

# SSC 442 Lab 02

Team 7

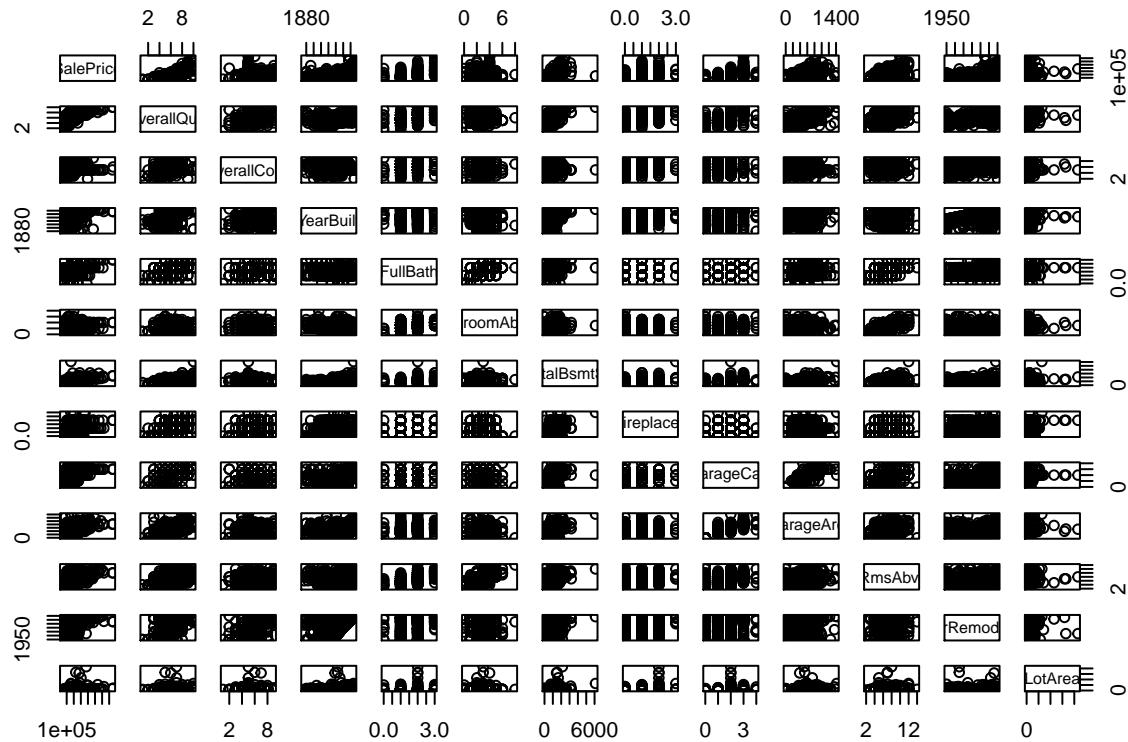
1/30/2020

## Exercise 1

### Part 1:

```
## [1] "MSSubClass"      "LotFrontage"     "LotArea"        "OverallQual"  
## [5] "OverallCond"     "YearBuilt"       "YearRemodAdd"   "BsmtFinSF1"  
## [9] "BsmtFinSF2"       "BsmtUnfSF"       "TotalBsmtSF"    "X1stFlrSF"  
## [13] "X2ndFlrSF"        "LowQualFinSF"    "GrLivArea"      "BsmtFullBath"  
## [17] "BsmtHalfBath"     "FullBath"        "HalfBath"       "BedroomAbvGr"  
## [21] "KitchenAbvGr"     "TotRmsAbvGrd"    "Fireplaces"     "GarageYrBlt"  
## [25] "GarageCars"        "GarageArea"      "WoodDeckSF"     "OpenPorchSF"  
## [29] "EnclosedPorch"     "X3SsnPorch"      "ScreenPorch"    "PoolArea"  
## [33] "MoSold"           "YrSold"          "SalePrice"
```

