R Homework 11

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Statistics 5193

*Note: this document was created using R Markdown.

### Question 1

. Create a 2 x 2 table of gender and pinterest with gender on the rows and Pinterest on the Columns. Print it to the console.

```
library(readxl)
StudentData <- read_excel("/Users/fisher/Documents/data_science/r_stat_5193/data/StudentData.xlsx")
```

```
ex_table <- table(StudentData$Gender, StudentData$Pinterest)
ex_table
```

```
##
##      N  Y
##   F 10 13
##   M 10  2
```

### Question 1b

```
ex_prop_table <- prop.table(margin.table(ex_table, 1:2), 1)
ex_prop_table
```

```
##
##             N         Y
##   F 0.4347826 0.5652174
##   M 0.8333333 0.1666667
```

### Question 1c

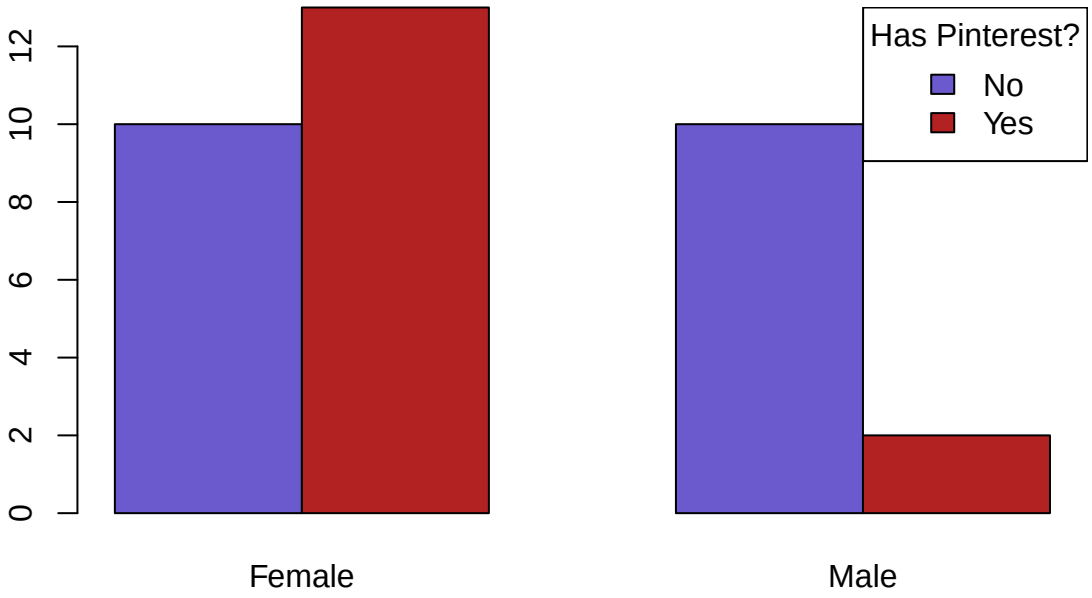
```
resid(chisq.test(ex_table[,2]))
```

```
##         F         M
##  2.008316 -2.008316
```

More women have pinterest than is expected, and less men have pinterest than is expected, if the expectation is that gender has no effect on pinterest use.

