

original data

```
[[ 24. ]
 [ 21.6]
 [ 34.7]
 [ 33.4]]
```

scaled data using sklearn StandardScaler

```
[[ 0.15968566]
 [-0.10152429]
 [ 1.32424667]
 [ 1.18275795]
 [ 1.48750288]]
```

average of original data 22.5328063241

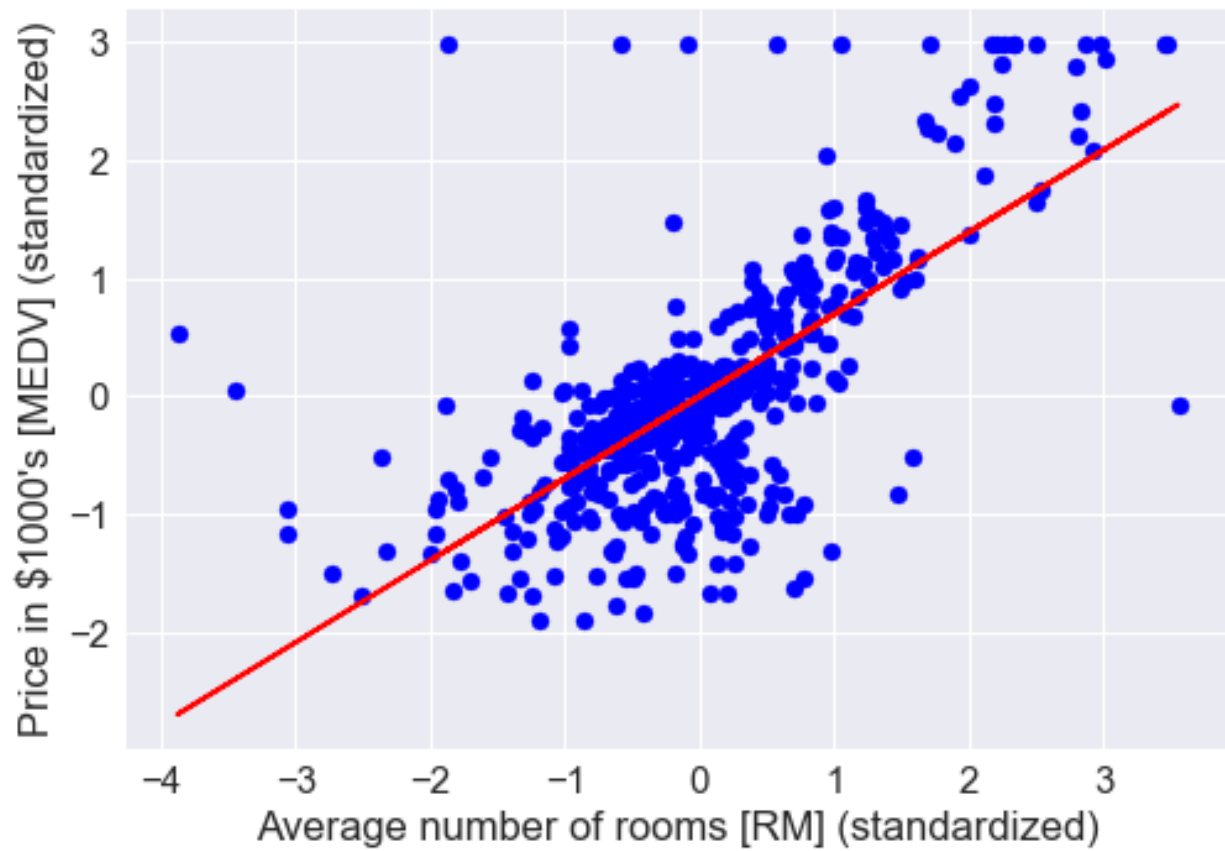
STDV of original data 9.18801154528

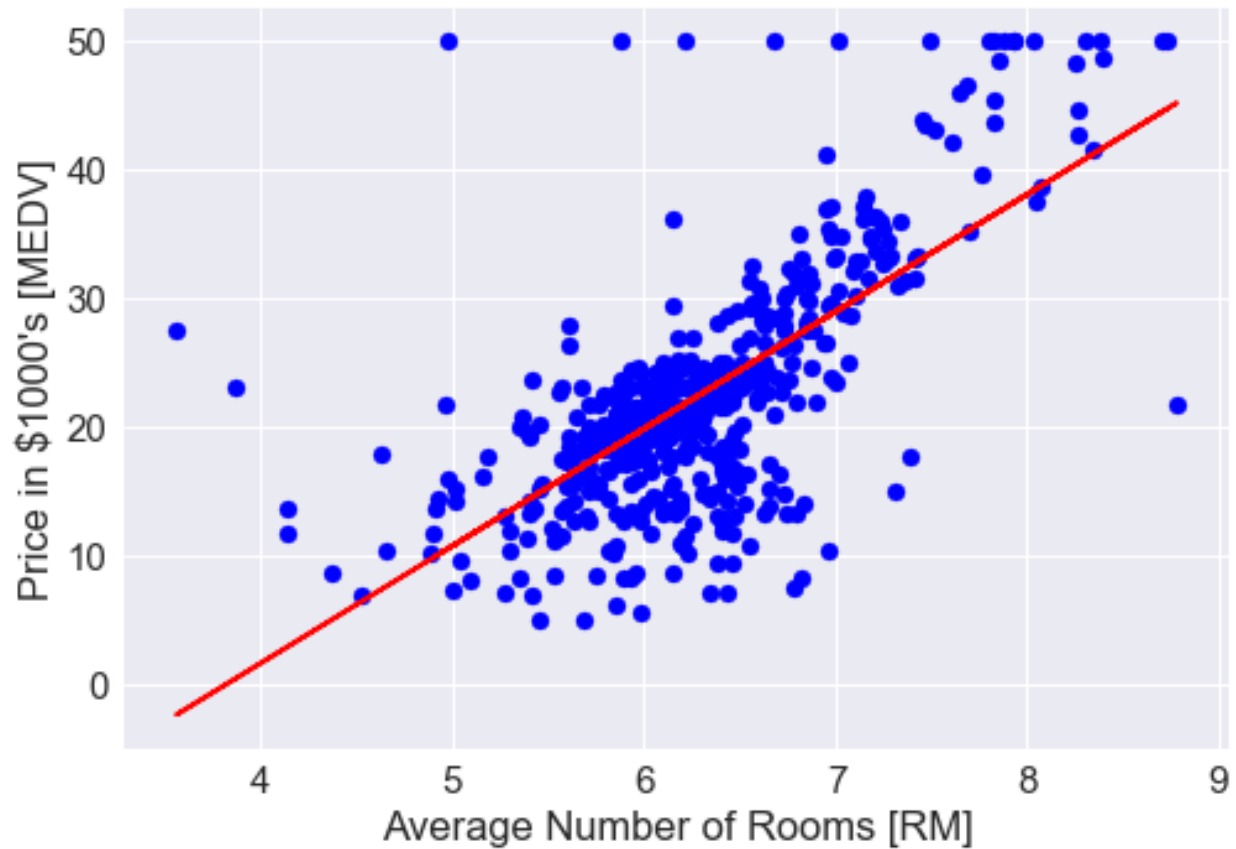
Manually computed Z scores:

```
[[ 0.15968566]
 [-0.10152429]
 [ 1.32424667]
 [ 1.18275795]
 [ 1.48750288]]
```

Slope: 9.102

Intercept: -34.671  
Slope: 0.695  
Intercept: -0.000  
standardized rooms: %.3f [[-1.83016553]]  
Predicted Price std: -1.273  
Predicted Price in \$1000's using standardized data: 10.840  
Predicted Price in \$1000's Using un-standardized data: 10.840





MSE for regression model using un-standrdized features: 43.601

RMSE: 6.60307138922

r2: 0.483525455991

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MSE for standardized data: 0.516474544009

