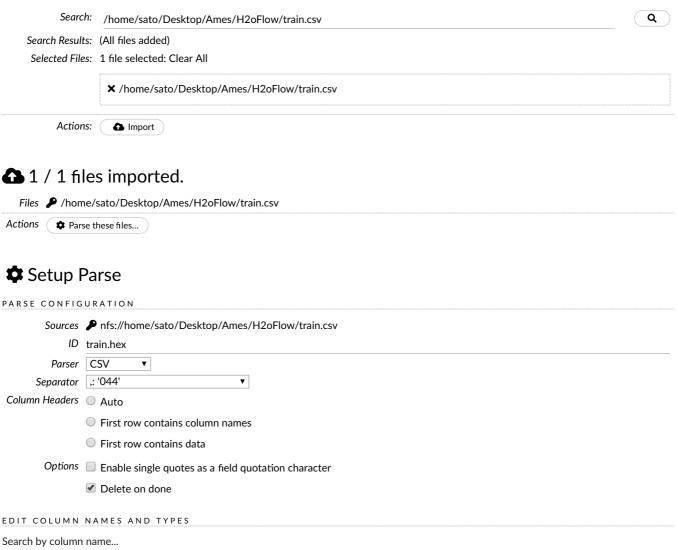
AmesLinearModels

Assistance

Routine Description importFiles Import file(s) into H₂O ■ importSqlTable Import SQL table into H₂O **⊞** getFrames Get a list of frames in H₂O Split a frame into two or more frames **X** splitFrame Merge two frames into one **𝚱** mergeFrames Get a list of models in H₂O getModels Get a list of grid search results in H_2O **Ⅲ** getGrids 7 Get a list of jobs running in H_2O **≔** getJobs Automatically train and tune many models ♣ runAutoML **₽** buildModel Build a model importModel Import a saved model Make a prediction predict

(Import Files

LotArea



LotFrontage | Numeric ▼ | -0.0518096796424063 0.570487760272347 0.0832634294826105 -0.291196770182661 0.7169

Numeric ▼ -0.0778773291956158 0.190259941755559 0.523564507451361 0.17928624407868

1.0218

3	YearBuilt	Numeric ▼	1.04607836558577	0.154737490652949	0.98005311559075	-1.85903263419529	0.9476
4	MasVnrArea	Numeric ▼	1.22246022284227	-0.793325290666826	1.15017497762078	-0.793325290666826	1.4428
5	BsmtFinSF2	Numeric ▼	-0.362503310368561	-0.362503310368561	-0.362503310368561	-0.362503310368561	-0.362
6	BsmtUnfSF	Numeric ▼	-0.3252127614345	0.0145883378473003	0.240792854875087	0.357449717806527	0.3055
7	X1stFlrSF	Numeric ▼	-0.781374035846745	0.43723254456605	-0.555058934777369	-0.418197897919521	0.1317
8	X2ndFlrSF	Numeric ▼	1.19667047343491	-0.86346176331678	1.20092357336847	1.15952145066452	1.2605
9	LowQualFinS	Numeric ▼	-0.116912359625568	-0.116912359625568	-0.116912359625568	-0.116912359625568	-0.116
10	GrLivArea	Numeric ▼	0.577737288088703	-0.368660529155416	0.713219115239534	0.590464992067988	1.3599
11	BsmtFullBat	Numeric ▼	1.08714781758737	-0.818788806759497	1.08714781758737	1.08714781758737	1.0871
12	BsmtHalfBat	Numeric ▼	-0.251501295144843	3.88819026609115	-0.251501295144843	-0.251501295144843	-0.251
13	FullBath	Numeric ▼	0.781231961533791	0.781231961533791	0.781231961533791	-1.02718682967726	0.7812
14	HalfBath	Numeric ▼	1.23238772066244	-0.756191470389888	1.23238772066244	-0.756191470389888	1.2323
15	BedroomAbvG	Numeric ▼	0.169897979034312	0.169897979034312	0.169897979034312	0.169897979034312	1.3854
(Previous page	→ Next page					

■ Parse

≆∃Job

Run Time 00:00:00.465

Remaining Time 00:00:00.0

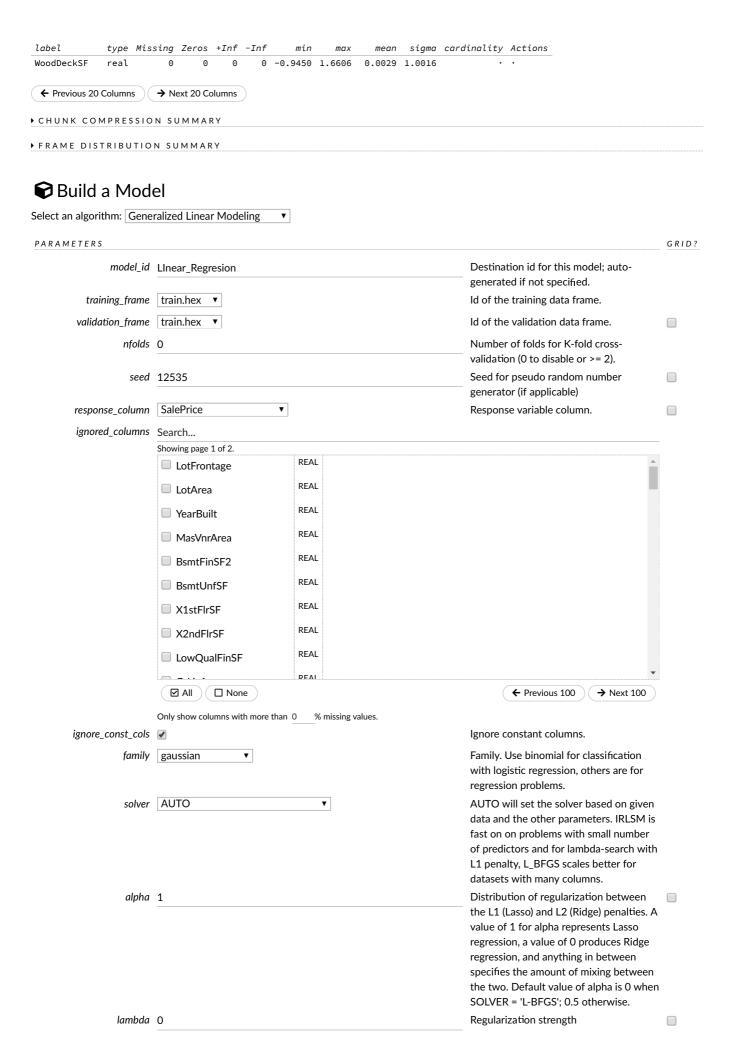
Type Frame
Key Q train.hex

Description Parse
Status DONE
Progress 100%
Done.

