**Results Linear Regression:**

Call:

lm(formula = train\_data$SalePrice ~ ., data = train\_data)

Residuals:

Min 1Q Median 3Q Max

-365405 -11904 636 12169 193459

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) -6.322e+04 2.096e+04 -3.016 0.002620 \*\*

LotFrontage 2.802e+01 2.880e+01 0.973 0.330848

LotArea 4.072e-01 9.420e-02 4.323 1.68e-05 \*\*\*

OverallQual 1.059e+04 1.255e+03 8.433 < 2e-16 \*\*\*

MasVnrArea 1.620e+01 7.563e+00 2.142 0.032396 \*

BsmtFinSF1 4.544e+00 5.936e+00 0.765 0.444169

BsmtUnfSF -1.055e+01 5.914e+00 -1.784 0.074694 .

TotalBsmtSF 2.405e+01 7.009e+00 3.432 0.000623 \*\*\*

`1stFlrSF` 2.680e+01 1.832e+01 1.463 0.143874

`2ndFlrSF` 2.377e+01 1.849e+01 1.286 0.198790

GrLivArea 1.029e+01 1.756e+01 0.586 0.558078

BsmtFullBath -4.204e+02 2.363e+03 -0.178 0.858825

FullBath 3.362e+03 2.669e+03 1.260 0.208087

HalfBath 6.099e+03 2.617e+03 2.331 0.019961 \*

TotRmsAbvGrd 2.114e+03 1.055e+03 2.004 0.045321 \*

Fireplaces 1.489e+04 3.365e+03 4.426 1.06e-05 \*\*\*

GarageCars 1.323e+03 2.934e+03 0.451 0.652090

GarageArea 2.482e+01 9.623e+00 2.579 0.010037 \*

WoodDeckSF 1.402e+01 7.554e+00 1.855 0.063829 .

OpenPorchSF -6.265e+00 1.465e+01 -0.428 0.668917

MSSubClass\_30 8.696e+02 4.849e+03 0.179 0.857719

MSSubClass\_60 9.125e+03 4.330e+03 2.107 0.035324 \*

MSZoning\_RL -4.849e+03 4.087e+03 -1.186 0.235708

MSZoning\_RM -1.256e+04 4.482e+03 -2.802 0.005173 \*\*

LotShape\_Reg -9.422e+03 5.047e+03 -1.867 0.062209 .

LotShape\_IR1 -8.083e+03 5.029e+03 -1.607 0.108304

Neighborhood\_NoRidge 4.476e+04 6.310e+03 7.093 2.41e-12 \*\*\*

Neighborhood\_NridgHt 2.110e+04 4.840e+03 4.358 1.44e-05 \*\*\*

Neighborhood\_StoneBr 4.155e+04 6.519e+03 6.374 2.76e-10 \*\*\*

HouseStyle\_2Story -7.706e+03 4.134e+03 -1.864 0.062575 .

RoofStyle\_Gable 8.135e+01 6.007e+03 0.014 0.989197

RoofStyle\_Hip 1.651e+03 6.316e+03 0.261 0.793798

Exterior1st\_VinylSd -1.990e+03 8.879e+03 -0.224 0.822737

Exterior2nd\_VinylSd 6.403e+03 8.915e+03 0.718 0.472780

MasVnrType\_BrkFace 1.289e+04 7.913e+03 1.629 0.103708

MasVnrType\_Stone 1.819e+04 8.661e+03 2.100 0.035930 \*

MasVnrType\_None 1.823e+04 8.018e+03 2.273 0.023206 \*

ExterQual\_Gd 5.116e+03 1.077e+04 0.475 0.634830

ExterQual\_TA 1.562e+03 1.028e+04 0.152 0.879264

ExterQual\_Ex 2.191e+04 1.241e+04 1.766 0.077763 .

Foundation\_PConc -4.568e+03 7.708e+03 -0.593 0.553497

Foundation\_CBlock -5.174e+03 7.449e+03 -0.695 0.487434

Foundation\_BrkTil -5.517e+03 7.859e+03 -0.702 0.482863

BsmtQual\_Ex 2.429e+04 7.259e+03 3.346 0.000850 \*\*\*

BsmtQual\_Gd 5.520e+03 5.852e+03 0.943 0.345714

BsmtQual\_TA 3.076e+03 5.299e+03 0.580 0.561756

BsmtExposure\_No -3.090e+03 2.230e+03 -1.386 0.166125

BsmtExposure\_Gd 1.542e+04 3.653e+03 4.221 2.64e-05 \*\*\*

BsmtFinType1\_GLQ 1.377e+03 2.708e+03 0.508 0.611378

HeatingQC\_Ex 4.330e+03 2.566e+03 1.687 0.091834 .

