hw8.R

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```r
##HW8 Appendix
#3A
votesurv <- read.csv("votesurv2015(1).csv",header=T)
attach(votesurv)
head(votesurv)
```

```
##   id sexf age party yearsed income paware vote
## 1  1    0  41     2      10     94      3    0
## 2  2    1  19     1      14     36      4    0
## 3  3    0  64     2      16     36      4    0
## 4  4    1  45     2      16     86      5    0
## 5  5    0  48     1      12     68      3    1
## 6  6    1  68     2      14     42      8    1
```

```r
vote[vote==9] <- NA
table(vote)
```

```
## vote
##   0   1
## 151 293
```

```r
#3B
293/(293+151)
```

```
## [1] 0.6599099
```

```r
.6599+1.96*sqrt((0.6599*(1-0.6599))/(151+293))
```

```
## [1] 0.7039663
```

```r
length(which(is.na(vote)==TRUE))
```

```
## [1] 56
```

```r
length(vote)
```

```
## [1] 500
```

```r
#3C
table(vote,sexf)
```

```
##     sexf
## vote   0   1
##    0  82  69
##    1 161 132
```

```
chisq.test(table(vote,sexf),correct=TRUE)
```

```
##
##  Pearson's Chi-squared test with Yates' continuity correction
##
## data:  table(vote, sexf)
## X-squared = 0.00081549, df = 1, p-value = 0.9772
```

```
#3D
library(epitools)
oddsratio.wald(table(vote,sexf))
```

```
## $data
##      sexf
## vote     0   1 Total
##   0      82  69   151
##   1     161 132   293
##   Total 243 201   444
##
## $measure
##      odds ratio with 95% C.I.
## vote   estimate     lower     upper
##    0 1.0000000        NA        NA
##    1 0.9743451 0.6568483 1.445308
##
## $p.value
##      two-sided
## vote midp.exact fisher.exact chi.square
##    0         NA           NA         NA
##    1  0.8969736    0.9200573  0.8972111
##
## $correction
## [1] FALSE
##
## attr(,"method")
## [1] "Unconditional MLE & normal approximation (Wald) CI"
```

```
#3E
log.out <- glm(vote ~ age + sexf + relevel(factor(party),ref='1'),
               family=binomial(link=logit))
summary(log.out)
```

```
##
## Call:
## glm(formula = vote ~ age + sexf + relevel(factor(party), ref = "1"),
##     family = binomial(link = logit))
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -2.0726  -1.2643   0.7476   0.9422   1.2498
##
## Coefficients:
```

```
##                                        Estimate Std. Error z value Pr(>|z|)
## (Intercept)                            -0.500928   0.348212  -1.439 0.150272
## age                                     0.019342   0.006374   3.035 0.002408
## sexf                                   -0.035287   0.208538  -0.169 0.865631
## relevel(factor(party), ref = "1")2      0.231287   0.220786   1.048 0.294839
## relevel(factor(party), ref = "1")3      1.286830   0.333551   3.858 0.000114
##
## (Intercept)
## age                                    **
## sexf
## relevel(factor(party), ref = "1")2
## relevel(factor(party), ref = "1")3     ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 569.29  on 443  degrees of freedom
## Residual deviance: 544.38  on 439  degrees of freedom
##   (56 observations deleted due to missingness)
## AIC: 554.38
##
## Number of Fisher Scoring iterations: 4
```

exp(coef(log.out))

```
##                             (Intercept)                               age
##                               0.6059683                         1.0195305
##                                    sexf relevel(factor(party), ref = "1")2
##                               0.9653284                         1.2602211
## relevel(factor(party), ref = "1")3
##                               3.6212881
```

exp(confint(log.out))

```
## Waiting for profiling to be done...
```

```
##                                             2.5 %    97.5 %
## (Intercept)                             0.3049058 1.197272
## age                                     1.0069671 1.032482
## sexf                                    0.6415614 1.454408
## relevel(factor(party), ref = "1")2 0.8181280 1.946015
## relevel(factor(party), ref = "1")3 1.9306921 7.193526
```