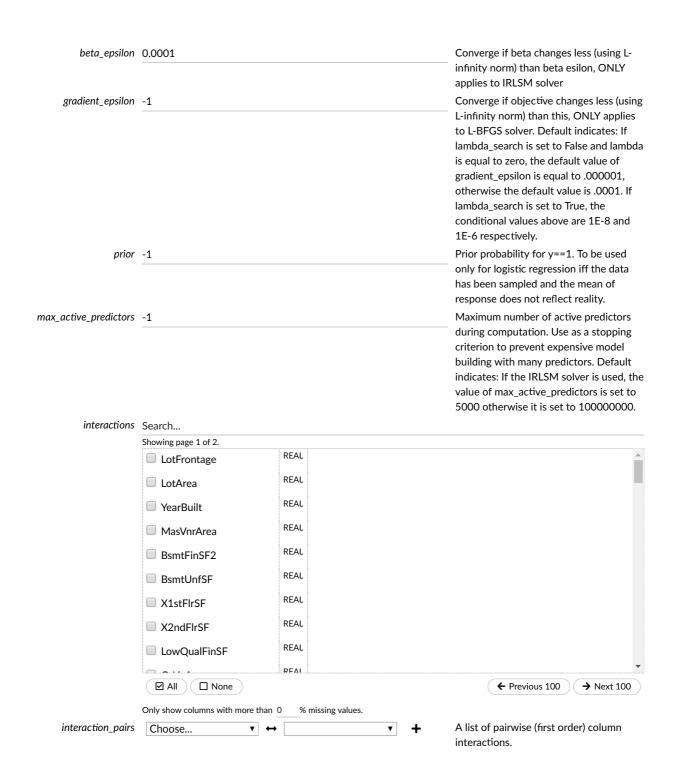
Actions Q View

⊞ train.hex

Rows			C	olumns	5			Coi	mpressed	Size		
1460			1	64				62	6KB			
COLUMN S	UMMA	RIES										
abel	type	Missing	Zeros	+Inf	-Inf	min	max	mean	sigma	cardinality	Actions	
otFrontage	real	Θ	0	0	Θ	-3.3901	4.6877	0.0293	0.9840	•	•	
otArea	real	0	0	0	0	-4.0104	2.8877	0.0201	0.9809	•	•	
earBuilt	real	0	0	0	0	-3.2786	1.2772	-0.0015	0.9971		•	
asVnrArea	real	0	0	0	0	-0.7933	2.0219	0.0157	1.0030		•	
smtFinSF2	real	0	0	0	0	-0.3625	3.5216	-0.0136	0.9822		•	
smtUnfSF	real	0	0	Θ	0	-3.0092	1.1402	0.0124	0.9918		•	
1stFlrSF	real	0	0	Θ	0	-3.7330	3.0481	0.0126	0.9827		•	
2ndFlrSF	real	0	0	Θ	0	-0.8635	1.4659	0.0107	1.0050		•	
owQualFinSF	real	0	0	Θ	0	-0.1169	9.5133	0.0344	1.1333		•	
rLivArea	real	0	0	Θ	0	-4.5058	2.9208	0.0182	1.0203		•	
smtFullBath	real	0	0	Θ	0	-0.8188	4.8990	-0.0081	0.9890		•	
smtHalfBath	real	0	Θ	Θ	Θ	-0.2515	6.3098	-0.0157	0.9711		•	
ullBath	real	0	Θ	Θ	Θ	-2.8356	2.5897	-0.0053	0.9963		•	
alfBath	real	0	Θ	Θ	Θ	-0.7562	3.2210	0.0052	1.0		•	
edroomAbvGr	real	0	Θ	Θ	Θ	-3.4767	6.2475	0.0076	0.9916		•	
itchenAbvGr	real	0	Θ	Θ	Θ	-8.0597	7.6587	0.0096	1.0122		•	
otRmsAbvGrd	real	0	Θ	Θ	Θ	-2.8365	4.8098	0.0422	1.0357		•	
ireplaces	real	0	0	0	0	-0.9242	3.7189	0.0246	0.9977		•	
arageCars	real	0	Θ	0	0	-2.3170	2.9310	0.0015	0.9805	•		



lambda_search		Use lambda search starting at lambda max, given lambda is then interpreted as lambda min	
standardize		Standardize numeric columns to have zero mean and unit variance	
non_negative		Restrict coefficients (not intercept) to be non-negative	
beta_constraints	(Choose) ▼	Beta constraints	
obj_reg	-1	Likelihood divider in objective value computation, default is 1/nobs	
ADVANCED			GRID?
fold_column	(Choose) ▼	Column with cross-validation fold index assignment per observation.	
score_each_iteration		Whether to score during each iteration of model training.	
offset_column	(Choose) ▼	Offset column. This will be added to the combination of columns before applying the link function.	
weights_column	(Choose) ▼	Column with observation weights. Giving some observation a weight of zero is equivalent to excluding it from the dataset; giving an observation a relative weight of 2 is equivalent to repeating that row twice. Negative weights are not allowed. Note: Weights are per-row observation weights and do not increase the size of the data frame. This is typically the number of times a row is repeated, but non-integer values are supported as well. During training, rows with higher weights matter more,	
compute_p_values		due to the larger loss function pre-factor. Request p-values computation, p-values work only with IRLSM solver and no regularization	
remove_collinear_columns		In case of linearly dependent columns, remove some of the dependent columns	
max_iterations	-1	Maximum number of iterations	
link	family_default ▼		
export_checkpoints_dir		Automatically export generated models to this directory.	
max_runtime_secs	0	Maximum allowed runtime in seconds for model training. Use 0 to disable.	
custom_metric_func		Reference to custom evaluation function, format: `language:keyName=funcName`	
EXPERT			GRID?
missing_values_handling	MeanImputation ▼	Handling of missing values. Either MeanImputation or Skip.	
intercept	_	Include constant term in the model	
objective_epsilon	-1	Converge if objective value changes less than this. Default indicates: If lambda_search is set to True the value of objective_epsilon is set to .0001. If the lambda_search is set to False and lambda is equal to zero, the value of objective_epsilon is set to .000001, for any other value of lambda the default value of objective_epsilon is set to .0001.	



Build Model

≆∃Job

Run Time 00:00:00.319

Remaining Time 00:00:00.0

Type Model

Key Q LInear_Regresion

Description GLM

Status DONE

Progress 100%

Done.

Actions Q View



▼ OUTPUT - VALIDATION_METRICS

Model ID: Linear_Regresion Algorithm: Generalized Linear Modeling Actions: Refresh Predict... ▲ Download POJO
 ▲ Download Model Deployment Package (MOJO) **■** Export)(**≡** Inspect ► MODEL PARAMETERS ▶ SCORING HISTORY ▶ OUTPUT ▶ COLUMN_TYPES ▼ OUTPUT - GLM MODEL (SUMMARY) family gaussian link identity regularization None number_of_predictors_total 163 number_of_active_predictors 163 number_of_iterations 1 training_frame train.hex ▶ OUTPUT - SCORING HISTORY ▼ OUTPUT - TRAINING_METRICS model LInear_Regresion model_checksum -8139170380215322624 frame train.hex frame_checksum 2678409454704134662 description · model_category Regression scoring_time 1568224703308 predictions · MSE 0.010867 RMSE 0.104244 nobs 1460 custom_metric_name . custom_metric_value 0 r2 0.931849 mean_residual_deviance 0.010867 mae 0.072809 rmsle 0.008058 residual_deviance 15.865621 null_deviance 232.800671 AIC -2128.873742 null_degrees_of_freedom 1459 residual_degrees_of_freedom 1296

model LInear_Regresion model_checksum -8139170380215322624 frame train.hex frame_checksum 2678409454704134662 description . model_category Regression scoring_time 1568224703331 predictions · MSE 0.010867 RMSE 0.104244 nobs 1460 custom_metric_name . custom_metric_value 0 r2 0.931849 mean_residual_deviance 0.010867 mae 0.072809 rmsle 0.008058 residual_deviance 15.865621 null_deviance 232.800671 AIC -2128.873742 null_degrees_of_freedom 1459 residual_degrees_of_freedom 1296

▼ OUTPUT - COEFFICIENTS (GLM COEFFICIENTS)

names	coefficients	
Intercept	10.1796	
LotFrontage	-0.0017	
LotArea	0.0392	
YearBuilt	0.0350	
MasVnrArea	-0.0083	
BsmtFinSF2	-0.0089	
BsmtUnfSF	-0.0131	
X1stFlrSF	0.0449	
X2ndFlrSF	0.0170	
LowQualFinSF	-0.0017	
GrLivArea	0.0849	
BsmtFullBath	0.1286	
BsmtHalfBath	0.0299	
FullBath	0.1357	
HalfBath	0.0685	
BedroomAbvGr	-0.0048	
KitchenAbvGr	-0.0133	
TotRmsAbvGrd	0.0091	
Fireplaces	0.0110	
GarageCars	0.0339	
WoodDeckSF	0.0078	
OpenPorchSF	0.0001	
EnclosedPorch	0.0014	
X3SsnPorch	0.0013	•

▼ PREVIEW POJO

Preview POJO

Build a Model

Select an algorithm: Generalized Linear Modeling ▼

validation_frame train.hex ▼

model_id Lasso_Regression Destination id for this model; auto-generated if not specified.

training_frame train.hex ▼ Id of the training data frame.

Id of the validation data frame.

nfolds	5		Number of folds for K-fold	
			cross-validation (0 to disable or >= 2).	
seed	12345		Seed for pseudo random	
			number generator (if applicable)	
response_column	SalePrice ▼		Response variable column.	
ignored_columns				
	Showing page 1 of 2.	REAL	<u> </u>	
	☐ LotFrontage			
	☐ LotArea	REAL	-	
	☐ YearBuilt	REAL		
	☐ MasVnrArea	REAL		
	☐ BsmtFinSF2	REAL		
	☐ BsmtUnfSF	REAL		
	☐ X1stFlrSF	REAL		
	☐ X2ndFlrSF	REAL		
	LowQualFinSF	REAL		
		DEAL	▼	
	☑ All ☐ None	(← Previous 100 → Next 100	
	Only show columns with more than	0 % missing values.		
ignore_const_cols	•		Ignore constant columns.	
family	gaussian v		Family. Use binomial for	
			classification with logistic regression, others are for	
			regression problems.	
solver	AUTO	▼	AUTO will set the solver based	
			on given data and the other	
			parameters. IRLSM is fast on on	
			problems with small number of predictors and for lambda-	
			search with L1 penalty, L_BFGS	
			scales better for datasets with	
alpha	1		many columns.	
alpha	1		Distribution of regularization between the L1 (Lasso) and L2	
			(Ridge) penalties. A value of 1	
			for alpha represents Lasso	
			regression, a value of 0 produces Ridge regression, and	
			anything in between specifies	
			the amount of mixing between	
			the two. Default value of alpha is 0 when SOLVER = 'L-BFGS';	
			0.5 otherwise.	
lambda	0.0001;0.0102;0.0203;0.0304	4;0.0405;0.0506;0.0607;0.0708;0.08	Regularization strength	•
lambda_search			Use lambda search starting at	
			lambda max, given lambda is	
-4 dd'			then interpreted as lambda min	
standardize	₹		Standardize numeric columns to have zero mean and unit	
			variance	
non_negative			Restrict coefficients (not	
hata agustusti ((Channa) =		intercept) to be non-negative	
beta_constraints			Beta constraints	
obj_reg	-1		Likelihood divider in objective value computation, default is	
			1/nobs	

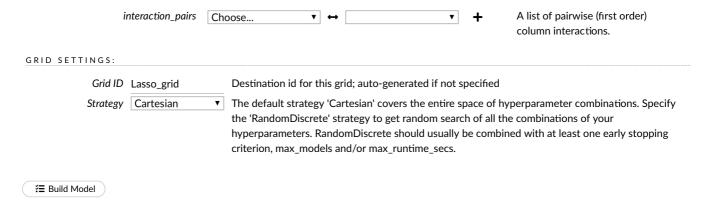
ADVANCED GRID?