## Part 2



## Part 3

```

##          LotArea OverallQual OverallCond   YearBuilt   FullBath
## LotArea      1.00000000  0.10580574 -0.00563627  0.01422765  0.1260306
## OverallQual   0.10580574  1.00000000 -0.09193234  0.57232277  0.5505997
## OverallCond  -0.00563627 -0.09193234  1.00000000 -0.37598320 -0.1941495
## YearBuilt     0.01422765  0.57232277 -0.37598320  1.00000000  0.4682708
## FullBath      0.12603063  0.55059971 -0.19414949  0.46827079  1.0000000
## BedroomAbvGr  0.11968991  0.10167636  0.01298006 -0.07065122  0.3632520
## TotalBsmtSF   0.26083313  0.53780850 -0.17109751  0.39145200  0.3237224
## Fireplaces    0.27136401  0.39676504 -0.02381998  0.14771640  0.2436705
## GarageCars    0.15487074  0.60067072 -0.18575751  0.53785009  0.4696720
## GarageArea    0.18040276  0.56202176 -0.15152137  0.47895382  0.4056562
## TotRmsAbvGrd  0.19001478  0.42745234 -0.05758317  0.09558913  0.5547843
## YearRemodAdd  0.01378843  0.55068392  0.07374150  0.59285498  0.4390465
##          BedroomAbvGr TotalBsmtSF Fireplaces GarageCars GarageArea
## LotArea       0.11968991  0.26083313  0.27136401  0.15487074  0.18040276
## OverallQual   0.10167636  0.53780850  0.39676504  0.60067072  0.56202176
## OverallCond   0.01298006 -0.17109751 -0.02381998 -0.18575751 -0.15152137
## YearBuilt     -0.07065122  0.39145200  0.14771640  0.53785009  0.47895382
## FullBath      0.36325198  0.32372241  0.24367050  0.46967204  0.40565621
## BedroomAbvGr  1.00000000  0.05044996  0.10756968  0.08610644  0.06525253
## TotalBsmtSF   0.05044996  1.00000000  0.33951932  0.43458483  0.48666546
## Fireplaces    0.10756968  0.33951932  1.00000000  0.30078877  0.26914124

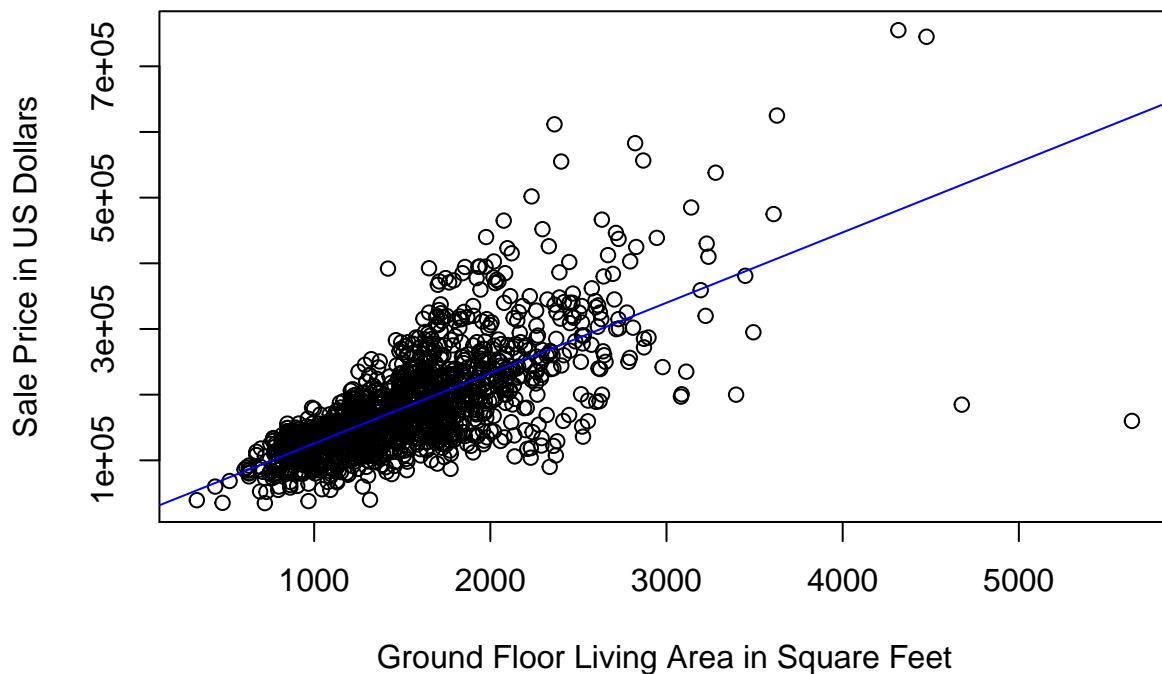
```

```

## GarageCars      0.08610644  0.43458483  0.30078877  1.00000000  0.88247541
## GarageArea     0.06525253  0.48666546  0.26914124  0.88247541  1.00000000
## TotRmsAbvGrd   0.67661994  0.28557256  0.32611448  0.36228857  0.33782212
## YearRemodAdd   -0.04058093  0.29106558  0.11258132  0.42062215  0.37159981
##                  TotRmsAbvGrd  YearRemodAdd
## LotArea         0.19001478   0.01378843
## OverallQual    0.42745234   0.55068392
## OverallCond    -0.05758317   0.07374150
## YearBuilt       0.09558913   0.59285498
## FullBath        0.55478425   0.43904648
## BedroomAbvGr   0.67661994   -0.04058093
## TotalBsmtSF    0.28557256   0.29106558
## Fireplaces      0.32611448   0.11258132
## GarageCars      0.36228857   0.42062215
## GarageArea      0.33782212   0.37159981
## TotRmsAbvGrd   1.00000000   0.19173982
## YearRemodAdd   0.19173982   1.00000000

