#### Data search report

Datetime: 2023-11-12 12:29 UTC

Search ID: 62818d94-7fc3-47ab-b95b-8dd53ba90666

Initiator: demo\_user@upgini.com

This report was generated automatically by Upgini.

The report shows a listing of relevant features for your ML task and accuracy metrics after enrichment.

#### All relevant features. Accuracy after enrichment

Dataset type	Rows	Mean target	Baseline mean_squared_error	Enriched mean_squared_error	Uplift
Train	15148	49.9541	309.9905	199.6989	110.2916
Eval 1	3739	58.0011	509.2897	413.8654	95.4244

#### Relevant data sources

Provider	Source	All features SHAP	Number of relevant features	
<u>Upgini</u>	AutoFE: features from <u>Calendar data</u>	0.1341	15	Request a quote
<u>Upgini</u>	Weather & climate normals data	0.0337	10	Request a quote
<u>Upgini</u>	AutoFE: features from <u>Calendar data, Markets</u> <u>data</u>	0.0182	17	Request a quote
<u>Upgini</u>	Markets data	0.0037	6	Request a quote
<u>Upgini</u>	AutoFE: features from Markets data	0.0029	7	Request a quote
<u>Upgini</u>	World economic indicators	0.0007	4	Request a quote
<u>Upgini</u>	AutoFE: feature from Markets data	0.0004	1	Request a quote
<u>Upgini</u>	<u>Calendar data</u>	0.0002	1	Request a quote

#### All relevant features. Listing

Feature name	SHAP value	Coverage %	Value preview	Provider	Source	Feature type
f_autofe_max_1050	0.0567	100.0000	-0.3975, 0.1586, -0.882	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_autofe_min_268	0.0504	100.0000	0.8786, -0.0988, -0.1284	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_autofe_max_1129	0.0204	100.0000	0.4975, -0.475, 0.2761	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_weather_date_weather_um ap_47_5123ef0a	0.0100	100.0000	4.8624, 5.5139, 6.0885	Upgini	Weather & climate normals data	Premium
f_weather_date_weather_um ap_48_b39cd0c4	0.0097	100.0000	4.4855, 5.6051, 5.1534	Upgini	Weather & climate normals data	Premium
f_weather_date_weather_um ap_31_fa6d9a99	0.0080	100.0000	4.7636, 5.1202, 4.8253	Upgini	Weather & climate normals data	Premium
f_autofe_min_291	0.0053	100.0000	0.405, -0.12, 0.077	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_autofe_div_1999	0.0028	100.0000	-0.0212, 0.0095, 0.0192	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_financial_date_gold_7d_ to_1y_ae310379	0.0024	100.0000	0.9649, 0.9008, 1.1091	Upgini	Markets data	Free
f_weather_date_weather_um ap_34_c3ef5b4f	0.0024	100.0000	5.5523, 5.5435, 4.8162	Upgini	Weather & climate normals data	Premium
f_weather_date_weather_pc a_0_d7e0a1fc	0.0021	100.0000	-19.9137, 22.1607, 28.2606	Upgini	Weather & climate normals data	Premium
f_autofe_div_2039	0.0020	100.0000	-0.4428, -0.2807, 0.3807	Upgini	AutoFE: features from <u>Calendar</u> data, <u>Markets data</u>	Free