Cross-validation fold

fold_assignment AUTO

	assignment scheme, if fold_column is not specified. The 'Stratified' option will stratify the folds based on the response variable, for classification problems.	
score_each_iteration	Whether to score during each iteration of model training.	
offset_column	(Choose) Offset column. This will be added to the combination of columns before applying the lir function.	nk
weights_column	Column with observation weights. Giving some observation a weight of zero is equivalent to excluding it from the dataset; giving an observation a relative weight of 2 is equivalent to repeating the row twice. Negative weights are not allowed. Note: Weights are per-row observation weights and do not increase the size of the data frame. This is typically the number of times a row is repeated, but non-integer values are supported as well. During training, rows with higher weights matter more, due to the larger loss function pre-factor.	of ot re
compute_p_values	Request p-values computation, p-values work only with IRLSM solver and no regularization	
remove_collinear_columns	In case of linearly dependent columns, remove some of the dependent columns	
max_iterations	-1 Maximum number of iterations	;
link	family_default ▼	
export_checkpoints_dir max_runtime_secs	Automatically export generated models to this directory. O Maximum allowed runtime in seconds for model training. Use	
custom_metric_func	0 to disable. Reference to custom evaluation function, format: `language:keyName=funcName	
EXPERT		GRID?
keep_cross_validation_models	Whether to keep the cross-validation models.	
keep_cross_validation_predictions	Whether to keep the predictions of the cross-validation models.	
keep_cross_validation_fold_assignment	Whether to keep the cross-validation fold assignment.	
missing_values_handling	Either MeanImputation or Skip	
intercept	✓ Include constant term in the model	

objective_epsilon beta_epsilon gradient_epsilon	0.0001		Converge if objective value changes less than this. Default indicates: If lambda_search is set to True the value of objective_epsilon is set to .0001. If the lambda_search is set to False and lambda is equal to zero, the value of objective_epsilon is set to .000001, for any other value of lambda the default value of objective_epsilon is set to .0001. Converge if beta changes less (using L-infinity norm) than beta esilon, ONLY applies to IRLSM solver Converge if objective changes
prior	-1		less (using L-infinity norm) than this, ONLY applies to L-BFGS solver. Default indicates: If lambda_search is set to False and lambda is equal to zero, the default value of gradient_epsilon is equal to .000001, otherwise the default value is .0001. If lambda_search is set to True, the conditional values above are 1E-8 and 1E-6 respectively. Prior probability for y==1. To be
			used only for logistic regression iff the data has been sampled and the mean of response does not reflect reality.
max_active_predictors			Maximum number of active predictors during computation. Use as a stopping criterion to prevent expensive model building with many predictors. Default indicates: If the IRLSM solver is used, the value of max_active_predictors is set to 5000 otherwise it is set to 100000000.
tor.dio (jorio	Showing page 1 of 2.		
	LotFrontage	REAL	Î
	☐ LotArea	REAL	
	YearBuilt	REAL	
	■ MasVnrArea	REAL	
	BsmtFinSF2	REAL	
	☐ BsmtUnfSF	REAL	
	☐ X1stFlrSF	REAL	
	X2ndFlrSF	REAL	
	LowQualFinSF	REAL	
		DEAL	
	☑ All ☐ None		← Previous 100 → Next 100



≨∃Job

Run Time 00:00:07.241

Remaining Time 00:00:00.0

Type Grid

Key Q Lasso_grid

Description GLM Grid Search

Status DONE

Progress 100%

Done.

Actions Q View

& Grid Search



Actions Key Lasso_grid_model_24 Predict... **≡** Inspect ₹ Predict... **≡** Inspect Casso_grid_model_26 Predict.. **≡** Inspect Predict... **≡** Inspect Lasso_grid_model_58 ₱ Predict... **≡** Inspect Predict... **≡** Inspect Casso_grid_model_71 Predict... **≡** Inspect Predict... **≡** Inspect Lasso_grid_model_57 Predict... **≡** Inspect Lasso_grid_model_31 Predict... **≡** Inspect Predict... **≡** Inspect ₹ Predict... **≡** Inspect Lasso_grid_model_65 Predict... **≡** Inspect Predict.. **≡** Inspect Lasso_grid_model_89 ₹ Predict... **≡** Inspect ✔ Lasso_grid_model_87 ₱ Predict... **≡** Inspect Predict.. **≡** Inspect Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict.. **≡** Inspect Predict... **≡** Inspect Lasso_grid_model_54 ₱ Predict... **≡** Inspect Lasso_grid_model_37 Predict... **≡** Inspect ✔ Lasso_grid_model_50 Predict... **≡** Inspect Lasso_grid_model_98 Predict... **≡** Inspect ₹ Predict... **≡** Inspect Lasso_grid_model_94 Predict... **≡** Inspect Predict.. **≡** Inspect ₹ Predict... **≡** Inspect Lasso_grid_model_39 Predict... **≡** Inspect Lasso_grid_model_73 Predict.. **≡** Inspect Lasso_grid_model_70 ₱ Predict... **≡** Inspect Casso_grid_model_86 Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect ₹ Predict... **≡** Inspect Predict.. **≡** Inspect Predict... **≡** Inspect Lasso_grid_model_77 ₱ Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect Lasso_grid_model_92 Predict... **≡** Inspect ₱ Predict... **≡** Inspect ₱ Predict... **≡** Inspect **₹** Predict **≡** Inspect Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect Lasso_grid_model_55 ₱ Predict... **≡** Inspect

_ K	Key						Actions
□ 😥 L	.asso_grid_model_28	8					▶ Predict ■ Inspect
□ � L	.asso_grid_model_3	6					▶ Predict ■ Inspect
□ � L	.asso_grid_model_99	9					▶ Predict ■ Inspect
□ 😥 L	.asso_grid_model_69	9					7 Predict I Inspect
□ 😥 L	.asso_grid_model_7d	6					▶ Predict ■ Inspect
□	.asso_grid_model_6	6					▶ Predict ■ Inspect
■ ❸ L	.asso_grid_model_60)					▶ Predict ■ Inspect
■ 😝 L	.asso_grid_model_97	7					▶ Predict ■ Inspect
□ 😥 L	.asso_grid_model_29	9					7 Predict ☐ Inspect
□ 😥 L	.asso_grid_model_47	7					7 Predict
■ 😝 L	.asso_grid_model_30	0					7 Predict I Inspect
■ 😝 L	.asso_grid_model_48	8					▶ Predict Inspect
■ 😝 L	.asso_grid_model_59	9					▶ Predict Inspect
■ 😝 L	.asso_grid_model_74	4					7 Predict I Inspect
■ 😝 L	.asso_grid_model_52	2					▶ Predict Inspect
□ 😥 L	.asso_grid_model_67	7					7 Predict □ Inspect
□ 😥 L	.asso_grid_model_8	5					7 Predict □ Inspect
□ 😥 L	.asso_grid_model_40	0					7 Predict □ Inspect
□ 😥 L	.asso_grid_model_63	3					7 Predict □ Inspect
□ 😥 L	.asso_grid_model_68	3					7 Predict □ Inspect
■ 😝 L	.asso_grid_model_49	9					7 Predict □ Inspect
□ 😥 L	.asso_grid_model_38	3					7 Predict □ Inspect
□ 😥 L	.asso_grid_model_10	00					▶ Predict ■ Inspect
□ 😥 L	.asso_grid_model_95	5					7 Predict □ Inspect
□ 😥 L	.asso_grid_model_78	3					▶ Predict ■ Inspect
■ 😝 L	.asso_grid_model_33	3					▶ Predict Inspect
□ 😥 L	.asso_grid_model_75	5					▶ Predict Inspect
	.asso_grid_model_32						♦ Predict Inspect
11	0.000 sec	0.2058	0.0423	0.1478	0.7345	0.2058	0.0423
20:28:41	L						
11	0.000	0.1981	0.0392	0.1414	0.7538	0.1981	0.0392
20:28:41	L						
11	0.000 sec	0.1899	0.0361	0.1348	0.7738	0.1899	0.0361
20:28:41	<u> </u>						
11	0.000 sec	0.1815	0.0329	0.1276	0.7935	0.1815	0.0329
20:28:41	_						
11	0.000 sec	0.1738	0.0302	0.1212	0.8105	0.1738	0.0302
20:28:41	_						
11	0.000	0.1648	0.0272	0.1137	0.8296	0.1648	0.0272
20:28:41	_						
11 20:28:41	0.000 sec	0.1562	0.0244	0.1071	0.8469	0.1562	0.0244
2019-09-	_						
11 20:28:41	0.000 sec	0.1468	0.0215	0.1002	0.8649	0.1468	0.0215
2019-09-							
11 20:28:41	sec	0.1347	0.0181	0.0921	0.8862	0.1347	0.0181