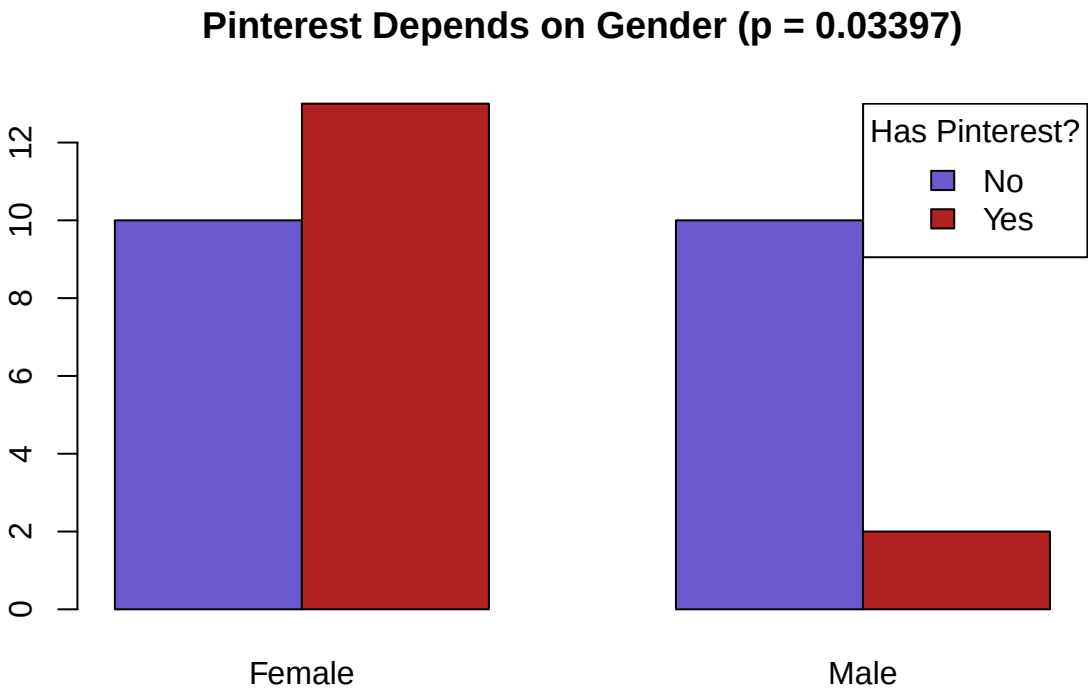
### Question 1d

```
barplot(t(ex_table),
        beside = T,
        names = c('Female', 'Male'),
        col = c('slateblue', 'firebrick', 'slateblue', 'firebrick'))

legend('topright',
       title = 'Has Pinterest?',
       legend = c('No', 'Yes'),
       fill = c('slateblue', 'firebrick'))
```



**Question 1e**

```
barplot(t(ex_table),
        main = 'Pinterest Depends on Gender (p = 0.03397)',
        beside = T,
        names = c('Female', 'Male'),
        col = c('slateblue', 'firebrick', 'slateblue', 'firebrick'))

legend('topright',
       title = 'Has Pinterest?',
       legend = c('No', 'Yes'),
       fill = c('slateblue', 'firebrick'))
```

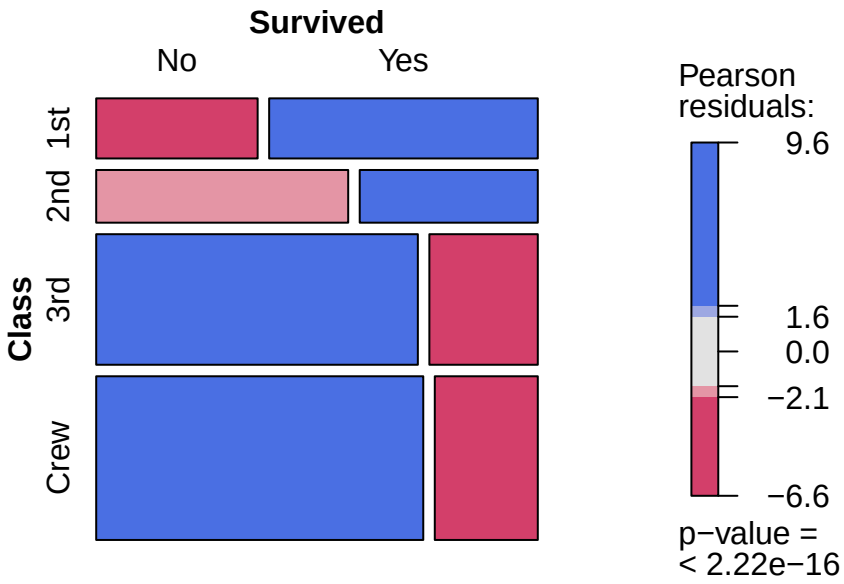


**Question 2a**

```
class_surv <- apply(Titanic, c(1,4), sum)

library(vcd)
```

```
## Loading required package: grid
```

