**Residual Plots for Sale Price**

**Descriptive Statistics: LotFrontage, LotArea, Age, Basement Fin, BasementUnfi, GrLivArea, ...**

Variable Mean StDev Minimum Q1 Median Q3 Maximum

LotFrontage 70.09 20.28 21.00 60.00 68.00 84.00 115.00

LotArea 10177 5845 1596 7367 9742 11562 50271

Age 45.77 30.34 10.00 13.50 49.00 64.00 107.00

Basement Finished Sq. Ft 460.5 494.9 0.0 0.0 384.0 801.5 1880.0

BasementUnfinishedSF 581.6 470.4 0.0 203.5 448.0 836.0 1777.0

GrLivArea 1483.6 479.3 520.0 1112.5 1370.0 1729.5 2945.0

Bathrooms 2.1667 0.7410 1.0000 2.0000 2.0000 2.5000 4.0000

BedroomAbvGr 2.7246 0.7837 0.0000 2.0000 3.0000 3.0000 4.0000

Kitchens 1.1159 0.3653 1.0000 1.0000 1.0000 1.0000 3.0000

TotRmsAbvGrd 6.449 1.451 4.000 5.500 6.000 7.000 11.000

Fireplaces 0.5942 0.6490 0.0000 0.0000 1.0000 1.0000 2.0000

GarageCars 1.8261 0.7661 0.0000 1.0000 2.0000 2.0000 3.0000

Deck 159.6 143.1 0.0 69.5 144.0 216.0 857.0

SalePrice 181526 81017 40000 128250 158000 228000 438780

**Caption:**

**Results for: Worksheet 2**

****

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 3.92424E+11 30186488259 30.80 0.000

LotFrontage 1 155967441 155967441 0.16 0.692

LotArea 1 4458844436 4458844436 4.55 0.037

Age 1 6430893290 6430893290 6.56 0.013

Basement Finished Sq. Ft 1 4012818920 4012818920 4.09 0.048

BasementUnfinishedSF 1 9518420513 9518420513 9.71 0.003

GrLivArea 1 3626606672 3626606672 3.70 0.060

Bathrooms 1 1546187976 1546187976 1.58 0.214

BedroomAbvGr 1 3445225376 3445225376 3.51 0.066

Kitchens 1 2695773917 2695773917 2.75 0.103

TotRmsAbvGrd 1 1807856487 1807856487 1.84 0.180

Fireplaces 1 1675412873 1675412873 1.71 0.197

GarageCars 1 4373090768 4373090768 4.46 0.039

Deck 1 15455454 15455454 0.02 0.901

Error 55 53909906436 980180117

Total 68 4.46334E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

31307.8 87.92% 85.07% 73.94%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 38268 36170 1.06 0.295

LotFrontage -99 248 -0.40 0.692 1.76

LotArea 2.14 1.00 2.13 0.037 2.39

Age -603 235 -2.56 0.013 3.53

Basement Finished Sq. Ft 29.1 14.4 2.02 0.048 3.52

BasementUnfinishedSF 43.0 13.8 3.12 0.003 2.93

GrLivArea 38.3 19.9 1.92 0.060 6.33

Bathrooms 14393 11460 1.26 0.214 5.00

BedroomAbvGr -14818 7904 -1.87 0.066 2.66

Kitchens -24209 14598 -1.66 0.103 1.97

TotRmsAbvGrd 9325 6867 1.36 0.180 6.88

Fireplaces 10760 8230 1.31 0.197 1.98

GarageCars 16289 7712 2.11 0.039 2.42

Deck 3.7 29.5 0.13 0.901 1.24

Regression Equation

SalePrice = 38268 - 99 LotFrontage + 2.14 LotArea - 603 Age + 29.1 Basement Finished Sq. Ft

+ 43.0 BasementUnfinishedSF + 38.3 GrLivArea + 14393 Bathrooms

- 14818 BedroomAbvGr - 24209 Kitchens + 9325 TotRmsAbvGrd + 10760 Fireplaces

+ 16289 GarageCars + 3.7 Deck

Fits and Diagnostics for Unusual Observations

Obs SalePrice Fit Resid Std Resid

6 143000 199021 -56021 -2.02 R

7 307000 247081 59919 2.03 R

45 385000 360977 24023 2.02 R X

50 438780 363497 75283 2.76 R

R Large residual

X Unusual X

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 4

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 2.80847E+11 21603586732 30.55 0.000

LotFrontage 1 1103062343 1103062343 1.56 0.217

LotArea 1 230850892 230850892 0.33 0.570

Age 1 6195956340 6195956340 8.76 0.005

Basement Finished Sq. Ft 1 3256698639 3256698639 4.61 0.037

BasementUnfinishedSF 1 7088239389 7088239389 10.02 0.003

GrLivArea 1 3839925691 3839925691 5.43 0.024

Bathrooms 1 1553119538 1553119538 2.20 0.144

BedroomAbvGr 1 2328571302 2328571302 3.29 0.075

Kitchens 1 2610238661 2610238661 3.69 0.060

TotRmsAbvGrd 1 915192049 915192049 1.29 0.261

Fireplaces 1 1922506928 1922506928 2.72 0.105

GarageCars 1 3150512287 3150512287 4.46 0.040

Deck 1 11623437 11623437 0.02 0.898

Error 51 36063287877 707123292

Total 64 3.16910E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

26591.8 88.62% 85.72% 79.54%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 52596 31002 1.70 0.096