0.9067

0.0834

0.1220

0.0149

0.1220

0.0149

20:28:41 sec 2019-09-11 0.000



Model ID: Lasso_grid_model_1

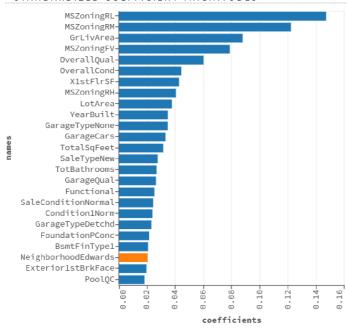
Algorithm: Generalized Linear Modeling

Actions: Refresh Predict... La Download POJO La Download Model Deployment Package (MOJO) La Export La Inspect Download Gen Model

▶ MODEL PARAMETERS

SCORING HISTORY

▼ STANDARDIZED COEFFICIENT MAGNITUDES



▶ OUTPUT

▶ COLUMN_TYPES

▶ CROSS_VALIDATION_MODELS

▼ OUTPUT - GLM MODEL (SUMMARY)

family gaussian

link identity

regularization Lasso (lambda = 1.0E-4)

number_of_predictors_total 163

 $number_of_active_predictors$ 155

number_of_iterations 1

 $training_frame \ train.hex$

▶ OUTPUT - SCORING HISTORY

▼ OUTPUT - TRAINING_METRICS

```
model Lasso_grid_model_1
            model_checksum -2693831383343243264
                     frame train.hex
            frame_checksum 2678409454704134662
               description .
            model_category Regression
              scoring_time 1568226521049
               predictions ·
                      MSE 0.010890
                      RMSE 0.104354
                      nobs 1460
        custom_metric_name ·
       custom_metric_value 0
                        r2 0.931706
    mean_residual_deviance 0.010890
                      mae 0.072829
                     rmsle 0.008065
         residual_deviance 15.898897
             null_deviance 232.800671
                       AIC -2141.814739
   null_degrees_of_freedom 1459
residual_degrees_of_freedom 1304
```

▼ OUTPUT - VALIDATION_METRICS

model Lasso_grid_model_1 model_checksum -2693831383343243264 frame train.hex frame_checksum 2678409454704134662 description · model_category Regression scoring_time 1568226521051 predictions · MSE 0.010890 RMSE 0.104354 nobs 1460 custom_metric_name . custom_metric_value 0 r2 0.931706 mean_residual_deviance 0.010890 mae 0.072829 rmsle 0.008065 residual_deviance 15.898897 null_deviance 232.800671 AIC -2141.814739 null_degrees_of_freedom 1459 residual_degrees_of_freedom 1304

▼ OUTPUT - CROSS_VALIDATION_METRICS

model Lasso_grid_model_1

model_checksum -2693831383343243264

frame train.hex

frame_checksum 2678409454704134662

description 5-fold cross-validation on training data (Metrics computed for combined holdout predictions)

model_category Regression

scoring_time 1568226521052

predictions ·

MSE 0.014972

RMSE 0.122360

nobs 1460

custom_metric_name .

custom_metric_value 0

r2 0.906105

mean_residual_deviance 0.014972

mae 0.082723

rmsle 0.009452

residual_deviance 21.858917

null_deviance 232.900015

AIC -1675.010358

null_degrees_of_freedom 1459
residual_degrees_of_freedom 1303

▼ OUTPUT - CROSS-VALIDATION METRICS SUMMARY

	mean	sd	cv_1_valid	cv_2_valid	cv_3_valid	cv_4_valid	cv_5_valid
mae	0.08260455	0.0032085434	0.0822759	0.08598305	0.08482321	0.073944345	0.08599625
mean_residual_deviance	0.014923718	0.0016489736	0.017727388	0.016939035	0.014354745	0.011079114	0.0145183075
mse	0.014923718	0.0016489736	0.017727388	0.016939035	0.014354745	0.011079114	0.0145183075
null_deviance	46.58	4.996553	42.83299	57.897892	50.13301	36.95442	45.081707
r2	0.9056831	0.009495551	0.87996346	0.9108198	0.91537917	0.9166262	0.9056268
residual_deviance	4.3717833	0.5383148	5.1409426	5.1494665	4.2346497	3.0799937	4.253864
rmse	0.12177098	0.0069118408	0.13314424	0.13015005	0.11981129	0.10525737	0.12049194
rmsle	0.0094056325	5.233184E-4	0.010038953	0.010245333	0.009305894	0.008136098	0.009301883

▼ OUTPUT - COEFFICIENTS (GLM COEFFICIENTS)

names	coefficients	$standardized_coefficients$	<u> </u>
Intercept	10.2453	12.0241	
LotFrontage	-0.0010	-0.0010	П
LotArea	0.0383	0.0376	П
YearBuilt	0.0348	0.0347	П
MasVnrArea	-0.0072	-0.0072	
BsmtFinSF2	-0.0080	-0.0079	
BsmtUnfSF	-0.0127	-0.0126	
X1stFlrSF	0.0433	0.0426	
X2ndFlrSF	0.0115	0.0116	
LowQualFinSF	-0.0022	-0.0025	
GrLivArea	0.0859	0.0877	
BsmtFullBath	0	9	
BsmtHalfBath	0	9	
FullBath	0.0005	0.0005	
HalfBath	0.0068	0.0068	
BedroomAbvGr	-0.0045	-0.0045	
KitchenAbvGr	-0.0132	-0.0133	
TotRmsAbvGrd	0.0088	0.0091	
Fireplaces	0.0109	0.0108	
GarageCars	0.0336	0.0329	
WoodDeckSF	0.0080	0.0080	
OpenPorchSF	0	9	
EnclosedPorch	0.0007	0.0007	
X3SsnPorch	0.0011	0.0012	•

▶ OUTPUT - STANDARDIZED COEFFICIENT MAGNITUDES (STANDARDIZED COEFFICIENT MAGNITUDES)



Build a Model

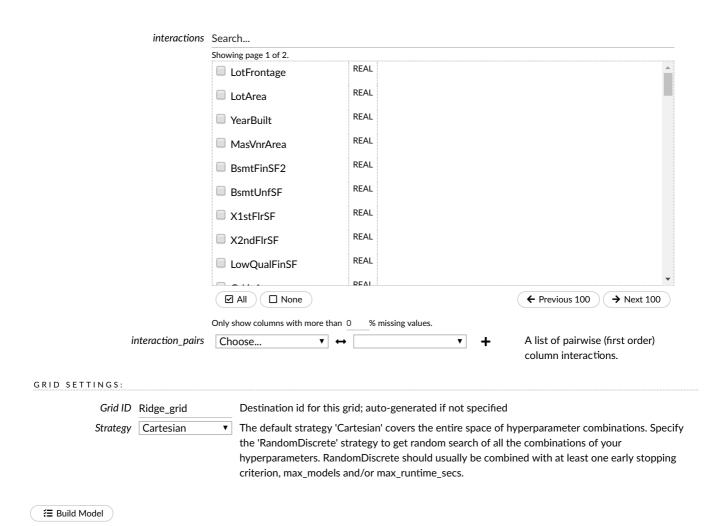
Select an algorithm: Generalized Linear Modeling ▼

PARAMETERS					GRID?
model_id	Ridge_Regression			Destination id for this model; auto-generated if not specified.	
training_frame	train.hex ▼			Id of the training data frame.	
validation_frame	train.hex ▼			Id of the validation data frame.	
nfolds	5			Number of folds for K-fold cross-validation (0 to disable or >= 2).	
seed	12345			Seed for pseudo random number generator (if applicable)	
response_column	SalePrice ▼			Response variable column.	
ignored_columns	Search				
	Showing page 1 of 2.				
	LotFrontage	REAL		â	
	☐ LotArea	REAL			
	☐ YearBuilt	REAL			
	☐ MasVnrArea	REAL			
	☐ BsmtFinSF2	REAL			
	☐ BsmtUnfSF	REAL			
	☐ X1stFlrSF	REAL			
	☐ X2ndFlrSF	REAL			
	LowQualFinSF	REAL			
		PΕΔΙ		▼	
	☑ All ☐ None			← Previous 100 → Next 100	
	Only show columns with more than	0 %	missing values.		
ignore_const_cols				Ignore constant columns.	
family	gaussian ▼			Family. Use binomial for classification with logistic regression, others are for regression problems.	
solver	AUTO	•	•	AUTO will set the solver based on given data and the other parameters. IRLSM is fast on on problems with small number of predictors and for lambdasearch with L1 penalty, L_BFGS scales better for datasets with many columns.	
alpha	0			Distribution of regularization between the L1 (Lasso) and L2 (Ridge) penalties. A value of 1 for alpha represents Lasso regression, a value of 0 produces Ridge regression, and anything in between specifies the amount of mixing between the two. Default value of alpha is 0 when SOLVER = 'L-BFGS';	