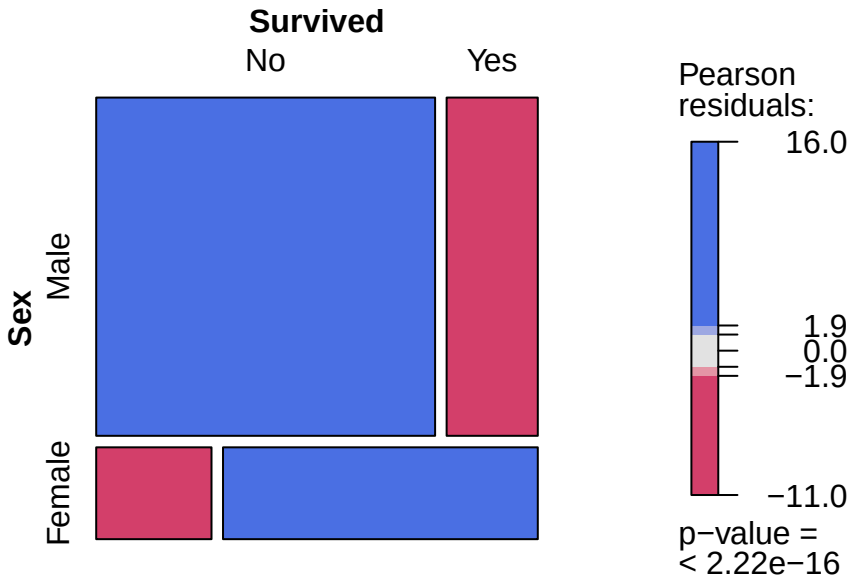
```
mosaic(class_surv, legend = T, gp = shading_max)
```




Yes, survival rate depends on class, with a p-value of $< 2.22 * 10^{-16}$

**Question 3**

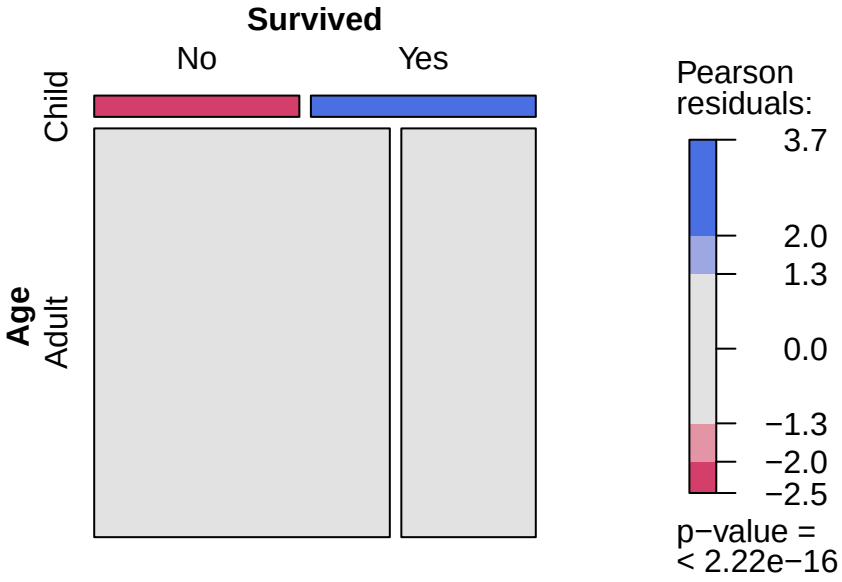
```
sex_surv <- apply(Titanic, c(2,4), sum)
mosaic(sex_surv, legend = T, gp = shading_max)
```




Yes, survival rate does depend on gender, with a p-value $< 2.22 * 10^{-16}$.

**Question 4**

```
age_surv <- apply(Titanic, c(3,4), sum)
mosaic(age_surv, legend = T, gp = shading_max)
```




Yes, survival rate does depend on age, with a p-value $< 2.22 * 10^{-16}$.