LotFrontage 317 253 1.25 0.217 2.52

LotArea -0.99 1.73 -0.57 0.570 2.78

Age -594 201 -2.96 0.005 3.39

Basement Finished Sq. Ft 27.0 12.6 2.15 0.037 3.06

BasementUnfinishedSF 37.4 11.8 3.17 0.003 2.70

GrLivArea 42.1 18.1 2.33 0.024 6.11

Bathrooms 14432 9738 1.48 0.144 4.63

BedroomAbvGr -13257 7305 -1.81 0.075 2.34

Kitchens -24192 12592 -1.92 0.060 2.02

TotRmsAbvGrd 6684 5875 1.14 0.261 6.15

Fireplaces 11803 7158 1.65 0.105 2.01

GarageCars 14059 6661 2.11 0.040 2.32

Deck -3.3 25.8 -0.13 0.898 1.28

Regression Equation

SalePrice = 52596 + 317 LotFrontage - 0.99 LotArea - 594 Age + 27.0 Basement Finished Sq. Ft

+ 37.4 BasementUnfinishedSF + 42.1 GrLivArea + 14432 Bathrooms

- 13257 BedroomAbvGr - 24192 Kitchens + 6684 TotRmsAbvGrd + 11803 Fireplaces

+ 14059 GarageCars - 3.3 Deck

Fits and Diagnostics for Unusual Observations

Obs SalePrice Fit Resid Std Resid

8 129900 180717 -50817 -2.25 R

38 319900 264305 55595 2.40 R

41 113000 72890 40110 2.08 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 7

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 2.62528E+11 20194429378 35.48 0.000

LotFrontage 1 1071479216 1071479216 1.88 0.176

LotArea 1 79163780 79163780 0.14 0.711

Age 1 7100241825 7100241825 12.47 0.001

Basement Finished Sq. Ft 1 2059526401 2059526401 3.62 0.063

BasementUnfinishedSF 1 3591150489 3591150489 6.31 0.015

GrLivArea 1 2787873851 2787873851 4.90 0.032

Bathrooms 1 519012620 519012620 0.91 0.344

BedroomAbvGr 1 1750972817 1750972817 3.08 0.086

Kitchens 1 2434955808 2434955808 4.28 0.044

TotRmsAbvGrd 1 1536588045 1536588045 2.70 0.107

Fireplaces 1 3490039862 3490039862 6.13 0.017

GarageCars 1 4464257498 4464257498 7.84 0.007

Deck 1 31454939 31454939 0.06 0.815

Error 48 27323303674 569235493

Total 61 2.89851E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

23858.7 90.57% 88.02% 84.22%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 54891 29535 1.86 0.069

LotFrontage 313 228 1.37 0.176 2.37

LotArea -0.59 1.59 -0.37 0.711 2.72

Age -648 183 -3.53 0.001 3.21

Basement Finished Sq. Ft 21.7 11.4 1.90 0.063 3.05

BasementUnfinishedSF 28.0 11.2 2.51 0.015 2.85

GrLivArea 36.2 16.4 2.21 0.032 6.14

Bathrooms 8670 9080 0.95 0.344 4.88

BedroomAbvGr -11810 6734 -1.75 0.086 2.31

Kitchens -27877 13479 -2.07 0.044 1.47

TotRmsAbvGrd 8987 5470 1.64 0.107 6.34

Fireplaces 16615 6710 2.48 0.017 2.00

GarageCars 16950 6053 2.80 0.007 2.17

Deck 5.6 23.9 0.24 0.815 1.32

Regression Equation

SalePrice = 54891 + 313 LotFrontage - 0.59 LotArea - 648 Age + 21.7 Basement Finished Sq. Ft

+ 28.0 BasementUnfinishedSF + 36.2 GrLivArea + 8670 Bathrooms

- 11810 BedroomAbvGr - 27877 Kitchens + 8987 TotRmsAbvGrd + 16615 Fireplaces

+ 16950 GarageCars + 5.6 Deck

Fits and Diagnostics for Unusual Observations

Obs SalePrice Fit Resid Std Resid

26 40000 86077 -46077 -2.07 R

29 277500 233853 43647 2.00 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 9

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 2.39017E+11 18385911843 38.02 0.000