lambda_search standardize		Use lambda search starting at lambda max, given lambda is then interpreted as lambda min Standardize numeric columns to have zero mean and unit variance	
non_negative		Restrict coefficients (not intercept) to be non-negative	
beta_constraints	(Choose) ▼	Beta constraints	
obj_reg	-1	Likelihood divider in objective value computation, default is 1/nobs	
ADVANCED			GRID
fold_assignment	AUTO ▼	Cross-validation fold assignment scheme, if fold_column is not specified. The 'Stratified' option will stratify the folds based on the response variable, for classification problems.	
score_each_iteration		Whether to score during each iteration of model training.	
offset_column	(Choose) ▼	Offset column. This will be added to the combination of columns before applying the link	
		function.	
weights_column		Column with observation weights. Giving some observation a weight of zero is equivalent to excluding it from the dataset; giving an observation a relative weight of 2 is equivalent to repeating that row twice. Negative weights are not allowed. Note: Weights are per-row observation weights and do not increase the size of the data frame. This is typically the number of times a row is repeated, but non-integer values are supported as well. During training, rows with higher weights matter more, due to the larger loss function pre-factor. Request p-values computation,	
		p-values work only with IRLSM solver and no regularization	
remove_collinear_columns		In case of linearly dependent columns, remove some of the dependent columns	
max_iterations	-1	Maximum number of iterations	
link	family_default ▼		
export_checkpoints_dir		Automatically export generated models to this directory.	
max_runtime_secs	0	Maximum allowed runtime in seconds for model training. Use 0 to disable.	
custom_metric_func		Reference to custom evaluation function, format: `language:keyName=funcName`	

EXPERT GRID?

EXPERT		
keep_cross_validation_models	€	Whether to keep the cross-validation models.
keep_cross_validation_predictions		Whether to keep the predictions of the cross-validation models.
keep_cross_validation_fold_assignment		Whether to keep the cross-validation fold assignment.
missing_values_handling	MeanImputation ▼	Handling of missing values. Either MeanImputation or Skip.
intercept	•	Include constant term in the model
objective_epsilon	-1	Converge if objective value changes less than this. Default indicates: If lambda_search is set to True the value of objective_epsilon is set to .0001. If the lambda_search is set to False and lambda is equal to zero, the value of objective_epsilon is set to .00001, for any other value of lambda the default value of objective_epsilon is set to .0001.
beta_epsilon	0.0001	Converge if beta changes less (using L-infinity norm) than beta esilon, ONLY applies to IRLSM solver
gradient_epsilon		Converge if objective changes less (using L-infinity norm) than this, ONLY applies to L-BFGS solver. Default indicates: If lambda_search is set to False and lambda is equal to zero, the default value of gradient_epsilon is equal to .000001, otherwise the default value is .0001. If lambda_search is set to True, the conditional values above are 1E-8 and 1E-6 respectively.
prior	-1	Prior probability for y==1. To be used only for logistic regression iff the data has been sampled and the mean of response does not reflect reality.
max_active_predictors	-1	Maximum number of active predictors during computation. Use as a stopping criterion to prevent expensive model building with many predictors. Default indicates: If the IRLSM solver is used, the value of max_active_predictors is set to 5000 otherwise it is set to 100000000.



≆∃Job

Run Time 00:00:14.470

Remaining Time 00:00:00.0

Type Grid

Key Q Ridge_grid

Description GLM Grid Search

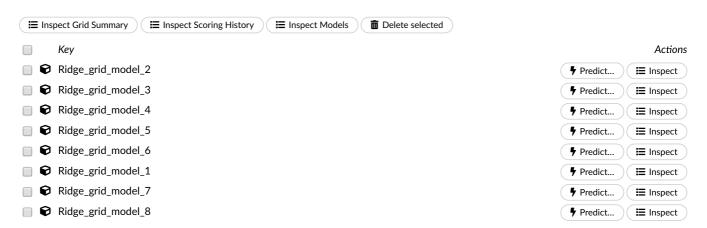
Status DONE

Progress 100%

Done.

Actions Q View

& Grid Search



Actions Key Ridge_grid_model_9 Predict... **≡** Inspect Ridge_grid_model_10 ₹ Predict... **≡** Inspect Ridge_grid_model_11 Predict.. **≡** Inspect Ridge_grid_model_12 Predict... **≡** Inspect Ridge_grid_model_13 ₱ Predict... **≡** Inspect Ridge_grid_model_14 Predict... **≡** Inspect Ridge_grid_model_15 Predict... **≡** Inspect Ridge_grid_model_16 Predict... **≡** Inspect Ridge_grid_model_17 Predict... **≡** Inspect Ridge_grid_model_18 Predict... **≡** Inspect Ridge_grid_model_19 Predict... **≡** Inspect Ridge_grid_model_20 Predict... **≡** Inspect Ridge_grid_model_21 Predict... **≡** Inspect Ridge_grid_model_22 Predict.. **≡** Inspect Ridge_grid_model_23 ₹ Predict... **≡** Inspect Ridge_grid_model_24 ₱ Predict... **≡** Inspect Ridge_grid_model_25 Predict.. **≡** Inspect Ridge_grid_model_26 Predict... **≡** Inspect Ridge_grid_model_27 ₱ Predict... **≡** Inspect Ridge_grid_model_28 Predict.. **≡** Inspect Ridge_grid_model_29 Predict... **≡** Inspect Ridge_grid_model_30 ₱ Predict... **≡** Inspect Ridge_grid_model_31 Predict... **≡** Inspect Ridge_grid_model_32 Predict... **≡** Inspect Ridge_grid_model_33 Predict... **≡** Inspect Ridge_grid_model_34 ₹ Predict... **≡** Inspect Ridge_grid_model_35 Predict.. **≡** Inspect Ridge_grid_model_36 Predict.. **≡** Inspect Ridge_grid_model_37 ₹ Predict... **≡** Inspect Ridge_grid_model_38 Predict.. **≡** Inspect Ridge_grid_model_39 Predict.. **≡** Inspect Ridge_grid_model_40 ₱ Predict... **≡** Inspect Ridge_grid_model_41 Predict... **≡** Inspect Ridge_grid_model_42 Predict.. **≡** Inspect Ridge_grid_model_43 Predict... **≡** Inspect Ridge_grid_model_44 ₹ Predict... **≡** Inspect Ridge_grid_model_45 Predict.. **≡** Inspect Ridge_grid_model_46 Predict... **≡** Inspect Ridge_grid_model_47 ₱ Predict... **≡** Inspect Ridge_grid_model_48 Predict... **≡** Inspect Ridge_grid_model_49 Predict... **≡** Inspect Ridge_grid_model_50 Predict... **≡** Inspect Ridge_grid_model_51 ₱ Predict... **≡** Inspect Ridge_grid_model_52 ₱ Predict... **≡** Inspect Ridge_grid_model_53 **₹** Predict **≡** Inspect Ridge_grid_model_54 Predict... **≡** Inspect Ridge_grid_model_55 ₱ Predict... **≡** Inspect Ridge_grid_model_56 Predict... **≡** Inspect Ridge_grid_model_57 ₱ Predict... **≡** Inspect

	Key							Actions
	•	I 58					7 Predict	I Inspect
							7 Predict	■ Inspect
							7 Predict	■ Inspect
							• Predict	■ Inspect
	0 -0 -						7 Predict	I Inspect
							7 Predict	■ Inspect
							7 Predict	≣ Inspect
							7 Predict	≣ Inspect
	0 -0 -	_					• Predict	I Inspect
							7 Predict	I Inspect
							7 Predict	I Inspect
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	0 -0 -						• Predict	I Inspect
							• Predict	I Inspect
							7 Predict	I Inspect
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		_					7 Predict	I Inspect
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	0 -0 -						7 Predict	I Inspect
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	5 -5 -	_					7 Predict	I Inspect
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2019- 11	0.000 Sec	0.1165	0.0136	0.0796	0.9149	0.1165	0.01	.36
20:40	:01							
2019- 11 20:40	0.000 Sec	0.1159	0.0134	0.0792	0.9158	0.1159	0.01	.34

0.1152

11 20:40:01 sec 2019-09-

0.0133

0.0787

0.9168

0.1152

0.0133

<u>zómastom</u> p	auration	training_rmse	training_deviance	training_mae	training_r2	validation_rmse	validation_deviance	validati
2019-09- 11 20:40:01	0.000 sec	0.1145	0.0131	0.0783	0.9178	0.1145	0.0131	
2019-09- 11 20:40:00	0.000 sec	0.1043	0.0109	0.0728	0.9318	0.1043	0.0109	
2019-09- 11 20:40:01	0.000 sec	0.1137	0.0129	0.0778	0.9190	0.1137	0.0129	
2019-09- 11 20:40:01	0.000 sec	0.1128	0.0127	0.0772	0.9202	0.1128	0.0127	
2019-09- 11 20:40:01	0.000 sec	0.1117	0.0125	0.0766	0.9217	0.1117	0.0125	
2019-09- 11 20:40:00	0.000 sec	0.1105	0.0122	0.0758	0.9235	0.1105	0.0122	
2019-09-	0.000	0 1007	0.0110	0 0740	0.0350	0 1007	0.0110	

