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proc import datafile = '/folders/myfolders/SASInput.csv'
  out = work.Train
  dbms = CSV replace
;
run;
proc import datafile = '/folders/myfolders/SASOutput.csv'
  out = work.Test
  dbms = CSV
;
run;
/*FOR BYOA*/
PROC GLM DATA = Train (WHERE =(NEIGHBORHOOD IN ("NAMES", "Edwards","BrkSide")));
CLASS NEIGHBORHOOD;
MODEL LogSalePrice = LogLiving | NEIGHBORHOOD / solution;
RUN;
PROC GLM DATA = Train (WHERE =(NEIGHBORHOOD IN ("NAMES", "Edwards","BrkSide"))) plots=all;
CLASS NEIGHBORHOOD;
MODEL LogSalePrice = LogLiving Neighborhood/ solution;
RUN;
/*FOR FORWARD, BACKWARD, AND STEPWISE*/
DATA TEST_Log;
SET TEST;
LogSalePrice = .;
run;
DATA TRAIN;
SET TRAIN (DROP = GRLIVAREA);
LIVING = ROUND(LIVING,100);
RUN;
PROC SQL;CREATE TABLE NEIGHBORHOODS AS SELECT DISTINCT NEIGHBORHOOD FROM TRAIN;QUIT;
DATA AMES_IOWA;
SET TRAIN
(WHERE=(INDEX(NEIGHBORHOOD,'AMES') > 0 OR INDEX(NEIGHBORHOOD,'IOWA') > 0));
RUN;
ods graphics on;
/*

Forward

*/
proc glmselect data=Train TESTDATA= work.TEST_Log plots=all;
  CLASS Alley BldgType BsmtCond BsmtExposure BsmtFinType1 BsmtFinType2
BsmtQual CentralAir Condition1 Condition2 Electrical ExterCond ExterQual
Exterior1st Exterior2nd Fence FireplaceQu Foundation Functional GarageCond
GarageFinish GarageQual GarageType Heating HeatingQC HouseStyle KitchenQual
LandContour LandSlope LotConfig LotFrontage LotShape MSZoning MasVnrType
MiscFeature Neighborhood PavedDrive PoolQC RoofMatl RoofStyle SaleCondition
SaleType Street Utilities
;
  model LogSalePrice = MSSubClass MSZoning LotFrontage LotArea Street Alley LotShape
LandContour Utilities LotConfig LandSlope Neighborhood Condition1 Condition2 BldgType
HouseStyle OverallQual OverallCond YearBuilt YearRemodAdd RoofStyle RoofMatl Exterior1st
Exterior2nd MasVnrType MasVnrArea ExterQual ExterCond Foundation BsmtQual BsmtCond
BsmtExposure BsmtFinType1 BsmtFinSF1 BsmtFinType2 BsmtFinSF2 BsmtUnfSF TotalBsmtSF
Heating HeatingQC CentralAir Electrical _1stFlrSF _2ndFlrSF LowQualFinSF
BsmtFullBath BsmtHalfBath FullBath HalfBath BedroomAbvGr KitchenAbvGr KitchenQual
TotRmsAbvGrd Functional Fireplaces FireplaceQu GarageType GarageYrBlt GarageFinish GarageCars
GarageArea GarageQual GarageCond PavedDrive WoodDeckSF OpenPorchSF EnclosedPorch _3SsnPorch
ScreenPorch PoolArea PoolQC Fence MiscFeature MiscVal MoSold YrSold SaleType SaleCondition
Living LogLiving
/ selection = Forward(select = ADJRSQ stop = CV SLE = .15) /*details=all stats=all*/;
run;
/*

Backward

*/
proc glmselect data=Train TESTDATA= work.TEST_Log plots=all;
  CLASS Alley BldgType BsmtCond BsmtExposure BsmtFinType1 BsmtFinType2
BsmtQual CentralAir Condition1 Condition2 Electrical ExterCond ExterQual
Exterior1st Exterior2nd Fence FireplaceQu Foundation Functional GarageCond
GarageFinish GarageQual GarageType Heating HeatingQC HouseStyle KitchenQual
LandContour LandSlope LotConfig LotFrontage LotShape MSZoning MasVnrType
MiscFeature Neighborhood PavedDrive PoolQC RoofMatl RoofStyle SaleCondition
SaleType Street Utilities
;