LotFrontage 1 485202142 485202142 1.00 0.322

LotArea 1 46347305 46347305 0.10 0.758

Age 1 6352566589 6352566589 13.14 0.001

Basement Finished Sq. Ft 1 1114124946 1114124946 2.30 0.136

BasementUnfinishedSF 1 2596942812 2596942812 5.37 0.025

GrLivArea 1 2838113171 2838113171 5.87 0.019

Bathrooms 1 156966061 156966061 0.32 0.572

BedroomAbvGr 1 698327257 698327257 1.44 0.236

Kitchens 1 2753066378 2753066378 5.69 0.021

TotRmsAbvGrd 1 1648891408 1648891408 3.41 0.071

Fireplaces 1 3040038528 3040038528 6.29 0.016

GarageCars 1 3921253444 3921253444 8.11 0.007

Deck 1 1528064 1528064 0.00 0.955

Error 46 22245943861 483607475

Total 59 2.61263E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

21991.1 91.49% 89.08% 85.00%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 53699 27355 1.96 0.056

LotFrontage 213 213 1.00 0.322 2.37

LotArea 0.47 1.51 0.31 0.758 2.85

Age -615 170 -3.62 0.001 3.01

Basement Finished Sq. Ft 16.3 10.7 1.52 0.136 2.98

BasementUnfinishedSF 24.1 10.4 2.32 0.025 2.91

GrLivArea 36.7 15.2 2.42 0.019 6.19

Bathrooms 4818 8458 0.57 0.572 4.69

BedroomAbvGr -7639 6357 -1.20 0.236 2.37

Kitchens -29810 12494 -2.39 0.021 1.48

TotRmsAbvGrd 9316 5045 1.85 0.071 6.34

Fireplaces 15549 6202 2.51 0.016 1.97

GarageCars 15954 5603 2.85 0.007 2.14

Deck 1.2 22.1 0.06 0.955 1.31

Regression Equation

SalePrice = 53699 + 213 LotFrontage + 0.47 LotArea - 615 Age + 16.3 Basement Finished Sq. Ft

+ 24.1 BasementUnfinishedSF + 36.7 GrLivArea + 4818 Bathrooms - 7639 BedroomAbvGr

- 29810 Kitchens + 9316 TotRmsAbvGrd + 15549 Fireplaces + 15954 GarageCars

+ 1.2 Deck

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

23 306000 258376 47624 2.40 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 10

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 2.23762E+11 17212484352 39.78 0.000

LotFrontage 1 116942195 116942195 0.27 0.606

LotArea 1 236239755 236239755 0.55 0.464

Age 1 6477292010 6477292010 14.97 0.000

Basement Finished Sq. Ft 1 278915499 278915499 0.64 0.426

BasementUnfinishedSF 1 2007335505 2007335505 4.64 0.037

GrLivArea 1 2882536094 2882536094 6.66 0.013

Bathrooms 1 143584666 143584666 0.33 0.567

BedroomAbvGr 1 436346009 436346009 1.01 0.321

Kitchens 1 3351216914 3351216914 7.74 0.008

TotRmsAbvGrd 1 1598865500 1598865500 3.70 0.061

Fireplaces 1 3641442925 3641442925 8.42 0.006

GarageCars 1 2448208195 2448208195 5.66 0.022

Deck 1 7305541 7305541 0.02 0.897

Error 45 19471928045 432709512

Total 58 2.43234E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

20801.7 91.99% 89.68% 85.56%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 65074 26263 2.48 0.017

LotFrontage 107 206 0.52 0.606 2.40

LotArea 1.07 1.45 0.74 0.464 2.91

Age -621 161 -3.87 0.000 2.93

Basement Finished Sq. Ft 8.5 10.6 0.80 0.426 3.09

BasementUnfinishedSF 21.32 9.90 2.15 0.037 2.94

GrLivArea 37.0 14.3 2.58 0.013 6.16

Bathrooms 4609 8001 0.58 0.567 4.57

BedroomAbvGr -6071 6045 -1.00 0.321 2.39

Kitchens -33085 11889 -2.78 0.008 1.49

TotRmsAbvGrd 9174 4773 1.92 0.061 6.32

Fireplaces 17112 5899 2.90 0.006 1.97

GarageCars 12923 5433 2.38 0.022 2.15

Deck -2.7 21.0 -0.13 0.897 1.31

Regression Equation

SalePrice = 65074 + 107 LotFrontage + 1.07 LotArea - 621 Age + 8.5 Basement Finished Sq. Ft

+ 21.32 BasementUnfinishedSF + 37.0 GrLivArea + 4609 Bathrooms

- 6071 BedroomAbvGr - 33085 Kitchens + 9174 TotRmsAbvGrd + 17112 Fireplaces

+ 12923 GarageCars - 2.7 Deck

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

11 345000 312313 32687 2.06 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 11

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 1.94662E+11 14974035419 37.37 0.000