₽ Model

Model ID: Ridge_grid_model_2

Algorithm: Generalized Linear Modeling

Actions: Refresh Predict... Download POJO Download Model Deployment Package (MOJO) Export Inspect

▶ MODEL PARAMETERS

SCORING HISTORY

• OUTPUT

▶ COLUMN_TYPES

▶ CROSS_VALIDATION_MODELS

▼ OUTPUT - GLM MODEL (SUMMARY)

family gaussian

link identity

regularization Ridge (lambda = 0.0102)

number_of_predictors_total 163

number_of_active_predictors 163

number_of_iterations 1

training_frame train.hex

OUTPUT - SCORING HISTORY

▼ OUTPUT - TRAINING_METRICS

model Ridge_grid_model_2 model_checksum 1544630612700651712 frame train.hex frame_checksum 2678409454704134662 description . model_category Regression scoring_time 1568227200923 predictions · MSE 0.011820 RMSE 0.108722 nobs 1460 custom_metric_name · custom_metric_value 0 r2 0.925869 mean_residual_deviance 0.011820 mae 0.074948 rmsle 0.008417 residual_deviance 17.257775 null_deviance 232.800671 AIC -2006.075759 null_degrees_of_freedom 1459 residual_degrees_of_freedom 1296

▼ OUTPUT - VALIDATION_METRICS

model Ridge_grid_model_2

model_checksum 1544630612700651712

frame train.hex

frame_checksum 2678409454704134662

description ·

model_category Regression scoring_time 1568227200926

predictions ·

MSE 0.011820

RMSE 0.108722

nobs 1460

custom_metric_name .

custom_metric_value 0

r2 0.925869

mean_residual_deviance 0.011820

mae 0.074948

rmsle 0.008417 residual_deviance 17.257775

null_deviance 232.800671

AIC -2006.075759

null_degrees_of_freedom 1459

residual_degrees_of_freedom 1296

▼ OUTPUT - CROSS_VALIDATION_METRICS

model Ridge_grid_model_2

model_checksum 1544630612700651712

frame train.hex

frame_checksum 2678409454704134662

description 5-fold cross-validation on training data (Metrics computed for combined holdout predictions)

model_category Regression

scoring_time 1568227200926

predictions ·

MSE 0.014725

RMSE 0.121347

nobs 1460

custom_metric_name •

custom_metric_value 0

r2 0.907652

mean_residual_deviance 0.014725

mae 0.082020

rmsle 0.009385

residual_deviance 21.498578

null_deviance 232.900015

AIC -1685.278673

null_degrees_of_freedom 1459
residual_degrees_of_freedom 1296

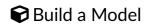
▼ OUTPUT - CROSS-VALIDATION METRICS SUMMARY

	mean	sd	cv_1_valid	cv_2_valid	cv_3_valid	cv_4_valid	cv_5_valid
mae	0.08191322	0.003888628	0.08117297	0.0836446	0.0817407	0.072921835	0.09008597
mean_residual_deviance	0.014688598	0.0016002241	0.017139915	0.015042883	0.013859609	0.010799259	0.01660132
mse	0.014688598	0.0016002241	0.017139915	0.015042883	0.013859609	0.010799259	0.01660132
null_deviance	46.58	4.996553	42.83299	57.897892	50.13301	36.95442	45.081707
r2	0.9067722	0.010998421	0.8839414	0.92080265	0.918298	0.9187322	0.89208657
residual_deviance	4.2997155	0.507102	4.970576	4.5730367	4.088585	3.002194	4.8641872
rmse	0.120812275	0.0068187984	0.1309195	0.12264943	0.11772684	0.10391948	0.12884611
rmsle	0.00934428	5.060949E-4	0.009874045	0.009603205	0.009197541	0.008026799	0.010019808

▼ OUTPUT - COEFFICIENTS (GLM COEFFICIENTS)

names	coefficients	
Intercept	10.6474	
LotFrontage	-0.0011	
LotArea	0.0373	
YearBuilt	0.0371	
MasVnrArea	-0.0063	
BsmtFinSF2	-0.0083	
BsmtUnfSF	-0.0140	
X1stFlrSF	0.0454	
X2ndFlrSF	0.0107	
LowQualFinSF	-0.0020	
GrLivArea	0.0784	
BsmtFullBath	0.0085	
BsmtHalfBath	0.0003	
FullBath	0.0108	
HalfBath	0.0130	
BedroomAbvGr	-0.0041	
KitchenAbvGr	-0.0146	
TotRmsAbvGrd	0.0089	
Fireplaces	0.0131	
GarageCars	0.0297	
WoodDeckSF	0.0074	
OpenPorchSF	-0.0006	
EnclosedPorch	0.0007	
X3SsnPorch	0.0013	•

▼ PREVIEW POJO



Select an algorithm: Generalized Linear Modeling •

PARAMETERS				GRID?
model_id	ElasticNet		Destination id for this model; auto-generated if not specified.	
training_frame	train.hex ▼		Id of the training data frame.	
validation_frame	train.hex ▼		Id of the validation data frame.	
nfolds	5		Number of folds for K-fold	
			cross-validation (0 to disable or >= 2).	
seed	12345		Seed for pseudo random number generator (if applicable)	
response_column	SalePrice ▼	Response variable column.		
ignored_columns	Search			
	Showing page 1 of 2.	DEAL		
	LotFrontage	REAL		
	☐ LotArea	REAL		
	YearBuilt	REAL		
	■ MasVnrArea	REAL		
	☐ BsmtFinSF2	REAL		
	☐ BsmtUnfSF	REAL		
	☐ X1stFlrSF	REAL		
	☐ X2ndFlrSF	REAL		
	LowQualFinSF	REAL		
		REΔI	▼	
	☑ All ☐ None		← Previous 100 → Next 100	
	☑ All ☐ None Only show columns with more than 0	0 % missing values.	← Previous 100 → Next 100	
ignore_const_cols	Only show columns with more than	O% missing values.	← Previous 100 → Next 100 Ignore constant columns.	
ignore_const_cols family	Only show columns with more than 0	O% missing values.		
family	Only show columns with more than (0 % missing values.	Ignore constant columns. Family. Use binomial for classification with logistic regression, others are for	
family	Only show columns with more than 0 gaussian AUTO		Ignore constant columns. Family. Use binomial for classification with logistic regression, others are for regression problems. AUTO will set the solver based on given data and the other parameters. IRLSM is fast on on problems with small number of predictors and for lambdasearch with L1 penalty, L_BFGS scales better for datasets with	
family	Only show columns with more than of gaussian AUTO 0.001;0.01;0.112;0.223;0.334	•	Ignore constant columns. Family. Use binomial for classification with logistic regression, others are for regression problems. AUTO will set the solver based on given data and the other parameters. IRLSM is fast on on problems with small number of predictors and for lambdasearch with L1 penalty, L_BFGS scales better for datasets with many columns. Distribution of regularization between the L1 (Lasso) and L2 (Ridge) penalties. A value of 1 for alpha represents Lasso regression, a value of 0 produces Ridge regression, and anything in between specifies the amount of mixing between the two. Default value of alpha is 0 when SOLVER = 'L-BFGS'; 0.5 otherwise.	

then interpreted as lambda min

standardize	€	Standardize numeric columns to have zero mean and unit variance	
non_negative		Restrict coefficients (not intercept) to be non-negative	
beta_constraints		Beta constraints	
obj_reg	-1	Likelihood divider in objective value computation, default is 1/nobs	
ADVANCED			GRID
fold_assignment	AUTO •	Cross-validation fold assignment scheme, if fold_column is not specified. The 'Stratified' option will stratify the folds based on the response variable, for classification problems.	
score_each_iteration		Whether to score during each iteration of model training.	
offset_column	(Choose)	Offset column. This will be added to the combination of columns before applying the link function.	
weights_column	(Choose) ▼	Column with observation weights. Giving some observation a weight of zero is equivalent to excluding it from the dataset; giving an observation a relative weight of 2 is equivalent to repeating that row twice. Negative weights are not allowed. Note: Weights are per-row observation weights and do not increase the size of the data frame. This is typically the number of times a row is repeated, but non-integer values are supported as well. During training, rows with higher weights matter more, due to the larger loss function pre-factor.	
compute_p_values		Request p-values computation, p-values work only with IRLSM solver and no regularization	
remove_collinear_columns		In case of linearly dependent columns, remove some of the dependent columns	
max_iterations	-1	Maximum number of iterations	
link	family_default ▼		
export_checkpoints_dir		Automatically export generated models to this directory.	
max_runtime_secs	0	Maximum allowed runtime in seconds for model training. Use 0 to disable.	
custom_metric_func		Reference to custom evaluation function, format: `language:keyName=funcName`	
EXPERT			GRID

keep_cross_validation_predictions		Whether to keep the
		predictions of the cross- validation models.
keep_cross_validation_fold_assignment		Whether to keep the cross- validation fold assignment.
missing_values_handling	MeanImputation ▼	Handling of missing values. Either MeanImputation or Skip.
intercept		Include constant term in the model
objective_epsilon	-1	Converge if objective value changes less than this. Default indicates: If lambda_search is set to True the value of objective_epsilon is set to .0001. If the lambda_search is set to False and lambda is equal to zero, the value of objective_epsilon is set to .000001, for any other value of lambda the default value of objective_epsilon is set to .0001.
beta_epsilon	0.0001	Converge if beta changes less (using L-infinity norm) than beta esilon, ONLY applies to IRLSM solver
gradient_epsilon		Converge if objective changes less (using L-infinity norm) than this, ONLY applies to L-BFGS solver. Default indicates: If lambda_search is set to False and lambda is equal to zero, the default value of gradient_epsilon is equal to .00001, otherwise the default value is .0001. If lambda_search is set to True, the conditional values above are 1E-8 and 1E-6 respectively.
prior	-1	Prior probability for y==1. To be used only for logistic regression iff the data has been sampled and the mean of response does not reflect reality.
max_active_predictors	-1	Maximum number of active predictors during computation. Use as a stopping criterion to prevent expensive model building with many predictors. Default indicates: If the IRLSM solver is used, the value of max_active_predictors is set to 5000 otherwise it is set to 1000000000.