f_autofe_min_303	0.0018	100.0000	-1.76, -0.34, 0.36	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_autofe_min_274	0.0013	100.0000	-0.9128, 0.9562, -0.9838	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_autofe_div_2637	0.0012	100.0000	0.0024, 0.0032, 0.003	Upgini	AutoFE: features from Markets data	Free
f_autofe_max_1056	0.0011	100.0000	0.9263, -0.7221, 0.9197	Upgini	AutoFE: features from <u>Calendar</u> <u>data</u>	Free
f_autofe_min_312	0.0010	100.0000	-0.1287, 0.2761, -0.6406	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_autofe_div_2037	0.0010	100.0000	-0.0156, 0.024, 0.0065	Upgini	AutoFE: features from <u>Calendar</u> data, <u>Markets data</u>	Free
f_autofe_min_188	0.0008	100.0000	-0.7818, 0.6235, -0.901	Upgini	AutoFE: features from <u>Calendar</u> <u>data</u>	Free
f_autofe_max_1130	0.0007	100.0000	-0.4394, -0.0473, 0.9088	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_weather_date_weather_um ap_7_6ef8b038	0.0007	100.0000	5.9287, 6.081, 6.1491	Upgini	Weather & climate normals data	Premium
f_autofe_max_1457	0.0007	100.0000	0.6957, 0.9721, 0.9349	Upgini	AutoFE: features from <u>Calendar</u> data, <u>Markets data</u>	Free
f_autofe_min_644	0.0006	100.0000	0.9862, 1.08, 0.57	Upgini	AutoFE: features from Markets data	Free
f_autofe_min_300	0.0006	100.0000	0.48, 0.01, 0.16	Upgini	AutoFE: features from <u>Calendar</u> data, <u>Markets data</u>	Free
f_autofe_min_330	0.0005	100.0000	-0.2009, -0.069, 0.103	Upgini	AutoFE: features from <u>Calendar</u> data, <u>Markets data</u>	Free
f_autofe_div_2038	0.0005	100.0000	-0.3162, -1.111, 0.9702	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_autofe_div_1961	0.0005	100.0000	1.6698, -0.8899, 1.4426	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_autofe_max_1074	0.0005	100.0000	0.013, -0.157, -0.135	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_autofe_min_329	0.0004	100.0000	-0.7162, -0.102, -0.809	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_autofe_max_1135	0.0004	100.0000	-0.4172, 0.9838, -0.6354	Upgini	AutoFE: features from <u>Calendar</u> <u>data</u>	Free
f_autofe_min_189	0.0004	100.0000	-0.967, 0.1624, -0.8977	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_autofe_div_2000	0.0004	100.0000	-0.7429, -1.0326, 1.5419	Upgini	AutoFE: features from <u>Calendar</u> <u>data,Markets data</u>	Free
f_financial_date_usd_eur_ 7d_to_1y_autofe_residual_ 181	0.0004	100.0000	0.9922, 0.9819, 0.002	Upgini	AutoFE: feature from Markets data	Free
f_weather_date_weather_um ap_33_89bb7578	0.0004	100.0000	4.9701, 4.9353, 5.6622	Upgini	Weather & climate normals data	Premium
f_autofe_min_269	0.0004	100.0000	0.4367, 0.8239, -0.0429	Upgini	AutoFE: features from <u>Calendar</u> data	Free
f_financial_date_stoxx_04 3cbcd4	0.0003	100.0000	337.76, 394.45, 311.61	Upgini	Markets data	Free
f_financial_date_nasdaq_7 d_to_1y_b00bfaa7	0.0003	100.0000	1.0608, 1.0333, 1.0399	Upgini	Markets data	Free
f_financial_date_natural_ gas_7d_to_7d_1y_shift_a5c 3c07f	0.0003	100.0000	0.877, 1.3664, 1.2373	Upgini	Markets data	Free
f_financial_date_usd_eur_ 7d_to_1y_200e4902	0.0003	100.0000	1.0228, 1.0445, 0.9664	Upgini	Markets data	Free
f_economic_date_cbpol_uma p_4_c5ce4e90	0.0003	100.0000	2.2299, 2.92, 5.6487	Upgini	World economic indicators	Free
f_autofe_min_306	0.0003	100.0000	0.12, -0.73, -2.35	Upgini	AutoFE: features from <u>Calendar</u> <u>data</u> , <u>Markets data</u>	Free

