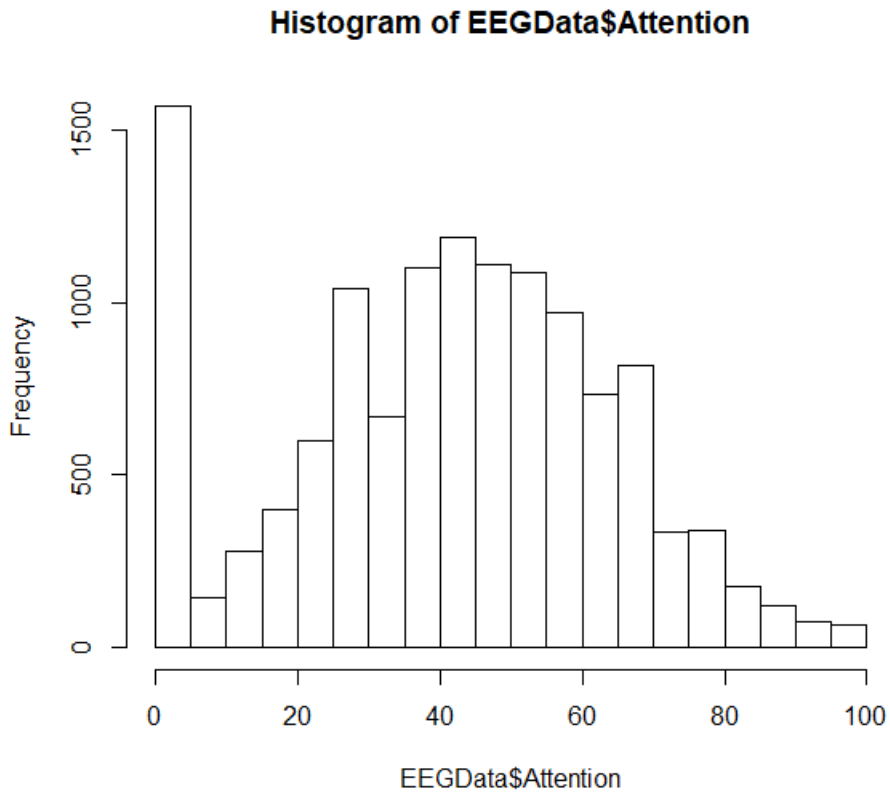
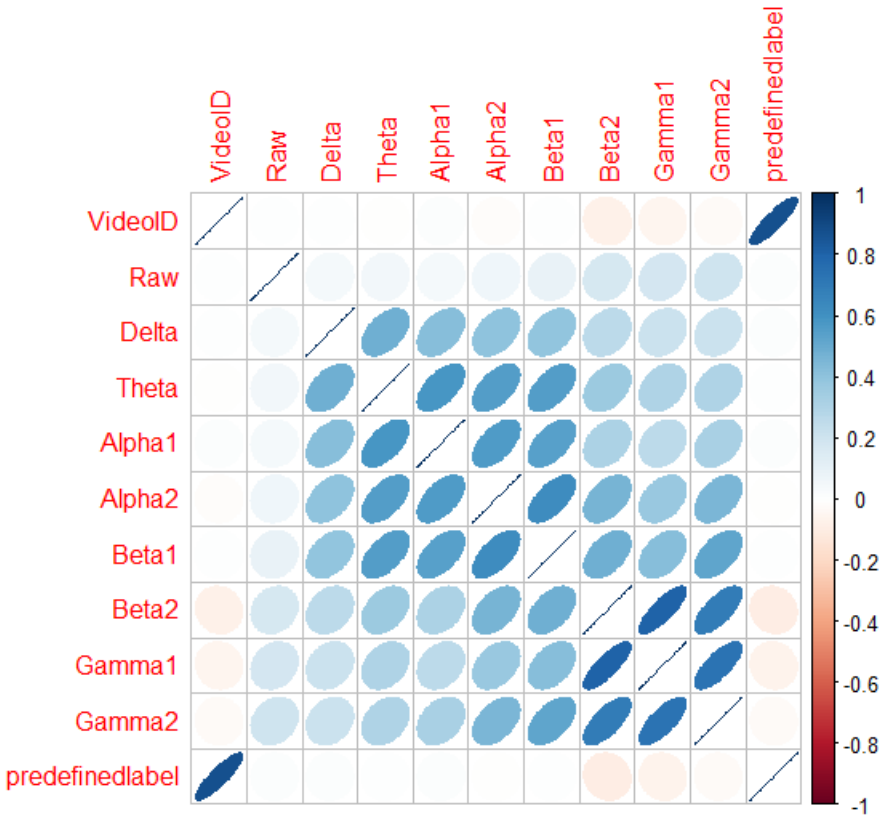
1. Perform Binary Classification in this data set. 65% of prediction accuracy is quite decent.





```
> logistic<-
glm(Attention~VideoID+Mediation+Raw+Delta+Theta+Alpha1+Alpha2+Beta1+Beta2+
Gamma1+Gamma2+predefinedlabel+user.definedlabeln, data = train_proj)
> summary(logistic)

Call:
glm(formula = Attention ~ VideoID + Mediation + Raw + Delta +
    Theta + Alpha1 + Alpha2 + Beta1 + Beta2 + Gamma1 + Gamma2 +
    predefinedlabel + user.definedlabeln, data = train_proj)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-54.732  -13.007   -1.616   11.799   75.756

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)         2.326e+01  6.143e-01  37.856  < 2e-16 ***
VideoID            -1.453e+00  1.246e-01 -11.663  < 2e-16 ***
Mediation           5.721e-01  8.501e-03  67.302  < 2e-16 ***
Raw                -4.534e-04  2.762e-04  -1.642 0.100678
Delta              -3.578e-06  3.483e-07 -10.272  < 2e-16 ***
Theta              -3.768e-06  1.070e-06  -3.523 0.000429 ***
Alpha1             -2.620e-05  3.577e-06  -7.325 2.56e-13 ***
Alpha2             -2.921e-05  4.727e-06  -6.180 6.67e-10 ***
Beta1               2.986e-05  6.775e-06   4.407 1.06e-05 ***
Beta2               5.344e-06  4.367e-06   1.224 0.221065
Gamma1             -1.875e-05  4.086e-06  -4.590 4.48e-06 ***
Gamma2             -3.857e-06  7.707e-06  -0.501 0.616705
predefinedlabel     6.694e+00  7.292e-01   9.181  < 2e-16 ***
user.definedlabeln -2.953e+00  3.653e-01  -8.084 6.97e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for gaussian family taken to be 324.7618)

    Null deviance: 5925067  on 10248  degrees of freedom
Residual deviance: 3323937  on 10235  degrees of freedom
AIC: 88372

Number of Fisher Scoring iterations: 2
```