≆∃Job

Run Time 00:00:15.612

Remaining Time 00:00:00.0

Type Grid

Key Q ElasticNet_grid

Description GLM Grid Search

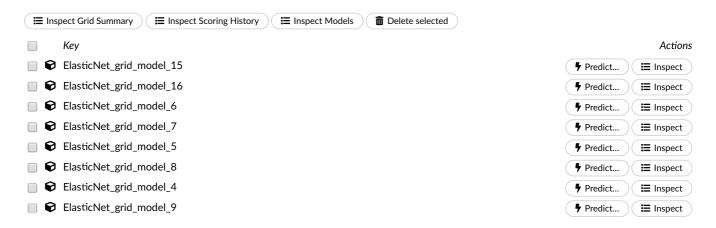
Status DONE

Progress 100%

Done.

Actions Q View

& Grid Search



Actions Key Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_14 Predict.. **≡** Inspect Predict **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_19 Predict... **≡** Inspect Predict.. **≡** Inspect ElasticNet_grid_model_35 ₹ Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict.. **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_46 Predict... **≡** Inspect ElasticNet_grid_model_56 Predict.. **≡** Inspect ₱ Predict... **≡** Inspect ElasticNet_grid_model_67 ₱ Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_89 Predict... **≡** Inspect ₹ Predict... **≡** Inspect Predict... **≡** Inspect Predict.. **≡** Inspect ₹ Predict... **≡** Inspect ElasticNet_grid_model_79 Predict... **≡** Inspect Predict.. **≡** Inspect ₱ Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_27 ₹ Predict... **≡** Inspect ElasticNet_grid_model_47 Predict.. **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_37 Predict... **≡** Inspect Predict.. **≡** Inspect ElasticNet_grid_model_29 Predict... **≡** Inspect ElasticNet_grid_model_69 Predict... **≡** Inspect **≡** Inspect Predict... Predict... **≡** Inspect **₹** Predict **≡** Inspect ElasticNet_grid_model_31 Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect ₱ Predict... **≡** Inspect

Actions Key Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_33 Predict.. **≡** Inspect Predict **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict.. **≡** Inspect ElasticNet_grid_model_92 ₹ Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict.. **≡** Inspect ElasticNet_grid_model_61 Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_44 Predict.. **≡** Inspect ₱ Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect Predict... **≡** Inspect ₹ Predict... **≡** Inspect Predict... **≡** Inspect Predict.. **≡** Inspect ₹ Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_98 Predict.. **≡** Inspect ₱ Predict... **≡** Inspect ₱ Predict... **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_105 Predict... **≡** Inspect ₹ Predict... **≡** Inspect Predict.. **≡** Inspect Predict... **≡** Inspect ElasticNet_grid_model_85 Predict... **≡** Inspect Predict.. **≡** Inspect ElasticNet_grid_model_73 Predict... **≡** Inspect Predict... **≡** Inspect **≡** Inspect Predict... Predict... **≡** Inspect ElasticNet_grid_model_104 **₹** Predict **≡** Inspect ElasticNet_grid_model_116 Predict... **≡** Inspect ₱ Predict... **≡** Inspect ElasticNet_grid_model_110 Predict... **≡** Inspect ElasticNet_grid_model_84 ₱ Predict... **≡** Inspect

☐ Key	y							Actions
🔲 😯 Ela	sticNet_grid_mode	l_118					7 Predict	≡ Inspect
🗌 😯 Ela	sticNet_grid_mode	·l_77					₱ Predict	≣ Inspect
🗌 📦 Ela	sticNet_grid_mode	·l_66					₱ Predict	≣ Inspect
🗌 😭 Ela	sticNet_grid_mode	·l_109					₱ Predict	≣ Inspect
🔲 😭 Ela	sticNet_grid_mode	·l_96					₱ Predict	≣ Inspect
🗌 😭 Ela	sticNet_grid_mode	·l_55					▼ Predict	≡ Inspect
🗌 😭 Ela	sticNet_grid_mode	·l_94					▼ Predict	≡ Inspect
🔲 📦 Ela	sticNet_grid_mode	·l_76					₱ Predict	≣ Inspect
🔲 😭 Ela	sticNet_grid_mode	·l_107					₱ Predict	≣ Inspect
🔲 😭 Ela	sticNet_grid_mode	·l_108					₱ Predict	≣ Inspect
🔲 😭 Ela	sticNet_grid_mode	·l_64					₱ Predict	≣ Inspect
🗌 😭 Ela	sticNet_grid_mode	l_115					▼ Predict	≡ Inspect
🔲 😭 Ela	sticNet_grid_mode	·l_121					₱ Predict	≣ Inspect
🔲 😯 Ela	sticNet_grid_mode	·l_74					7 Predict	≣ Inspect
■	sticNet_grid_mode	l_120					7 Predict	≣ Inspect
11 20:55:13 2019-09- 11 20:55:13 2019-09- 11 20:55:12 2019-09- 11 20:55:12	0.000 sec 0.000 sec 0.000 sec 0.000 sec	0.1073 0.1069 0.1064 0.1047 0.1060	0.0115 0.0114 0.0113 0.0110 0.0112	0.0742 0.0740 0.0738 0.0730	0.9278 0.9284 0.9290 0.9313 0.9295	0.1073 0.1069 0.1064 0.1047 0.1060	0.01 0.01 0.01 0.01	14 13 10
2019-09- 11 20:55:12 2019-09- 11 20:55:12 2019-09-	0.000 sec 0.000 sec 0.000	0.1050	0.0110	0.0731	0.9309	0.1050	0.01	12
11 20:55:12 2019-09-	sec	0.1053	0.0111	0.0733	0.9305	0.1053	0.01	11
11	0.000	A 1128	A A127	A A773	ନ ବହନ୍ତ	ቡ 1128	Θ Θ1	27 ▼



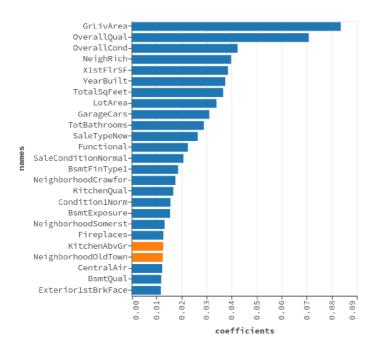
Model ID: ElasticNet_grid_model_15
Algorithm: Generalized Linear Modeling

Actions: Refresh Predict... Download POJO Download Model Deployment Package (MOJO) Export Implect Download Gen Model

▶ MODEL PARAMETERS

SCORING HISTORY

▼ STANDARDIZED COEFFICIENT MAGNITUDES



• OUTPUT

▶ COLUMN_TYPES

▶ CROSS_VALIDATION_MODELS

▼ OUTPUT - GLM MODEL (SUMMARY)

▶ OUTPUT - SCORING HISTORY

▼ OUTPUT - TRAINING_METRICS

```
model ElasticNet_grid_model_15
             model_checksum -222205865212467072
                      frame train.hex
             frame_checksum 2678409454704134662
                \textit{description} \; \cdot \;
             model\_category Regression
               scoring_time 1568228114327
                predictions ·
                       MSE 0.012348
                       RMSE 0.111123
                       nobs 1460
         custom\_metric\_name .
       custom_metric_value 0
                         r2 0.922557
    mean_residual_deviance 0.012348
                       mae 0.076204
                      rmsle 0.008605
          residual_deviance 18.028684
              null_deviance 232.800671
                        AIC -2092.271870
    null_degrees_of_freedom 1459
residual_degrees_of_freedom 1371
```

model ElasticNet_grid_model_15

model_checksum -222205865212467072

frame train.hex

frame_checksum 2678409454704134662

description ·

model_category Regression

scoring_time 1568228114329

predictions ·

MSE 0.012348

RMSE 0.111123

nobs 1460

custom_metric_name ·

custom_metric_value 0

r2 0.922557

mean_residual_deviance 0.012348

mae 0.076204

rmsle 0.008605

residual_deviance 18.028684

null_deviance 232.800671

AIC -2092.271870

null_degrees_of_freedom 1459
residual_degrees_of_freedom 1371

▼ OUTPUT - CROSS_VALIDATION_METRICS

model ElasticNet_grid_model_15

model_checksum -222205865212467072

frame train.hex

frame_checksum 2678409454704134662

description 5-fold cross-validation on training data (Metrics computed for combined holdout predictions)

 $model_category$ Regression

scoring_time 1568228114329

predictions .