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model LogSalePrice = MSSubClass MSZoning LotFrontage LotArea Street Alley LotShape
LandContour Utilities LotConfig LandSlope Neighborhood Condition1 Condition2 BldgType
HouseStyle OverallQual OverallCond YearBuilt YearRemodAdd RoofStyle RoofMatl Exterior1st
Exterior2nd MasVnrType MasVnrArea ExterQual ExterCond Foundation BsmtQual BsmtCond
BsmtExposure BsmtFinType1 BsmtFinSF1 BsmtFinType2 BsmtFinSF2 BsmtUnfSF TotalBsmtSF
Heating HeatingQC CentralAir Electrical _1stFlrSF _2ndFlrSF LowQualFinSF
BsmtFullBath BsmtHalfBath FullBath HalfBath BedroomAbvGr KitchenAbvGr KitchenQual
TotRmsAbvGrd Functional Fireplaces FireplaceQu GarageType GarageYrBlt GarageFinish GarageCars
GarageArea GarageQual GarageCond PavedDrive WoodDeckSF OpenPorchSF EnclosedPorch _3SsnPorch
ScreenPorch PoolArea PoolQC Fence MiscFeature MiscVal MoSold YrSold SaleType SaleCondition
Living LogLiving

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/ selection = Backward(select = ADJR SQ stop = CV CHOOSE = CV) /*details=all stats=all*/;
run;
/*

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Stepwise

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*/
proc glmselect data=Train TESTDATA= work.TEST_Log plots=all;
CLASS Alley BldgType BsmtCond BsmtExposure BsmtFinType1 BsmtFinType2
BsmtQual CentralAir Condition1 Condition2 Electrical ExterCond ExterQual
Exterior1st Exterior2nd Fence FireplaceQu Foundation Functional GarageCond
GarageFinish GarageQual GarageType Heating HeatingQC HouseStyle KitchenQual
LandContour LandSlope LotConfig LotFrontage LotShape MSZoning MasVnrType
MiscFeature Neighborhood PavedDrive PoolQC RoofMatl RoofStyle SaleCondition
SaleType Street Utilities
;
model LogSalePrice = MSSubClass MSZoning LotFrontage LotArea Street Alley LotShape
LandContour Utilities LotConfig LandSlope Neighborhood Condition1 Condition2 BldgType
HouseStyle OverallQual OverallCond YearBuilt YearRemodAdd RoofStyle RoofMatl Exterior1st
Exterior2nd MasVnrType MasVnrArea ExterQual ExterCond Foundation BsmtQual BsmtCond
BsmtExposure BsmtFinType1 BsmtFinSF1 BsmtFinType2 BsmtFinSF2 BsmtUnfSF TotalBsmtSF
Heating HeatingQC CentralAir Electrical _1stFlrSF _2ndFlrSF LowQualFinSF
BsmtFullBath BsmtHalfBath FullBath HalfBath BedroomAbvGr KitchenAbvGr KitchenQual
TotRmsAbvGrd Functional Fireplaces FireplaceQu GarageType GarageYrBlt GarageFinish GarageCars
GarageArea GarageQual GarageCond PavedDrive WoodDeckSF OpenPorchSF EnclosedPorch _3SsnPorch
ScreenPorch PoolArea PoolQC Fence MiscFeature MiscVal MoSold YrSold SaleType SaleCondition
Living LogLiving
/ selection = STEPWISE(select = ADJR SQ stop = CV slentry = .15 SLE = .15) /*details=all stats=all*/;
run;
/*

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Custom Model

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*/
proc glm data = Train PLOTS=all;
CLASS Neighborhood MSZoning HouseStyle CentralAir GarageFinish SaleCondition
BsmtQual ExterQual KitchenQual LotFrontage BsmtFinType1;
model LogSalePrice = LogLiving Neighborhood MSZoning
HouseStyle GarageArea GarageCars OverallQual
TotalBsmtSF CentralAir GarageFinish ExterQual _1stFlrSF FullBath YearBuilt YearRemodAdd SaleCondition KitchenQual
BsmtQual BsmtFinType1 BsmtFinType1*TotalBsmtSF TotRmsAbvGrd LotFrontage Neighborhood*LogLiving/ solution;
run;

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