f_autofe_div_2368         0.0003         100.0000         1.1438, 0.6211, 0.7959         Upgini         AutoFE: features from Markets data         Free           f_autofe_div_1921         0.0003         100.0000         0.554, 0.9325, -0.8726         Upgini         AutoFE: features from Calendar data Markets data         Free           f_autofe_div_2648         0.0003         100.0000         0.7175, 1.025, 0.8776         Upgini         AutoFE: features from Markets data         Free           f_autofe_max_1087         0.0003         100.0000         0.9394, 1.0741, 0.9483         Upgini         AutoFE: features from Calendar data Markets data         Free           f_autofe_min_606         0.0003         100.0000         -0.5808, -0.9635, -0.19         Upgini         AutoFE: features from Calendar data Markets data         Free           f_economic_date_cbpol_pca_2_33de3fc         0.0002         100.0000         0.7445, 0.7714, 16.4363         Upgini         World economic indicators         Free           f_autofe_div_2506         0.0002         100.0000         1.0781, 1.1312, 1.2569         Upgini         AutoFE: features from Calendar data         Free           f_autofe_min_311         0.0002         100.0000         -0.7803, 0.0686, 0.5439         Upgini         AutoFE: features from Calendar data         Free
f_autofe_div_1921         0.0003         100.0000         0.554, 0.9325, -0.8726         Upgini         data_Markets data         Free           f_autofe_div_2648         0.0003         100.0000         0.7175, 1.025, 0.8776         Upgini         AutoFE: features from Markets data         Free           f_autofe_max_1087         0.0003         100.0000         0.9394, 1.0741, 0.9483         Upgini         AutoFE: features from Calendar data_Markets data         Free           f_autofe_min_606         0.0003         100.0000         -0.5808, -0.9635, -0.19         Upgini         AutoFE: features from Calendar data_Markets data         Free           f_economic_date_cbpot_pca _2_33d6e3fc         0.0002         100.0000         0.7445, 0.7714, 16.4363         Upgini         World economic indicators         Free           f_autofe_div_2506         0.0002         100.0000         1.0781, 1.1312, 1.2569         Upgini         AutoFE: features from Markets data           f_autofe_min_311         0.0002         100.0000         -0.7803, 0.0686, 0.5439         Upgini         AutoFE: features from Calendar data         Free
f_autofe_max_1087         0.0003         100.0000         0.9394, 1.0741, 0.9483         Upgini         AutoFE: features from Calendar data, Markets data         Free           f_autofe_min_606         0.0003         100.0000         -0.5808, -0.9635, -0.19         Upgini         AutoFE: features from Calendar data, Markets data         Free           f_economic_date_cbpol_pca _2 _3.3d6e3fc         0.0002         100.0000         0.7445, 0.7714, 16.4363         Upgini         World economic indicators         Free           f_autofe_div_2506         0.0002         100.0000         1.0781, 1.1312, 1.2569         Upgini         AutoFE: features from Markets data         Free           f_autofe_min_311         0.0002         100.0000         -0.7803, 0.0686, 0.5439         Upgini         AutoFE: features from Calendar data         Free
f_autofe_mix_1087         0.0003         100.0000         0.9394, 1.0741, 0.9483         Opgini         data_Markets data         Free           f_autofe_min_606         0.0003         100.0000         -0.5808, -0.9635, -0.19         Upgini         AutoFE: features from Calendar data_Markets data         Free           f_economic_date_cbpol_pca
f_economic_date_cbpol_pca_2_33d6e3fc         0.0002         100.0000         0.7445, 0.7714, 16.4363         Upgini         World economic indicators         Free           f_autofe_div_2506         0.0002         100.0000         1.0781, 1.1312, 1.2569         Upgini         AutoFE: features from Markets data         Free           f_autofe_min_311         0.0002         100.0000         -0.7803, 0.0686, 0.5439         Upgini         AutoFE: features from Calendar         Free
_2_33d6e3fc
f_autofe_div_2506
f_events_date_year_cos1_9
f_weather_date_weather_um ap_1_68679173
f_autofe_max_1736
f_weather_date_weather_pc
f_autofe_min_653
f_weather_date_weather_um
f_economic_date_cci_pca_5 _b433b3c8
f_economic_date_cbpol_pca _9_bde660b4
f_financial_date_nasdaq_7         0.0001         100.0000         1.2374, 1.0401, 0.9932         Upgini         Markets data         Free
f_autofe_max_1055
f_autofe_max_1315
f_autofe_max_1134

### **Description of AutoFE feature names**

Sources	Feature name	Feature 1	Feature 2	Function
Calendar data, Markets data	f_autofe_div_1921	f_events_date_week_cos1_f6a8c1fc	f_financial_date_crude_oil_7d_to_1y_c3e0ad17	div
Calendar data, Markets data	f_autofe_div_1961	f_events_date_week_cos3_7525fe31	f_financial_date_crude_oil_7d_to_1y_c3e0ad17	div
Calendar data, Markets data	f_autofe_div_1999	f_events_date_week_sin1_847b5db1	f_financial_date_crude_oil_1f195998	div
Calendar data,Markets data	f_autofe_div_2000	f_events_date_week_sin1_847b5db1	f_financial_date_crude_oil_7d_to_1y_c3e0ad17	div
Calendar data, Markets data	f_autofe_div_2037	f_events_date_year_cos1_9014a856	f_financial_date_crude_oil_1f195998	div
Calendar data, Markets data	f_autofe_div_2038	f_events_date_year_cos1_9014a856	f_financial_date_crude_oil_7d_to_1y_c3e0ad17	div
Calendar data, Markets data	f_autofe_div_2039	f_events_date_year_cos1_9014a856	f_financial_date_crude_oil_7d_to_7d_1y_shift_71	81 <b>dilie</b> ef
Markets data	f_autofe_div_2368	f_financial_date_crude_oil_7d_to_1y_c3e0ad17	f_financial_date_nasdaq_7d_to_7d_1y_shift_4a4	delice
Markets data	f_autofe_div_2506	f_financial_date_nasdaq_7d_to_7d_1y_shift_4a4	dd@denancial_date_stoxx_7d_to_1y_2ea815f4	div
Markets data	f_autofe_div_2637	f_financial_date_silver_7d_to_7d_1y_shift_55fa8(	0f_financial_date_stoxx_043cbcd4	div
Markets data	f_autofe_div_2648	f_financial_date_silver_7d_to_7d_1y_shift_55fa8t	01_financial_date_vix_7d_to_1y_634c77eb	div