LotFrontage 1 124867648 124867648 0.31 0.580

LotArea 1 259971419 259971419 0.65 0.425

Age 1 5604452317 5604452317 13.99 0.001

Basement Finished Sq. Ft 1 265016495 265016495 0.66 0.420

BasementUnfinishedSF 1 2839290962 2839290962 7.09 0.011

GrLivArea 1 4282255989 4282255989 10.69 0.002

Bathrooms 1 164595701 164595701 0.41 0.525

BedroomAbvGr 1 267151767 267151767 0.67 0.419

Kitchens 1 2994921799 2994921799 7.47 0.009

TotRmsAbvGrd 1 180762147 180762147 0.45 0.505

Fireplaces 1 2089249150 2089249150 5.21 0.027

GarageCars 1 2339207163 2339207163 5.84 0.020

Deck 1 6177421 6177421 0.02 0.902

Error 44 17630714455 400698056

Total 57 2.12293E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

20017.4 91.70% 89.24% 85.20%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 74893 25684 2.92 0.006

LotFrontage 110 198 0.56 0.580 2.38

LotArea 1.12 1.39 0.81 0.425 2.88

Age -582 156 -3.74 0.001 2.90

Basement Finished Sq. Ft 8.3 10.2 0.81 0.420 3.01

BasementUnfinishedSF 26.02 9.77 2.66 0.011 3.06

GrLivArea 48.3 14.8 3.27 0.002 6.62

Bathrooms 4935 7700 0.64 0.525 4.03

BedroomAbvGr -4776 5849 -0.82 0.419 2.30

Kitchens -31355 11469 -2.73 0.009 1.50

TotRmsAbvGrd 3552 5289 0.67 0.505 6.87

Fireplaces 13516 5919 2.28 0.027 1.96

GarageCars 12636 5230 2.42 0.020 2.05

Deck -2.5 20.2 -0.12 0.902 1.31

Regression Equation

SalePrice = 74893 + 110 LotFrontage + 1.12 LotArea - 582 Age + 8.3 Basement Finished Sq. Ft

+ 26.02 BasementUnfinishedSF + 48.3 GrLivArea + 4935 Bathrooms

- 4776 BedroomAbvGr - 31355 Kitchens + 3552 TotRmsAbvGrd + 13516 Fireplaces

+ 12636 GarageCars - 2.5 Deck

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

12 279500 241614 37886 2.08 R

56 317000 280601 36399 2.07 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 13

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 1.62322E+11 12486304944 37.72 0.000

LotFrontage 1 101984052 101984052 0.31 0.582

LotArea 1 563126887 563126887 1.70 0.199

Age 1 3388480756 3388480756 10.24 0.003

Basement Finished Sq. Ft 1 395038845 395038845 1.19 0.281

BasementUnfinishedSF 1 2906338318 2906338318 8.78 0.005

GrLivArea 1 3453650785 3453650785 10.43 0.002

Bathrooms 1 664160248 664160248 2.01 0.164

BedroomAbvGr 1 289341086 289341086 0.87 0.355

Kitchens 1 3383066569 3383066569 10.22 0.003

TotRmsAbvGrd 1 88985454 88985454 0.27 0.607

Fireplaces 1 1440420866 1440420866 4.35 0.043

GarageCars 1 1297741784 1297741784 3.92 0.054

Deck 1 45005671 45005671 0.14 0.714

Error 42 13904265993 331053952

Total 55 1.76226E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

18194.9 92.11% 89.67% 85.40%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 72307 23386 3.09 0.004

LotFrontage 100 180 0.56 0.582 2.34

LotArea 1.67 1.28 1.30 0.199 2.94

Age -466 146 -3.20 0.003 2.91

Basement Finished Sq. Ft 10.18 9.32 1.09 0.281 2.95

BasementUnfinishedSF 26.84 9.06 2.96 0.005 2.89

GrLivArea 45.0 13.9 3.23 0.002 6.47

Bathrooms 10235 7226 1.42 0.164 4.26

BedroomAbvGr -4997 5345 -0.93 0.355 2.19

Kitchens -33394 10446 -3.20 0.003 1.50

TotRmsAbvGrd 2502 4825 0.52 0.607 6.36

Fireplaces 11326 5430 2.09 0.043 1.96

GarageCars 9607 4852 1.98 0.054 1.92

Deck -6.8 18.5 -0.37 0.714 1.33

Regression Equation

SalePrice = 72307 + 100 LotFrontage + 1.67 LotArea - 466 Age + 10.18 Basement Finished Sq. Ft

+ 26.84 BasementUnfinishedSF + 45.0 GrLivArea + 10235 Bathrooms

- 4997 BedroomAbvGr - 33394 Kitchens + 2502 TotRmsAbvGrd + 11326 Fireplaces

+ 9607 GarageCars - 6.8 Deck

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

17 325300 283006 42294 2.58 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 14

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 1.37678E+11 10590638268 37.11 0.000

LotFrontage 1 84941892 84941892 0.30 0.588

LotArea 1 496976905 496976905 1.74 0.194

Age 1 3559979998 3559979998 12.47 0.001

Basement Finished Sq. Ft 1 850369087 850369087 2.98 0.092

BasementUnfinishedSF 1 3067897106 3067897106 10.75 0.002

GrLivArea 1 3158712331 3158712331 11.07 0.002

Bathrooms 1 336720172 336720172 1.18 0.284

BedroomAbvGr 1 447175059 447175059 1.57 0.218

Kitchens 1 3165397319 3165397319 11.09 0.002

TotRmsAbvGrd 1 145289314 145289314 0.51 0.480

Fireplaces 1 1117937957 1117937957 3.92 0.055

GarageCars 1 1202030053 1202030053 4.21 0.047

Deck 1 28694951 28694951 0.10 0.753

Error 41 11702243749 285420579

Total 54 1.49381E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

16894.4 92.17% 89.68% 85.08%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 78497 21829 3.60 0.001