MSE using standardized features converted to original scale: 43.601

RMSE: 6.60307138922

r2 using standardized data and model: 0.483525455991

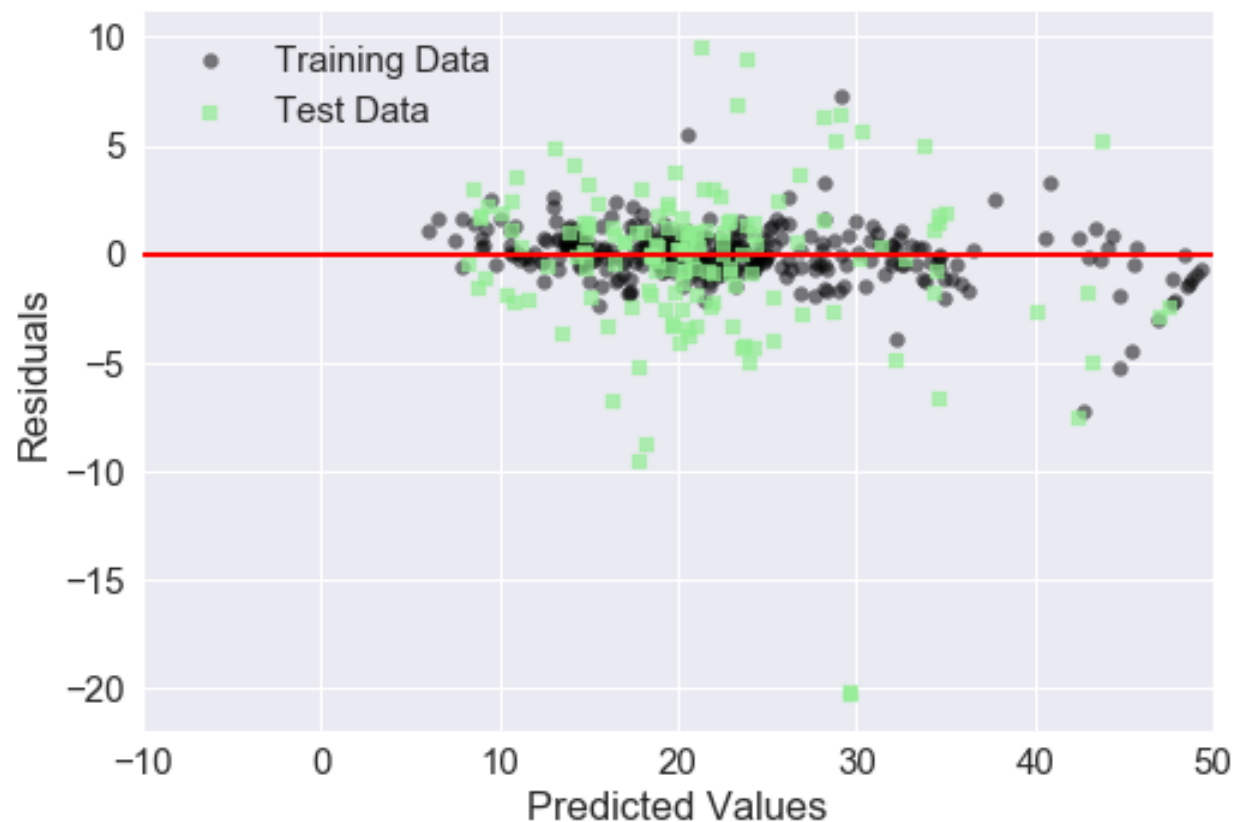
r2 using data converted to original scale 0.483525455991



```

MSE train: 19.958, test: 27.196
R^2 train: 0.765, test: 0.673
MSE train Ridge: 20.145, test: 27.762
R^2 train Ridge: 0.762, test: 0.667
MSE train Lasso: 24.717, test: 32.345
R^2 train Lasso: 0.708, test: 0.612
MSE train elastic: 24.381, test: 31.874
R^2 train elastic: 0.712, test: 0.617
MSE train: 1.409, test: 14.354
R2 train: 0.983, test: 0.828
feature importances: [ 0.03646835  0.00147287  0.00815337  0.00174486  0.016
11471  0.44747402
 0.01272985  0.03728278  0.00418061  0.0167017  0.02260298  0.01103352
 0.38404037]

```



```

cross validated MSE for random forest regressor: [ -4.19598361 -5.89813544 -
23.554687    -5.96051112  -8.48541521
 -27.89186038 -38.30750076 -11.01270146 -12.24943445  -5.76512529]
Mean cross validated MSE -14.3321354714
STDV for cross validated MSE 11.0028716675
cross validated R2 for random forest regressor: [ 0.89741746  0.93961633  0.5
8977173  0.89567192  0.92121269  0.53917238
 0.66932404  0.91672574  0.88803085  0.9013398 ]
Mean cross validated R2: 0.815828294584
STDV for cross validated R2: 0.145351445509

```