.82	2	0.06	-	-	-	109
CR2	13.31	144124.88	-	-	13.24	13.22	21.00	3	13.64	153422(	-	-	14.54	13.52	1247.49	1	49.78	2542.31	-	-	14.67	13.39	1468.45	1	13.26	173255.80	-	-	13.15	13.203	210.15	2	13.32	107238.84	-	-	13.24	13.22	1687.54	1	13.32	117024.38	-	-	13.26	13.23	1178.91	1	11.45	-	-	-	125
CR3	39.16	38.96	-	-	39.10	38.95	140.00	2	40.70	40.53	-	-	40.38	40.46	550.39	1	40.70	40.53	-	-	40.31	40.36	2143.14	1	39.21	39.01	-	-	39.76	38.9973	96.003	2	39.12	38.91	-	-	39.02	38.88	283.27	2	39.19	39.00	-	-	38.91	38.91	0.05	3	38.62	-	-	-	67
CR4	0.18	0.32	-	-	111.83	111.67	103.00	1	N/A	N/A	-	-	N/A	N/A	44.00	4	N/A	N/A	-	-	N/A	N/A	788.22	4	0.18	0.24	-	-	141.20	126.5789	71	1	0.32	0.31	-	-	182.05	206.83	12.73	1	2.52	2.20	-	-	95.49	91.89	19.96	1	0.04	-	-	-	89
CR5	1.17	1.18	-	-	864.08	862.67	554.00	2	1.07	1.07	-	-	926.95	916.69	1096.01	1	1.07	1.07	-	-	924.93	917.94	2688.78	1	1.16	1.17	-	-	863.41	861.033081	96.004	1	1.06	1.06	-	-	755.50	749.24	440.25	1	1.06	1.06	-	-	757.70	1063.87	511.30	1	1.02	-	-	-	55
CR6	74476.26	65541.46	-	-	75703.27	70136.1	100.00	2	75552.24	66544.7	-	-	51990.73	49349.09	195.31	2	75523.49	66495.06	-	-	45319.42	43876.86	736.23	2	72484.03	63518.50	-	-	62417.80	60514.382	221.002	2	73233.07	64126.87	-	-	73784.82	75192.67	269.58	2	73784.82	64681.56	-	-	75192.67	70116.84	49.85	3	62917.06	-	-	-	61
CR7	1.28	1.28	-	-	0.83	0.83	90.40	1	1.28	1.27	-	-	0.86	0.82	156.63	1	1.42	1.42	-	-	0.000025	0.000002	3204.60	4	1.42	1.41	-	-	0.03	0.02639128	1238.7	2	1.42	1.42	-	-	0.01	0.02	280.44	3	1.26	1.26	-	-	0.28	0.11	1841.96	1	0.84	-	-	-	29
CR8	8.09	8.02	-	-	7.63	8.06	137.60	2	8.62	8.56	-	-	8.34	8.52	205.97	1	8.65	8.58	-	-	8.18	8.52	525.94	1	15.77	19.99	-	-	5760.50	12.1289	138	1	7.95	7.90	-	-	7.90	7.88	13.84	1	7.95	7.89	-	-	7.92	7.88	709.77	1	7.85	-	-	-	73
CR9	0.74	0.74	-	-	5605.89	3219.84	63.90	1	0.63	0.63	-	-	2203.88	2660.33	250.13	3	0.79	0.79	-	-	1308.52	1302.66	1714.25	1	0.79	0.80	-	-	1330.97	1326.0015	724	2	0.42	0.42	-	-	0.17	0.42	120.11	1	0.40	0.40	-	-	0.41	0.42	1531.09	1	0.29	-	-	-	13
CR10	0.18	0.18	-	-	0.17	0.17	39.18	1	0.30	0.30	-	-	0.65	0.65	73.56	1	0.30	0.30	-	-	0.42	0.41	323.96	1	0.16	0.16	-	-	0.14	0.154	50.4	1	0.33	0.33	-	-	0.30	0.23	127.11	1	0.23	0.23	-	-	0.42	0.30	508.39	2	0.14	-	-	-	19
AVG	7454.05	20971.71	-	-	8234.97	7439.54	159.01	1.80	8402.08	177869.	-	-	6135.82	5889.84	418.28	1.50	8402.92	7676.68	-	-	5291.15	5129.31	1493.59	1.70	7255.60	23683.71	-	-	7057.06	6289.62	347.03	1.60	7329.71	17141.61	-	-	7478.92	7621.31	326.52	1.70	7385.08	18175.80	-	-	7611.06	7133.71	656.81	1.70	6297.74				64.00