LotFrontage 91 167 0.55 0.588 2.25

LotArea 1.57 1.19 1.32 0.194 2.84

Age -478 135 -3.53 0.001 2.83

Basement Finished Sq. Ft 15.27 8.84 1.73 0.092 3.04

BasementUnfinishedSF 27.59 8.42 3.28 0.002 2.80

GrLivArea 43.1 13.0 3.33 0.002 5.93

Bathrooms 7373 6788 1.09 0.284 4.02

BedroomAbvGr -6238 4983 -1.25 0.218 2.08

Kitchens -32327 9707 -3.33 0.002 1.50

TotRmsAbvGrd 3201 4487 0.71 0.480 5.84

Fireplaces 10021 5064 1.98 0.055 1.95

GarageCars 9250 4507 2.05 0.047 1.80

Deck -5.4 17.2 -0.32 0.753 1.33

Regression Equation

SalePrice = 78497 + 91 LotFrontage + 1.57 LotArea - 478 Age + 15.27 Basement Finished Sq. Ft

+ 27.59 BasementUnfinishedSF + 43.1 GrLivArea + 7373 Bathrooms

- 6238 BedroomAbvGr - 32327 Kitchens + 3201 TotRmsAbvGrd + 10021 Fireplaces

+ 9250 GarageCars - 5.4 Deck

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

30 309000 274064 34936 2.40 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 15

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 1.16706E+11 8977374672 35.72 0.000

LotFrontage 1 5284504 5284504 0.02 0.885

LotArea 1 695241532 695241532 2.77 0.104

Age 1 3744712868 3744712868 14.90 0.000

Basement Finished Sq. Ft 1 1442038854 1442038854 5.74 0.021

BasementUnfinishedSF 1 3295560527 3295560527 13.11 0.001

GrLivArea 1 2321337799 2321337799 9.24 0.004

Bathrooms 1 118156657 118156657 0.47 0.497

BedroomAbvGr 1 583051638 583051638 2.32 0.136

Kitchens 1 2890601861 2890601861 11.50 0.002

TotRmsAbvGrd 1 286393945 286393945 1.14 0.292

Fireplaces 1 889152278 889152278 3.54 0.067

GarageCars 1 1103906602 1103906602 4.39 0.042

Deck 1 38719781 38719781 0.15 0.697

Error 40 10053633099 251340827

Total 53 1.26760E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

15853.7 92.07% 89.49% 84.79%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 85159 20649 4.12 0.000

LotFrontage 23 159 0.15 0.885 2.16

LotArea 1.86 1.12 1.66 0.104 2.79

Age -491 127 -3.86 0.000 2.75

Basement Finished Sq. Ft 20.47 8.54 2.40 0.021 3.16

BasementUnfinishedSF 28.63 7.91 3.62 0.001 2.72

GrLivArea 37.6 12.4 3.04 0.004 5.41

Bathrooms 4438 6473 0.69 0.497 3.79

BedroomAbvGr -7143 4690 -1.52 0.136 1.96

Kitchens -30946 9125 -3.39 0.002 1.50

TotRmsAbvGrd 4529 4243 1.07 0.292 5.36

Fireplaces 8970 4769 1.88 0.067 1.95

GarageCars 8870 4232 2.10 0.042 1.69

Deck -6.3 16.1 -0.39 0.697 1.33

Regression Equation

SalePrice = 85159 + 23 LotFrontage + 1.86 LotArea - 491 Age + 20.47 Basement Finished Sq. Ft

+ 28.63 BasementUnfinishedSF + 37.6 GrLivArea + 4438 Bathrooms

- 7143 BedroomAbvGr - 30946 Kitchens + 4529 TotRmsAbvGrd + 8970 Fireplaces

+ 8870 GarageCars - 6.3 Deck

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

22 134800 104897 29903 2.01 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 16

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 1.17210E+11 9016131543 38.91 0.000

LotFrontage 1 26849100 26849100 0.12 0.735

LotArea 1 591130011 591130011 2.55 0.118

Age 1 3742243032 3742243032 16.15 0.000

Basement Finished Sq. Ft 1 1663595526 1663595526 7.18 0.011

BasementUnfinishedSF 1 3729793085 3729793085 16.09 0.000

GrLivArea 1 2402894045 2402894045 10.37 0.003

Bathrooms 1 147333890 147333890 0.64 0.430

BedroomAbvGr 1 916934322 916934322 3.96 0.054

Kitchens 1 3043324370 3043324370 13.13 0.001

TotRmsAbvGrd 1 393065890 393065890 1.70 0.200

Fireplaces 1 925610525 925610525 3.99 0.053

GarageCars 1 808687806 808687806 3.49 0.069

Deck 1 29225806 29225806 0.13 0.724

Error 39 9038071146 231745414

Total 52 1.26248E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

15223.2 92.84% 90.45% 85.57%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 83382 19846 4.20 0.000

