ASSIGNMENT 7.1

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Assignment 7.1

Attribute Information:

Question 7.1a

a. Fit a binary logistic regression model to the data set that predicts whether or not the patient survived for one year (the Risk1Y variable) after the surgery. Use the glm() function to perform the logistic regression. See Generalized Linear Models for an example. Include a summary using the summary() function in your results.

Answer -

```
##
## Call:
## glm(formula = thor_df$Risk1Y ~ DGN, family = binomial(), data = thor_df)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.1774  -0.5128  -0.5128  -0.5128   2.0464
##
## Coefficients:
##               Estimate Std. Error z value Pr(>|z|)
## (Intercept) -1.557e+01  1.455e+03  -0.011    0.991
## DGNDGN2      1.436e+01  1.455e+03   0.010    0.992
## DGNDGN3      1.360e+01  1.455e+03   0.009    0.993
## DGNDGN4      1.382e+01  1.455e+03   0.009    0.992
## DGNDGN5      1.543e+01  1.455e+03   0.011    0.992
## DGNDGN6      3.159e-08  1.627e+03   0.000    1.000
## DGNDGN8      1.557e+01  1.455e+03   0.011    0.991
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 395.61  on 469  degrees of freedom
## Residual deviance: 379.79  on 463  degrees of freedom
## AIC: 393.79
##
## Number of Fisher Scoring iterations: 14
```

```
##
## Call:
## glm(formula = thor_df$Risk1Y ~ DGN + PRE4 + PRE5 + PRE6 + PRE7 +
##     PRE8 + PRE9 + PRE10 + PRE11 + PRE14 + PRE17 + PRE19 + PRE25 +
##     PRE30 + PRE32 + AGE, family = binomial(), data = thor_df)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.6084  -0.5439  -0.4199  -0.2762   2.4929
##
## Coefficients:
##               Estimate Std. Error z value Pr(>|z|)
## (Intercept) -1.655e+01  2.400e+03  -0.007  0.99450
## DGNDGN2      1.474e+01  2.400e+03   0.006  0.99510
## DGNDGN3      1.418e+01  2.400e+03   0.006  0.99528
## DGNDGN4      1.461e+01  2.400e+03   0.006  0.99514
## DGNDGN5      1.638e+01  2.400e+03   0.007  0.99455
## DGNDGN6      4.089e-01  2.673e+03   0.000  0.99988
## DGNDGN8      1.803e+01  2.400e+03   0.008  0.99400
## PRE4        -2.272e-01  1.849e-01  -1.229  0.21909
## PRE5        -3.030e-02  1.786e-02  -1.697  0.08971 .
## PRE6PRZ1    -4.427e-01  5.199e-01  -0.852  0.39448
## PRE6PRZ2    -2.937e-01  7.907e-01  -0.371  0.71030
## PRE7T        7.153e-01  5.556e-01   1.288  0.19788
## PRE8T        1.743e-01  3.892e-01   0.448  0.65419
## PRE9T        1.368e+00  4.868e-01   2.811  0.00494 **
## PRE10T       5.770e-01  4.826e-01   1.196  0.23185
## PRE11T       5.162e-01  3.965e-01   1.302  0.19295
## PRE14OC12    4.394e-01  3.301e-01   1.331  0.18318
## PRE14OC13    1.179e+00  6.165e-01   1.913  0.05580 .
## PRE14OC14    1.653e+00  6.094e-01   2.713  0.00668 **
## PRE17T       9.266e-01  4.445e-01   2.085  0.03709 *
## PRE19T      -1.466e+01  1.654e+03  -0.009  0.99293
## PRE25T      -9.789e-02  1.003e+00  -0.098  0.92227
## PRE30T       1.084e+00  4.990e-01   2.172  0.02984 *
## PRE32T      -1.398e+01  1.645e+03  -0.008  0.99322
## AGE         -9.506e-03  1.810e-02  -0.525  0.59944
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 395.61  on 469  degrees of freedom
## Residual deviance: 341.19  on 445  degrees of freedom
## AIC: 391.19
##
## Number of Fisher Scoring iterations: 15
```

References