# Lab 21 R Script

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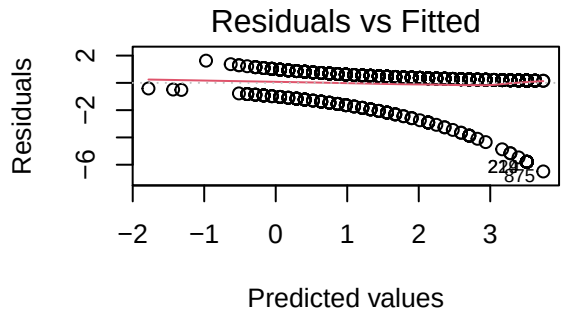
11/15/2022

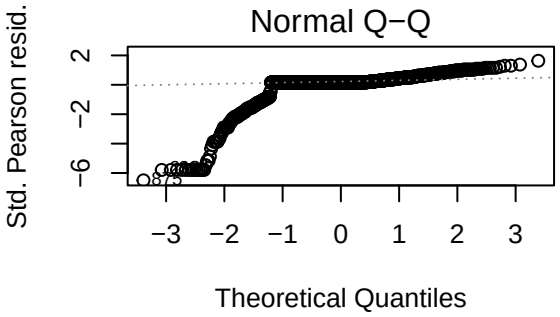
## 1) American Football

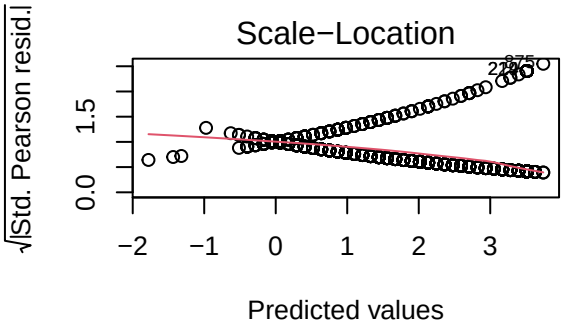
```
placekick = read.csv("C:\\repos\\STAT 50001\\Lab 21\\Placekick.csv")
attach(placekick)

model = glm(good ~ distance,
            family = binomial(logit),
            data   = placekick)
summary(model)
```

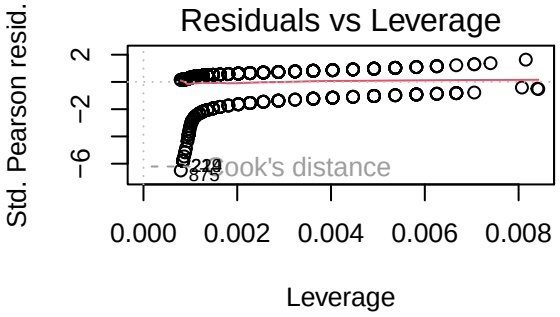
```
##
## Call:
## glm(formula = good ~ distance, family = binomial(logit), data = placekick)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -2.7441   0.2425   0.2425   0.3801   1.6092
##
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)  5.812080   0.326277   17.81   <2e-16 ***
## distance    -0.115027   0.008339  -13.79   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 1013.43  on 1424  degrees of freedom
## Residual deviance:  775.75  on 1423  degrees of freedom
## AIC: 779.75
##
## Number of Fisher Scoring iterations: 6
```

```
# Simple Logistic Regression Model:
# good = [1 + exp( -5.812080 + .115027(distance) )]^-1

par(mfrow=c(2,2))
plot(model)
```




```
model = glm(good ~ distance + PAT,
            family = binomial(logit),
            data   = placekick)
summary(model)
```

```
##
## Call:
## glm(formula = good ~ distance + PAT, family = binomial(logit),
##     data = placekick)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -2.8818   0.1781   0.1781   0.4781   1.4183
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  4.51557    0.45381   9.950  < 2e-16 ***
## distance    -0.08587    0.01100  -7.808 5.83e-15 ***
## PAT          1.33827    0.37951   3.526 0.000421 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 1013.43  on 1424  degrees of freedom
## Residual deviance:  762.41  on 1422  degrees of freedom
```

```
## AIC: 768.41
##
## Number of Fisher Scoring iterations: 6
```

```
# Using all significant regressor variables with 95% confidence, the model is:
# good = [1 + exp( -5.812080 + 0.08587(distance) - 1.33827(PAT) )]^-1
```