LotFrontage 52 153 0.34 0.735 2.17

LotArea 1.72 1.08 1.60 0.118 2.78

Age -491 122 -4.02 0.000 2.73

Basement Finished Sq. Ft 22.08 8.24 2.68 0.011 3.18

BasementUnfinishedSF 30.72 7.66 4.01 0.000 2.74

GrLivArea 38.2 11.9 3.22 0.003 5.28

Bathrooms 4960 6220 0.80 0.430 3.75

BedroomAbvGr -9160 4605 -1.99 0.054 2.04

Kitchens -31787 8772 -3.62 0.001 1.50

TotRmsAbvGrd 5329 4092 1.30 0.200 5.31

Fireplaces 9154 4580 2.00 0.053 1.92

GarageCars 7667 4104 1.87 0.069 1.71

Deck -5.5 15.5 -0.36 0.724 1.33

Regression Equation

SalePrice = 83382 + 52 LotFrontage + 1.72 LotArea - 491 Age + 22.08 Basement Finished Sq. Ft

+ 30.72 BasementUnfinishedSF + 38.2 GrLivArea + 4960 Bathrooms

- 9160 BedroomAbvGr - 31787 Kitchens + 5329 TotRmsAbvGrd + 9154 Fireplaces

+ 7667 GarageCars - 5.5 Deck

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

18 139400 112359 27041 2.02 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 17

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 13 1.17812E+11 9062490107 42.53 0.000

LotFrontage 1 103760630 103760630 0.49 0.490

LotArea 1 455810189 455810189 2.14 0.152

Age 1 3729218056 3729218056 17.50 0.000

Basement Finished Sq. Ft 1 2191223766 2191223766 10.28 0.003

BasementUnfinishedSF 1 4189552102 4189552102 19.66 0.000

GrLivArea 1 2713289746 2713289746 12.73 0.001

Bathrooms 1 222485255 222485255 1.04 0.313

BedroomAbvGr 1 1227977096 1227977096 5.76 0.021

Kitchens 1 2464760978 2464760978 11.57 0.002

TotRmsAbvGrd 1 272817109 272817109 1.28 0.265

Fireplaces 1 420505968 420505968 1.97 0.168

GarageCars 1 1160873749 1160873749 5.45 0.025

Deck 1 762229 762229 0.00 0.953

Error 38 8096548458 213067065

Total 51 1.25909E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

14596.8 93.57% 91.37% 86.29%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 76156 19337 3.94 0.000

LotFrontage 104 149 0.70 0.490 2.21

LotArea 1.52 1.04 1.46 0.152 2.78

Age -490 117 -4.18 0.000 2.64

Basement Finished Sq. Ft 26.06 8.12 3.21 0.003 3.29

BasementUnfinishedSF 32.88 7.41 4.43 0.000 2.79

GrLivArea 40.9 11.5 3.57 0.001 5.30

Bathrooms 6121 5990 1.02 0.313 3.61

BedroomAbvGr -10756 4481 -2.40 0.021 2.09

Kitchens -28968 8517 -3.40 0.002 1.54

TotRmsAbvGrd 4464 3945 1.13 0.265 5.36

Fireplaces 6433 4579 1.40 0.168 2.07

GarageCars 9381 4019 2.33 0.025 1.75

Deck 0.9 15.2 0.06 0.953 1.38

Regression Equation

SalePrice = 76156 + 104 LotFrontage + 1.52 LotArea - 490 Age + 26.06 Basement Finished Sq. Ft

+ 32.88 BasementUnfinishedSF + 40.9 GrLivArea + 6121 Bathrooms

- 10756 BedroomAbvGr - 28968 Kitchens + 4464 TotRmsAbvGrd + 6433 Fireplaces

+ 9381 GarageCars + 0.9 Deck

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotFrontage, LotArea, Age, Basement Fin, ...**

Method

Rows unused 17

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 12 1.17812E+11 9817634097 47.29 0.000

LotFrontage 1 103648915 103648915 0.50 0.484

LotArea 1 466362176 466362176 2.25 0.142

Age 1 3891949853 3891949853 18.75 0.000

Basement Finished Sq. Ft 1 2216575018 2216575018 10.68 0.002

BasementUnfinishedSF 1 4251855866 4251855866 20.48 0.000

GrLivArea 1 2716414209 2716414209 13.08 0.001

Bathrooms 1 221910826 221910826 1.07 0.308

BedroomAbvGr 1 1255191155 1255191155 6.05 0.018

Kitchens 1 2465649943 2465649943 11.88 0.001

TotRmsAbvGrd 1 274943802 274943802 1.32 0.257

Fireplaces 1 422654954 422654954 2.04 0.162

GarageCars 1 1190457833 1190457833 5.73 0.022

Error 39 8097310686 207623351

Total 51 1.25909E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

14409.1 93.57% 91.59% 87.20%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 76203 19073 4.00 0.000