```

## Part 4



## Exercise 2

### Part 1

### Part 2

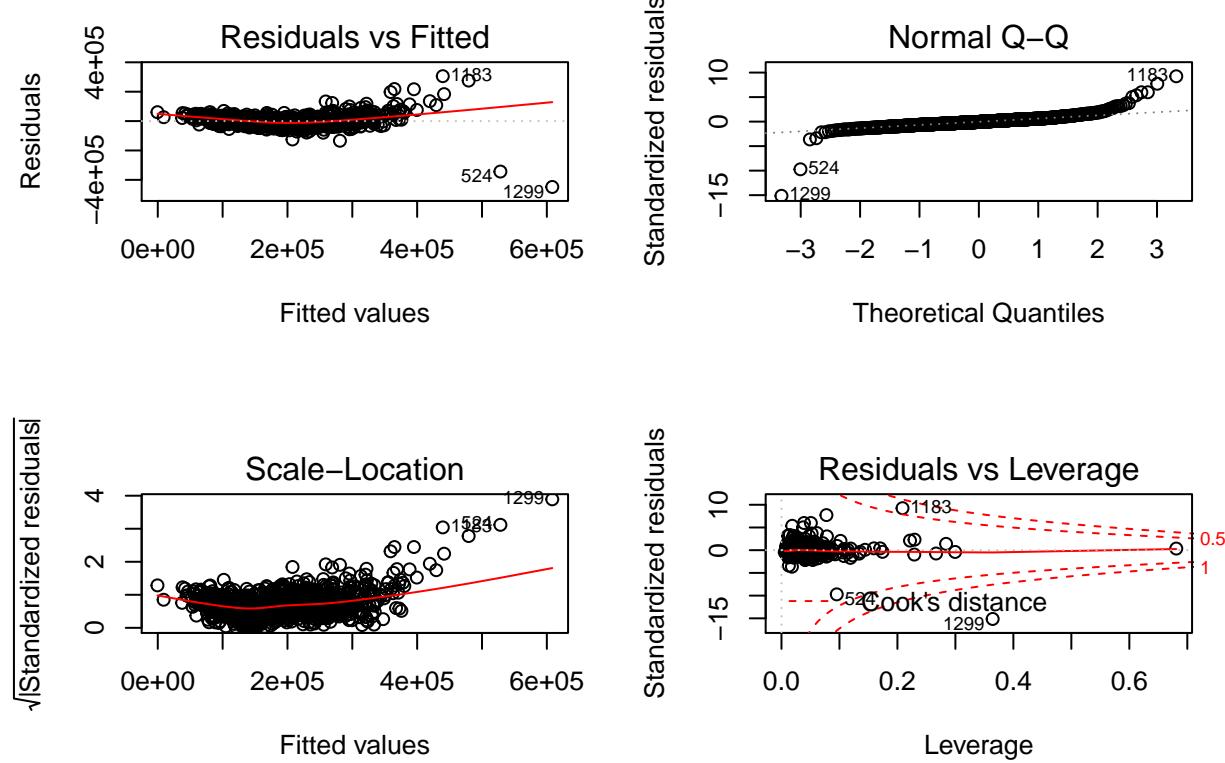
```
##  
## Call:  
## lm(formula = SalePrice ~ ., data = Ames)  
##  
## Residuals:  
##      Min      1Q  Median      3Q     Max  
## -448366 -17235 -2368  14868 305479  
##  
## Coefficients: (2 not defined because of singularities)  
##                  Estimate Std. Error t value Pr(>|t|)  
## (Intercept)    7.789e+03  1.713e+06   0.005 0.996373  
## MSSubClass   -1.897e+02  3.466e+01  -5.473 5.49e-08 ***  
## LotFrontage  -1.090e+02  6.174e+01  -1.765 0.077788 .  
## LotArea       5.018e-01  1.586e-01   3.163 0.001603 **  
## OverallQual   1.943e+04  1.483e+03  13.108 < 2e-16 ***  
## OverallCond   5.194e+03  1.375e+03   3.777 0.000168 ***  
## YearBuilt     3.585e+02  8.766e+01   4.089 4.64e-05 ***  
## YearRemodAdd  8.512e+01  8.712e+01   0.977 0.328750  
## BsmtFinSF1    2.080e+01  5.846e+00   3.558 0.000389 ***  
## BsmtFinSF2    8.635e+00  8.845e+00   0.976 0.329181  
## BsmtUnfSF     6.263e+00  5.313e+00   1.179 0.238736  
## TotalBsmtSF        NA        NA        NA        NA  
## X1stFlrSF     4.937e+01  7.380e+00   6.690 3.55e-11 ***  
## X2ndFlrSF     4.904e+01  6.104e+00   8.035 2.41e-15 ***  
## LowQualFinSF  3.071e+01  2.812e+01   1.092 0.275070  
## GrLivArea        NA        NA        NA        NA  
## BsmtFullBath   7.852e+03  3.214e+03   2.443 0.014704 *  
## BsmtHalfBath   