CC1	0.27	0.27	0.28	0.28	-	-	342.00	1	0.29	0.29	0.29	0.29	-	-	544.31	3	0.29	0.29	0.30	0.29	-	-	3795.50	1	0.00	0.00	0.28	0.28	-	-	1158.004	2	0.30	0.30	0.30	0.30	-	-	63.71	1	0.30	0.30	0.30	0.17	-	-	79.30	1	0.38	-	-	-	28
CC2	0.84	0.84	0.88	0.85	-	-	5.00	1	0.86	0.89	0.87	0.86	-	-	21.97	1	0.84	0.88	0.86	0.85	-	-	26.24	1	0.85	0.85	0.83	0.86	-	-	2.002	2	0.86	0.89	0.90	0.88	-	-	8.54	2	0.85	0.90	0.90	0.86	-	-	11.89	1	0.91	-	-	-	56
CC3	0.94	0.94	0.94	0.94	-	-	89.00	5	0.94	0.94	0.94	0.94	-	-	40.82	1	0.94	0.94	0.94	0.94	-	-	188.13	2	0.94	0.94	0.94	0.93	-	-	22.007	1	0.82	0.82	0.00	0.00	-	-	25.23	1	N/A	N/A	N/A	N/A	-	-	N/A	4	0.94	-	-	-	124
CC4	0.93	0.93	0.95	0.94	-	-	29.00	2	0.86	0.85	0.95	0.95	-	-	114.04	1	0.85	0.84	0.95	0.95	-	-	138.57	3	0.93	0.93	0.95	0.95	-	-	20.001	1	0.93	0.93	0.94	0.94	-	-	80.78	1	0.93	0.93	0.95	0.95	-	-	170.59	2	0.97	-	-	-	32
CC5	0.57	0.57	0.57	0.55	-	-	25.46	1	0.57	0.57	0.55	0.57	-	-	107.86	2	0.88	0.88	0.86	0.88	-	-	249.28	1	0.56	0.56	0.57	0.55	-	-	22.088	1	0.57	0.57	1.00	1.00	-	-	47.77	4	0.49	0.49	1.00	1.00	-	-	51.28	1	1.00	-	-	-	1
CC6	0.88	0.88	0.96	0.95	-	-	120.40	1	0.90	0.90	0.99	0.99	-	-	865.79	1	0.88	0.89	0.99	0.98	-	-	732.15	1	0.90	0.90	0.96	0.96	-	-	99.303	1	0.89	0.89	0.97	0.98	-	-	30.88	3	0.89	0.89	0.98	0.98	-	-	32.51	1	0.99	-	-	-	27
CC7	0.79	0.79	0.99	0.77	-	-	516.00	1	0.86	0.86	0.83	0.86	-	-	607.29	1	0.90	0.90	0.89	0.89	-	-	4625.43	1	0.82	0.82	1.00	0.75	-	-	160.8	1	0.95	0.95	0.93	0.95	-	-	56.21	1	0.96	0.96	0.95	0.96	-	-	12421.66	1	1.00	-	-	-	80
CC8	0.65	0.65	0.81	0.81	-	-	450.80	2	0.73	0.74	0.82	0.82	-	-	77.92	1	0.73	0.74	0.82	0.82	-	-	778.63	1	0.72	0.72	0.89	0.80	-	-	354.8	1	0.77	0.77	0.83	0.82	-	-	20.49	4	0.77	0.78	0.83	0.82	-	-	240.66	1	0.79	-	-	-	87
CC9	0.37	0.37	0.14	0.14	-	-	39.60	1	0.71	0.71	0.85	0.88	-	-	124.35	1	0.75	0.75	0.96	0.97	-	-	412.24	1	0.63	0.63	0.78	0.77	-	-	36.8	1	0.71	0.71	0.84	0.85	-	-	54.11	1	0.73	0.73	0.89	0.86	-	-	63.60	1	1.00	-	-	-	7
CC10	0.14	0.14	0.86	0.86	-	-	66.80	1	0.14	0.14	0.86	0.86	-	-	127.31	1	0.14	0.14	0.86	0.86	-	-	78.06	1	0.14	0.14	0.86	0.86	-	-	70.3	1	0.12	0.12	0.88	0.88	-	-	57.17	1	0.14	0.14	0.06	0.06	-	-	55.76	3	0.10	-	-	-	3
AVG	0.64	0.64	0.74	0.71	-	-	168.41	1.90	0.69	0.69	0.79	0.80	-	-	263.17	1.30	0.72	0.72	0.84	0.84	-	-	1102.42	1.50	0.65	0.65	0.81	0.77	-	-	194.61	1.40	0.69	0.70	0.76	0.76	-	-	44.49	2.10	0.67	0.68	0.76	0.74	-	-	1458.58	1.90	0.81				44.50