LotFrontage 103 145 0.71 0.484 2.16

LotArea 1.53 1.02 1.50 0.142 2.74

Age -488 113 -4.33 0.000 2.51

Basement Finished Sq. Ft 25.99 7.96 3.27 0.002 3.24

BasementUnfinishedSF 32.82 7.25 4.53 0.000 2.74

GrLivArea 40.9 11.3 3.62 0.001 5.30

Bathrooms 6110 5910 1.03 0.308 3.60

BedroomAbvGr -10710 4356 -2.46 0.018 2.03

Kitchens -28972 8407 -3.45 0.001 1.54

TotRmsAbvGrd 4476 3889 1.15 0.257 5.35

Fireplaces 6444 4516 1.43 0.162 2.06

GarageCars 9337 3899 2.39 0.022 1.69

Regression Equation

SalePrice = 76203 + 103 LotFrontage + 1.53 LotArea - 488 Age + 25.99 Basement Finished Sq. Ft

+ 32.82 BasementUnfinishedSF + 40.9 GrLivArea + 6110 Bathrooms

- 10710 BedroomAbvGr - 28972 Kitchens + 4476 TotRmsAbvGrd + 6444 Fireplaces

+ 9337 GarageCars

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotArea, Age, Basement Fin, BasementUnfi, ...**

Method

Rows unused 17

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 11 1.17708E+11 10700723659 52.19 0.000

LotArea 1 1356713121 1356713121 6.62 0.014

Age 1 4173058194 4173058194 20.35 0.000

Basement Finished Sq. Ft 1 2115537694 2115537694 10.32 0.003

BasementUnfinishedSF 1 4216399751 4216399751 20.57 0.000

GrLivArea 1 2636439556 2636439556 12.86 0.001

Bathrooms 1 204831445 204831445 1.00 0.324

BedroomAbvGr 1 1151995348 1151995348 5.62 0.023

Kitchens 1 2430836580 2430836580 11.86 0.001

TotRmsAbvGrd 1 299835207 299835207 1.46 0.234

Fireplaces 1 505207081 505207081 2.46 0.124

GarageCars 1 1238048385 1238048385 6.04 0.018

Error 40 8200959601 205023990

Total 51 1.25909E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

14318.7 93.49% 91.70% 87.81%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 79191 18481 4.28 0.000

LotArea 1.989 0.773 2.57 0.014 1.60

Age -500 111 -4.51 0.000 2.46

Basement Finished Sq. Ft 24.97 7.77 3.21 0.003 3.13

BasementUnfinishedSF 32.67 7.20 4.53 0.000 2.73

GrLivArea 38.6 10.8 3.59 0.001 4.87

Bathrooms 5860 5862 1.00 0.324 3.59

BedroomAbvGr -9770 4122 -2.37 0.023 1.84

Kitchens -28746 8348 -3.44 0.001 1.54

TotRmsAbvGrd 4663 3856 1.21 0.234 5.33

Fireplaces 6954 4430 1.57 0.124 2.01

GarageCars 9504 3868 2.46 0.018 1.68

Regression Equation

SalePrice = 79191 + 1.989 LotArea - 500 Age + 24.97 Basement Finished Sq. Ft

+ 32.67 BasementUnfinishedSF + 38.6 GrLivArea + 5860 Bathrooms

- 9770 BedroomAbvGr - 28746 Kitchens + 4663 TotRmsAbvGrd + 6954 Fireplaces

+ 9504 GarageCars

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotArea, Age, Basement Fin, BasementUnfi, ...**

Method

Rows unused 17

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 10 1.17503E+11 11750312881 57.31 0.000

LotArea 1 1335126199 1335126199 6.51 0.015

Age 1 8822544956 8822544956 43.03 0.000

Basement Finished Sq. Ft 1 2372603359 2372603359 11.57 0.002

BasementUnfinishedSF 1 4185021325 4185021325 20.41 0.000

GrLivArea 1 2970398508 2970398508 14.49 0.000

BedroomAbvGr 1 1189842433 1189842433 5.80 0.021

Kitchens 1 2266827672 2266827672 11.06 0.002

TotRmsAbvGrd 1 550565074 550565074 2.69 0.109

Fireplaces 1 449840746 449840746 2.19 0.146

GarageCars 1 1367674052 1367674052 6.67 0.013

Error 41 8405791046 205019294

Total 51 1.25909E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

14318.5 93.32% 91.70% 88.00%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 83670 17930 4.67 0.000

