Assignment3_B_1_1

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Reading data and making data into training and test data.

```
## [1] "head of training data"
```

```
##           Y1         X1        X2
## 1 -1.0565192  -6.236444 0.9615355
## 2 -0.5754127  -3.873848 0.5050130
## 3  5.0910630   5.640287 0.7175317
## 4  2.9475637   1.191125 0.3074231
## 5  2.9519538 -10.849769 0.5960600
## 6  3.1685278   2.603705 0.3109550
```

```
## [1] "head of testing data"
```

```
##            Y1         X1         X2
## 10 -0.7316911 -2.2906586 0.43611757
## 20  1.1998000  7.7123714 0.47222562
## 30  0.6124209 -1.4169026 0.01161898
## 40 -0.1139879  0.6901132 0.48192669
## 50  3.5655124  1.3302962 0.49526489
## 60  4.3900710  3.1920603 0.98896327
```

Fitting data for linear regression model

```
##
## Call:
## lm(formula = Y1 ~ X1 + X2, data = trainData)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.1226 -1.3189 -0.0519  1.1825  3.3815
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  2.77301    0.33680   8.233 1.66e-12 ***
## X1           0.19480    0.03465   5.623 2.24e-07 ***
## X2          -0.15753    0.61320  -0.257    0.798
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.711 on 87 degrees of freedom
## Multiple R-squared:  0.2666, Adjusted R-squared:  0.2498
## F-statistic: 15.81 on 2 and 87 DF,  p-value: 1.387e-06
```

Several metrics useful for regression diagnostics : model.diag.metrics

```
## # A tibble: 6 x 11
##   .rownames     Y1     X1    X2 .fitted .se.fit   .resid   .hat .sigma
##   <chr>      <dbl>  <dbl> <dbl>   <dbl>   <dbl>    <dbl>  <dbl>  <dbl>
## 1 1         -1.06   -6.24 0.962   1.41    0.460 -2.46    0.0724   1.70
## 2 2         -0.575  -3.87 0.505   1.94    0.265 -2.51    0.0240   1.70
```

```
## 3 3          5.09    5.64 0.718   3.76    0.272  1.33    0.0252   1.71
## 4 4          2.95    1.19 0.307   2.96    0.203 -0.00905 0.0141   1.72
## 5 5          2.95  -10.8  0.596   0.566   0.480  2.39    0.0788   1.70
## 6 6          3.17    2.60 0.311   3.23    0.206 -0.0627  0.0145   1.72
## # ... with 2 more variables: .cooksd <dbl>, .std.resid <dbl>
```