Calendar data	f_autofe_max_1050	f_events_date_week_cos1_f6a8c1fc	f_events_date_year_cos1_9014a856	max
Calendar data	f_autofe_max_1055	f_events_date_week_cos1_f6a8c1fc	f_events_date_year_sin1_3c44bc64	max
<u>Calendar data</u>	f_autofe_max_1056	f_events_date_week_cos1_f6a8c1fc	f_events_date_year_sin2_59955ffd	max
Calendar data, Markets data	f_autofe_max_1074	f_events_date_week_cos1_f6a8c1fc	f_financial_date_silver_gap_f5b63f5b	max
Calendar data, Markets data	f_autofe_max_1087	f_events_date_week_cos1_f6a8c1fc	f_financial_date_vix_7d_to_1y_634c77eb	max
<u>Calendar data</u>	f_autofe_max_1129	f_events_date_week_sin1_847b5db1	f_events_date_year_cos1_9014a856	max
Calendar data	f_autofe_max_1130	f_events_date_week_sin1_847b5db1	f_events_date_year_cos2_7acbaf1b	max
Calendar data	f_autofe_max_1134	f_events_date_week_sin1_847b5db1	f_events_date_year_sin1_3c44bc64	max
Calendar data	f_autofe_max_1135	f_events_date_week_sin1_847b5db1	f_events_date_year_sin2_59955ffd	max
<u>Calendar data</u>	f_autofe_max_1315	f_events_date_year_cos6_7c1806a3	f_events_date_year_sin2_59955ffd	max
Calendar data, Markets data	f_autofe_max_1457	f_events_date_year_sin7_16d9d7c9	f_financial_date_silver_7d_to_7d_1y_shift_55fa8(	0 max
Markets data	f_autofe_max_1736	f_financial_date_natural_gas_7d_to_7d_1y_shift_	a5/c <b>8o@7/</b> cial_date_vix_7d_to_1y_634c77eb	max
<u>Calendar data</u>	f_autofe_min_188	f_events_date_week_cos1_f6a8c1fc	f_events_date_week_sin1_847b5db1	min
<u>Calendar data</u>	f_autofe_min_189	f_events_date_week_cos1_f6a8c1fc	f_events_date_year_cos1_9014a856	min
<u>Calendar data</u>	f_autofe_min_268	f_events_date_week_sin1_847b5db1	f_events_date_year_cos1_9014a856	min
<u>Calendar data</u>	f_autofe_min_269	f_events_date_week_sin1_847b5db1	f_events_date_year_cos2_7acbaf1b	min
<u>Calendar data</u>	f_autofe_min_274	f_events_date_week_sin1_847b5db1	f_events_date_year_sin2_59955ffd	min
Calendar data, Markets data	f_autofe_min_291	f_events_date_week_sin1_847b5db1	f_financial_date_silver_daydiff_25cf4951	min
Calendar data, Markets data	f_autofe_min_300	f_events_date_week_sin1_847b5db1	f_financial_date_usd_daydiff_8bcdeec4	min
Calendar data, Markets data	f_autofe_min_303	f_events_date_week_sin1_847b5db1	f_financial_date_usd_gap_615a0ec0	min
Calendar data, Markets data	f_autofe_min_306	f_events_date_week_sin1_847b5db1	f_financial_date_vix_gap_b64bd2b9	min
Calendar data	f_autofe_min_311	f_events_date_year_cos1_9014a856	f_events_date_year_sin1_3c44bc64	min
<u>Calendar data</u>	f_autofe_min_312	f_events_date_year_cos1_9014a856	f_events_date_year_sin2_59955ffd	min
Calendar data, Markets data	f_autofe_min_329	f_events_date_year_cos1_9014a856	f_financial_date_silver_daydiff_25cf4951	min
Calendar data, Markets data	f_autofe_min_330	f_events_date_year_cos1_9014a856	f_financial_date_silver_gap_f5b63f5b	min
Calendar data, Markets data	f_autofe_min_606	f_events_date_year_sin7_16d9d7c9	f_financial_date_usd_daydiff_8bcdeec4	min
Markets data	f_autofe_min_644	f_financial_date_crude_oil_7d_to_1y_c3e0ad17	f_financial_date_gold_7d_to_1y_ae310379	min
Markets data	f_autofe_min_653	f_financial_date_crude_oil_7d_to_1y_c3e0ad17	f_financial_date_silver_7d_to_7d_1y_shift_55fa8(	Ofnin
AutoFE: feature from Markets data	f_financial_date_usd_eur_7d_to_1y_autofe_resid	uaf_fi64ncial_date_usd_eur_7d_to_1y_200e4902		

To buy found data sources, please contact: <a href="mailto:sales@upgini.com">sales@upgini.com</a>

Best regards, Upgini Team