LotArea 1.973 0.773 2.55 0.015 1.60

Age -568.9 86.7 -6.56 0.000 1.50

Basement Finished Sq. Ft 26.14 7.68 3.40 0.002 3.06

BasementUnfinishedSF 29.74 6.58 4.52 0.000 2.28

GrLivArea 40.4 10.6 3.81 0.000 4.73

BedroomAbvGr -9922 4119 -2.41 0.021 1.84

Kitchens -27390 8237 -3.33 0.002 1.50

TotRmsAbvGrd 5954 3633 1.64 0.109 4.73

Fireplaces 6532 4410 1.48 0.146 1.99

GarageCars 9929 3844 2.58 0.013 1.66

Regression Equation

SalePrice = 83670 + 1.973 LotArea - 568.9 Age + 26.14 Basement Finished Sq. Ft

+ 29.74 BasementUnfinishedSF + 40.4 GrLivArea - 9922 BedroomAbvGr

- 27390 Kitchens + 5954 TotRmsAbvGrd + 6532 Fireplaces + 9929 GarageCars

***CAPTION: BEFORE P VALUE EVALUATION***



**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotArea, Age, Basement Fin, BasementUnfi, ...**

Method

Rows unused 17

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 9 1.16953E+11 12994729304 60.94 0.000

LotArea 1 1202872892 1202872892 5.64 0.022

Age 1 8618408844 8618408844 40.42 0.000

Basement Finished Sq. Ft 1 2081122359 2081122359 9.76 0.003

BasementUnfinishedSF 1 4346800642 4346800642 20.38 0.000

GrLivArea 1 11494823434 11494823434 53.90 0.000

BedroomAbvGr 1 705814462 705814462 3.31 0.076

Kitchens 1 1896219086 1896219086 8.89 0.005

Fireplaces 1 292202836 292202836 1.37 0.248

GarageCars 1 1603777105 1603777105 7.52 0.009

Error 42 8956356119 213246574

Total 51 1.25909E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

14603.0 92.89% 91.36% 87.60%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 91364 17648 5.18 0.000

LotArea 1.866 0.786 2.38 0.022 1.59

Age -561.6 88.3 -6.36 0.000 1.50

Basement Finished Sq. Ft 24.18 7.74 3.12 0.003 2.99

BasementUnfinishedSF 30.28 6.71 4.51 0.000 2.28

GrLivArea 53.30 7.26 7.34 0.000 2.13

BedroomAbvGr -6738 3704 -1.82 0.076 1.43

Kitchens -24450 8199 -2.98 0.005 1.42

Fireplaces 5170 4417 1.17 0.248 1.92

GarageCars 10676 3893 2.74 0.009 1.64

Regression Equation

SalePrice = 91364 + 1.866 LotArea - 561.6 Age + 24.18 Basement Finished Sq. Ft

+ 30.28 BasementUnfinishedSF + 53.30 GrLivArea - 6738 BedroomAbvGr

- 24450 Kitchens + 5170 Fireplaces + 10676 GarageCars

Fits and Diagnostics for Unusual Observations

Std

Obs SalePrice Fit Resid Resid

57 226000 196744 29256 2.15 R

R Large residual

**Residual Plots for SalePrice**

**Regression Analysis: SalePrice versus LotArea, Age, Basement Fin, BasementUnfi, ...**

Method

Rows unused 18

Analysis of Variance

Source DF Adj SS Adj MS F-Value P-Value

Regression 9 1.13223E+11 12580308836 64.72 0.000

LotArea 1 1192223726 1192223726 6.13 0.017

Age 1 8348498009 8348498009 42.95 0.000

Basement Finished Sq. Ft 1 1315778004 1315778004 6.77 0.013

BasementUnfinishedSF 1 3874312145 3874312145 19.93 0.000

GrLivArea 1 11522316349 11522316349 59.28 0.000

BedroomAbvGr 1 685395764 685395764 3.53 0.068

Kitchens 1 2090771107 2090771107 10.76 0.002

Fireplaces 1 590210004 590210004 3.04 0.089

GarageCars 1 1372179181 1372179181 7.06 0.011

Error 41 7969302747 194373238

Total 50 1.21192E+11

Model Summary

S R-sq R-sq(adj) R-sq(pred)

13941.8 93.42% 91.98% 88.50%

Coefficients

Term Coef SE Coef T-Value P-Value VIF

Constant 94326 16900 5.58 0.000

LotArea 1.858 0.750 2.48 0.017 1.59

Age -553.2 84.4 -6.55 0.000 1.46

Basement Finished Sq. Ft 19.87 7.64 2.60 0.013 3.09

BasementUnfinishedSF 28.74 6.44 4.46 0.000 2.30

GrLivArea 53.37 6.93 7.70 0.000 2.13

BedroomAbvGr -6641 3536 -1.88 0.068 1.43

Kitchens -25742 7849 -3.28 0.002 1.43

Fireplaces 7581 4351 1.74 0.089 2.02

GarageCars 9916 3732 2.66 0.011 1.65

Regression Equation

SalePrice = 94326 + 1.858 LotArea - 553.2 Age + 19.87 Basement Finished Sq. Ft

+ 28.74 BasementUnfinishedSF + 53.37 GrLivArea - 6641 BedroomAbvGr

- 25742 Kitchens + 7581 Fireplaces + 9916 GarageCars

**Residual Plots for SalePrice**

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