After using the vanilla regression and addressing the outliers of a living area greater than 4,000 sq. ft. and a sales price of over $300,000, there is significant evidence that both the neighborhood and square footage of the living area influence the estimated sale price of the home in Ames. The intercept in this model provides an estimated sale price of $80,327 for a house with a living area of one hundred square feet in the NAmes neighborhood. For a house with a living area of one hundred square feet, the model gives us an estimated sales price decrease of $60,354 for the BrkSide neighborhood and an estimated sales price decrease of $43,225 for the Edwards neighborhood. For every increased living area of one hundred square feet the estimated sales price increases $4,956 for a home in the NAmes neighborhood, the estimated sales price increases $3,780 in the BrkSide neighborhood and the estimated sale price increases $2,059 in the Edwards neighborhood.

PredictedSalesPrice = ß0 + ß1 \* (BrkSide) + ß2 \* (Edwards) + ß3 \* (GrLivAreaper100) + ß4 \* (BrkSide \* GrLivAreaper100) + ß5 \* (Edwards \* GrLivAreaper100)

PredictedSalesPrice = $80,325 – $60,354 \* (BrkSide) – $43,225 \* (Edwards) + $4,956 \* (GrLivAreaper100) + $3,760 \* (BrkSide \* GrLivAreaper100) + $2,059 \* (Edwards \* GrLivAreaper100)

NAmes Neighborhood:

PredictedSalesPrice= $80,325 + $4,956 \* GrLivAreaper100

BrkSide Neighborhood:

PredictedSalesPrice= $19,971 + $8,716 \* GrLivAreaper100

Edwards Neighborhood:

PredictedSalesPrice= $37,100 + $7,015 \* GrLivAreaper100

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Predicted SalePrice = ß0 + ß1 (GrLivAreaper100) + ß2 (GrLivAreaper100\* NAmes) + ß3 (GrLivAreaper100\* Edwards) + ß4 (GrLivAreaper100\* BrkSide)

Predicted SalePrice = $80,325 + $4,956 \* (GrLivAreaper100) + $0 \* (GrLivAreaper100\* NAmes) + $2,059 \* (GrLivAreaper100\* Edwards) + $3,760 \* (GrLivAreaper100\* BrkSide)