2.173e+03  5.120e+03   0.424 0.671332  
## FullBath        4.581e+03  3.551e+03   1.290 0.197236  
## HalfBath        -1.451e+02  3.329e+03  -0.044 0.965249  
## BedroomAbvGr   -1.048e+04  2.174e+03  -4.824 1.61e-06 ***  
## KitchenAbvGr   -2.248e+04  6.766e+03  -3.322 0.000924 ***  
## TotRmsAbvGrd   5.496e+03  1.496e+03   3.674 0.000250 ***  
## Fireplaces      4.180e+03  2.199e+03   1.901 0.057561 .  
## GarageYrBlt    -7.611e+01  9.147e+01  -0.832 0.405508  
## GarageCars      1.717e+04  3.517e+03   4.882 1.21e-06 ***  
## GarageArea      1.072e+01  1.219e+01   0.880 0.379163  
## WoodDeckSF      2.296e+01  1.009e+01   2.276 0.023036 *  
## OpenPorchSF    -8.400e+00  1.947e+01  -0.432 0.666164  
## EnclosedPorch   5.793e+00  2.081e+01   0.278 0.780771  
## X3SsnPorch      3.561e+01  3.781e+01   0.942 0.346474  
## ScreenPorch     5.794e+01  2.033e+01   2.850 0.004453 **  
## PoolArea        -7.590e+01  2.974e+01  -2.552 0.010850 *  
## MoSold          -2.310e+02  4.245e+02  -0.544 0.586393  
## YrSold          -4.021e+02  8.520e+02  -0.472 0.637073  
## ---  
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
##  
## Residual standard error: 37150 on 1094 degrees of freedom
```

```

##      (333 observations deleted due to missingness)
## Multiple R-squared:  0.8063, Adjusted R-squared:  0.8007
## F-statistic: 142.4 on 32 and 1094 DF,  p-value: < 2.2e-16

```

### Part 3



### Part 4

### Part 5