Features highlighted in pink colour have linear correlation with Attention

```
> logistic1<-
glm(Attention~VideoID+Mediation+Raw+Delta+Theta+Alpha1+Alpha2+Beta1+Beta2+
Gamma1+Gamma2+predefinedlabel+user.definedlabeln, data = test_proj)
> summary(logistic1)

Call:
glm(formula = Attention ~ VideoID + Mediation + Raw + Delta +
    Theta + Alpha1 + Alpha2 + Beta1 + Beta2 + Gamma1 + Gamma2 +
    predefinedlabel + user.definedlabeln, data = test_proj)

Deviance Residuals:
   Min      1Q  Median      3Q     Max
-70.54  -12.31   -0.98   10.59   60.82

Coefficients:
                    Estimate Std. Error t value Pr(>|t|)
(Intercept)         4.824e+01  1.420e+00  33.977  < 2e-16 ***
VideoID            -2.606e-01  2.497e-01  -1.044 0.296780
Mediation           4.002e-02  2.169e-02   1.845 0.065092 .
Raw                -1.618e-03  1.840e-03  -0.880 0.379131
Delta              -1.388e-06  5.890e-07  -2.356 0.018539 *
Theta              -1.785e-05  1.818e-06  -9.817  < 2e-16 ***
Alpha1             -2.231e-05  5.764e-06  -3.871 0.000111 ***
Alpha2             -4.488e-05  7.887e-06  -5.691 1.41e-08 ***
Beta1               3.178e-06  1.475e-05   0.215 0.829452
Beta2               8.248e-05  7.257e-06  11.366  < 2e-16 ***
Gamma1              3.764e-05  1.560e-05   2.413 0.015898 *
```

```
Gamma2              2.562e-04  3.441e-05   7.446 1.31e-13 ***
predefinedlabel    -2.087e+00  1.464e+00  -1.426 0.154073
user.definedlabeln -5.919e+00  7.335e-01  -8.069 1.08e-15 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for gaussian family taken to be 305.4749)

    Null deviance: 928323  on 2561  degrees of freedom
Residual deviance: 778350  on 2548  degrees of freedom
  (1 observation deleted due to missingness)
AIC: 21946

Number of Fisher Scoring iterations: 2
```

Logistic Regression (Accuracy) Residual deviance ~77.8%

1. Find Precision
2. Find Recall
3. generate ROC Curve

b. Random forest

1. Find the accuracy using Random forest method.
2. Find the best accuracy among Logistic regression and Random forest method.