HeatingQC\_TA -1.443e+03 2.567e+03 -0.562 0.574170

CentralAir\_N -6.577e+03 4.238e+03 -1.552 0.121002

Electrical\_SBrkr 1.005e+03 3.392e+03 0.296 0.767098

KitchenQual\_Gd 6.841e+03 6.472e+03 1.057 0.290761

KitchenQual\_TA -9.246e+02 5.995e+03 -0.154 0.877455

KitchenQual\_Ex 2.933e+04 7.789e+03 3.765 0.000176 \*\*\*

FireplaceQu\_Ex 1.615e+04 7.658e+03 2.109 0.035158 \*

FireplaceQu\_Gd 2.152e+03 2.760e+03 0.780 0.435768

FireplaceQu\_NA 1.208e+04 4.565e+03 2.647 0.008247 \*\*

GarageType\_Attchd 1.295e+04 6.497e+03 1.993 0.046470 \*

GarageType\_Detchd 1.510e+04 6.588e+03 2.292 0.022122 \*

GarageType\_BuiltIn 1.588e+04 7.738e+03 2.052 0.040450 \*

GarageType\_NA 1.906e+04 9.485e+03 2.009 0.044763 \*

GarageFinish\_Unf 5.716e+02 2.754e+03 0.208 0.835657

GarageFinish\_Fin 2.000e+03 2.532e+03 0.790 0.429615

GarageQual\_TA -5.908e+03 5.228e+03 -1.130 0.258718

GarageCond\_TA 5.996e+03 5.702e+03 1.051 0.293277

PavedDrive\_Y 6.816e+03 6.243e+03 1.092 0.275230

PavedDrive\_N -5.789e+02 7.253e+03 -0.080 0.936398

SaleType\_WD 4.802e+03 3.892e+03 1.234 0.217600

SaleType\_New 5.928e+04 2.116e+04 2.801 0.005191 \*\*

SaleCondition\_Partial -3.788e+04 2.050e+04 -1.848 0.064861 .

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 28010 on 1048 degrees of freedom

Multiple R-squared: 0.8838, Adjusted R-squared: 0.8759

F-statistic: 112.2 on 71 and 1048 DF, p-value: < 2.2e-16

RMSE: 42730.94

**Results Bayesian Linear Regression:**

Call:

bayesglm(formula = train\_data$SalePrice ~ ., family = gaussian,

data = train\_data, prior.mean = 0, prior.scale = Inf, prior.df = Inf)

Deviance Residuals:

Min 1Q Median 3Q Max

-365405 -11903 636 12169 193459

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) -6.322e+04 2.096e+04 -3.016 0.002620 \*\*

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FullBath 3.362e+03 2.669e+03 1.260 0.208087

HalfBath 6.099e+03 2.617e+03 2.331 0.019961 \*

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Foundation\_BrkTil -5.517e+03 7.859e+03 -0.702 0.482863

BsmtQual\_Ex 2.429e+04 7.259e+03 3.346 0.000850 \*\*\*

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BsmtQual\_TA 3.076e+03 5.299e+03 0.580 0.561756

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GarageType\_BuiltIn 1.588e+04 7.738e+03 2.052 0.040450 \*

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GarageFinish\_Fin 2.000e+03 2.532e+03 0.790 0.429615

GarageQual\_TA -5.908e+03 5.228e+03 -1.130 0.258718

GarageCond\_TA 5.996e+03 5.702e+03 1.051 0.293277

PavedDrive\_Y 6.816e+03 6.243e+03 1.092 0.275230

PavedDrive\_N -5.789e+02 7.253e+03 -0.080 0.936398

SaleType\_WD 4.802e+03 3.892e+03 1.234 0.217600

SaleType\_New 5.928e+04 2.116e+04 2.801 0.005191 \*\*

SaleCondition\_Partial -3.788e+04 2.050e+04 -1.848 0.064861 .

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for gaussian family taken to be 784828450)

Null deviance: 7.0772e+12 on 1119 degrees of freedom

Residual deviance: 8.2250e+11 on 1048 degrees of freedom

AIC: 26189

Number of Fisher Scoring iterations: 8

RMSE: 42730.94

R square for both: 0.85