MSE 0.014630

RMSE 0.120953

nobs 1460

custom_metric_name .

custom_metric_value 0

r2 0.908251

mean_residual_deviance 0.014630

mae 0.082059 rmsle 0.009361

residual_deviance 21.359152

null_deviance 232.900015

AIC -1842.778122

null_degrees_of_freedom 1459
residual_degrees_of_freedom 1370

▼ OUTPUT - CROSS-VALIDATION METRICS SUMMARY

	mean	sd	cv_1_valid	cv_2_valid	cv_3_valid	cv_4_valid	cv_5_valid
mae	0.08193927	0.0040156776	0.078932814	0.08516582	0.0821394	0.07331255	0.09014579
mean_residual_deviance	0.014591605	0.0013866188	0.01607408	0.015336377	0.013976692	0.011065442	0.016505439
mse	0.014591605	0.0013866188	0.01607408	0.015336377	0.013976692	0.011065442	0.016505439
null_deviance	46.58	4.996553	42.83299	57.897892	50.13301	36.95442	45.081707
r2	0.9074925	0.009007649	0.8911584	0.91925746	0.9176078	0.9167291	0.89270985
residual_deviance	4.2718306	0.45544687	4.6614833	4.6622586	4.123124	3.0761929	4.8360934
rmse	0.12050254	0.0059474655	0.1267836	0.12384012	0.118223056	0.10519241	0.12847349
rmsle	0.009324732	4.566185E-4	0.009570088	0.009684938	0.009242823	0.008127159	0.009998652

names	coefficients	standardized_coefficients	î
Intercept	10.6710	12.0241	
LotFrontage	0	0	
LotArea	0.0344	0.0337	
YearBuilt	0.0373	0.0372	
MasVnrArea	0	Θ	
BsmtFinSF2	0	0	
BsmtUnfSF	-0.0085	-0.0084	
X1stFlrSF	0.0389	0.0383	
X2ndFlrSF	0	0	
LowQualFinSF	0	0	
GrLivArea	0.0817	0.0833	
BsmtFullBath	0	0	
BsmtHalfBath	0	0	
FullBath	0	0	
HalfBath	0.0066	0.0066	
BedroomAbvGr	0	0	
KitchenAbvGr	-0.0123	-0.0124	
TotRmsAbvGrd	0.0041	0.0042	
Fireplaces	0.0125	0.0125	
GarageCars	0.0315	0.0309	
WoodDeckSF	0.0052	0.0052	
OpenPorchSF	0	0	
EnclosedPorch	0	0	
X3SsnPorch	0	0	•

▼ OUTPUT - STANDARDIZED COEFFICIENT MAGNITUDES (STANDARDIZED COEFFICIENT MAGNITUDES)

ı	names	coefficients	sign	A
(GrLivArea	0.0833	POS	
(OverallQual	0.0705	POS	
(OverallCond	0.0421	POS	
ı	NeighRich	0.0395	POS	П
2	X1stFlrSF	0.0383	POS	
,	YearBuilt	0.0372	POS	
	TotalSqFeet	0.0363	POS	
	LotArea	0.0337	POS	
•	GarageCars	0.0309	POS	
	TotBathrooms	0.0286	POS	
:	SaleTypeNew	0.0262	POS	
	Functional	0.0223	POS	
:	SaleConditionNormal	0.0205	POS	
1	BsmtFinType1	0.0183	POS	
ı	NeighborhoodCrawfor	0.0173	POS	
1	KitchenQual	0.0164	POS	
•	Condition1Norm	0.0154	POS	
1	BsmtExposure	0.0151	POS	
ı	NeighborhoodSomerst	0.0129	POS	
	Fireplaces	0.0125	POS	
1	KitchenAbvGr	0.0124	NEG	
ı	NeighborhoodOldTown	0.0123	NEG	
•	CentralAir	0.0120	POS	
ı	BsmtQual	0.0117	POS	•

▼ PREVIEW POJO

⟨**/>** Preview POJO

Import Files

Search: /home/sato/Desktop/Ames/H2oFlow/te

Search Results: (All files added)

Q

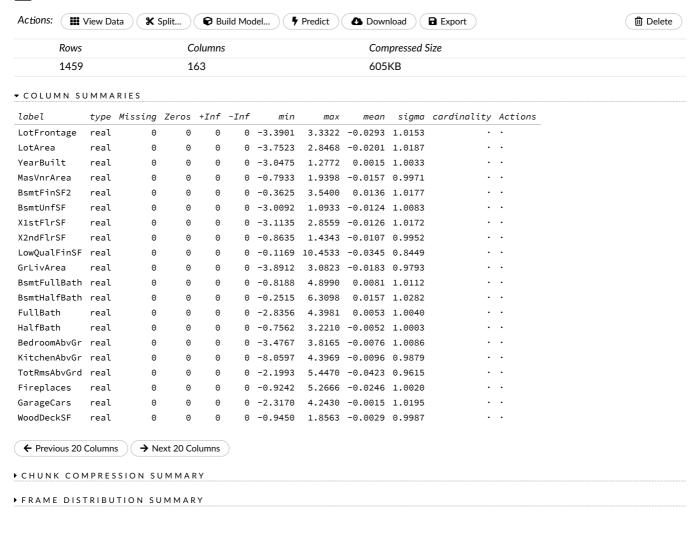


≨ Job

Run Time 00:00:00.127
Remaining Time 00:00:00.0
Type Frame
Key **Q** test.hex

Description Parse
Status DONE
Progress 100%
Done.
Actions Q View

test.hex



Predict

Name: LinearRegresion_prediction

Model: LInear_Regresion

Frame: test.hex ▼

Actions: F Predict

7 Prediction

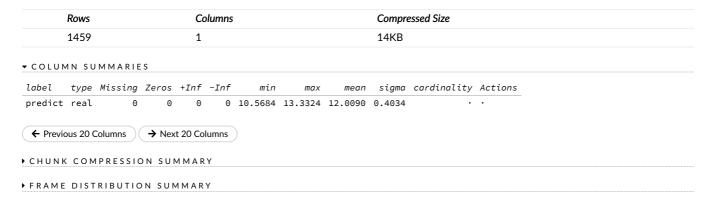
▼ PREDICTION

 $prediction_frame \quad \texttt{LinearRegresion_prediction}$

■ Combine predictions with frame

⊞ LinearRegresion_prediction

Actions: Wew Data Split... Split... Predict Download Export



Predict

Name: Lasso_prediction

Model: Lasso_grid_model_1

Frame: test.hex ▼

Actions: Fredict

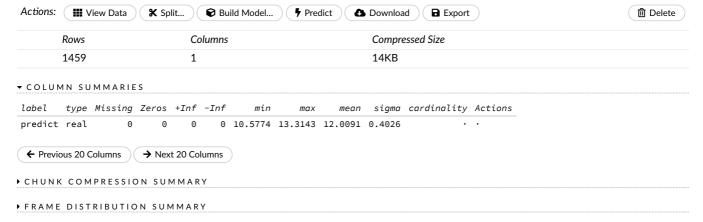
▶ Prediction

▼ PREDICTION

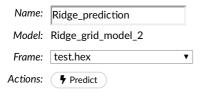
prediction_frame Lasso_prediction

■ Combine predictions with frame

■ Lasso_prediction



Predict

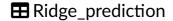


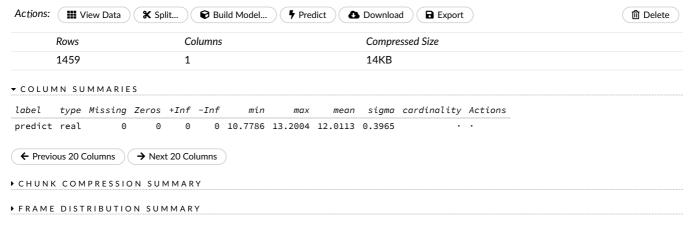
7 Prediction

▼ PREDICTION

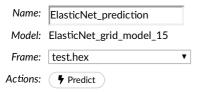
prediction_frame Ridge_prediction

■ Combine predictions with frame





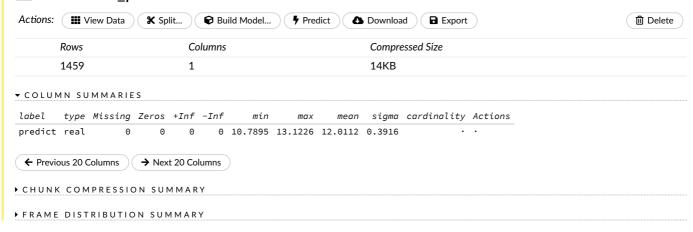
▶ Predict



Prediction



cs ElasticNet_prediction



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