Josephs-Final

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Data Preparation

```
# load data
knitr::opts_chunk$set(echo = TRUE)
library(tidyverse)
library(ggplot2)
library(curl)
library(psych)
```

Abstract

Research question

Does having a social life predict final grade?

Cases

What are the cases, and how many are there?

There are 649 cases that represent students and their achievements in secondary education in two Portuguese schools.

Data collection

Describe the method of data collection.

The data was collected using school reports and questionnaires.

Type of study

What type of study is this (observational/experiment)?

This is observational study.

Data Source

If you collected the data, state self-collected. If not, provide a citation/link.

The data was collected by University of Minho and the dataset can be found here: Source: https://archive.ics.uci.edu/ml/datasets/Student+Performance

Dependent Variable

What is the response variable? Is it quantitative or qualitative?

The response variable is the final grade of each student. It is quantitative.

Independent Variable(s)

The independent variable is the variables that describe the students social life. To answer this questions the variables I classify as describing a students social life is their activities, romantic, family relationship, free time, going out and alcohol consumption. They are all qualitative.

Relevant summary statistics

```
student_mat_csv <- "https://raw.githubusercontent.com/moiyajosephs/Data606-Final/main/student-mat.csv"
student_mat <- read_delim(curl(student_mat_csv),delim = ";")
```

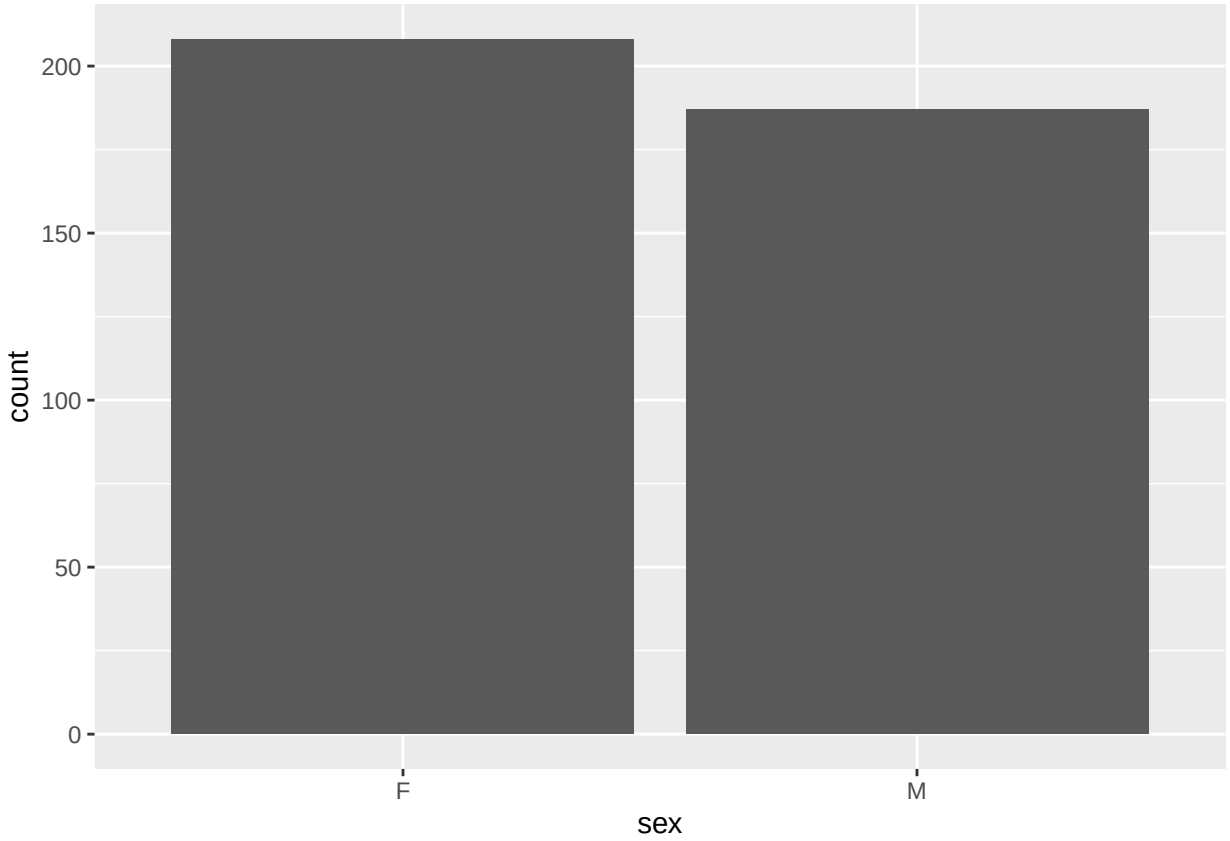
```
## Rows: 395 Columns: 33
## -- Column specification --------------------------------------------------------
## Delimiter: ";"
## chr (17): school, sex, address, famsize, Pstatus, Mjob, Fjob, reason, guardi...
## dbl (16): age, Medu, Fedu, traveltime, studytime, failures, famrel, freetime...
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
summary(student_mat)
```

```
##     school              sex                 age         address
##  Length:395         Length:395         Min.   :15.0   Length:395
##  Class :character   Class :character   1st Qu.:16.0   Class :character
##  Mode  :character   Mode  :character   Median :17.0   Mode  :character
##                                        Mean   :16.7
##                                        3rd Qu.:18.0
##                                        Max.   :22.0
##    famsize            Pstatus              Medu            Fedu
##  Length:395         Length:395         Min.   :0.000   Min.   :0.000
##  Class :character   Class :character   1st Qu.:2.000   1st Qu.:2.000
##  Mode  :character   Mode  :character   Median :3.000   Median :2.000
##                                        Mean   :2.749   Mean   :2.522
##                                        3rd Qu.:4.000   3rd Qu.:3.000
##                                        Max.   :4.000   Max.   :4.000
##      Mjob               Fjob              reason            guardian
##  Length:395         Length:395         Length:395         Length:395
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##    traveltime      studytime        failures       schoolsup
##  Min.   :1.000   Min.   :1.000   Min.   :0.0000   Length:395
```

```
##  1st Qu.:1.000   1st Qu.:1.000   1st Qu.:0.0000   Class :character
##  Median :1.000   Median :2.000   Median :0.0000   Mode  :character
##  Mean   :1.448   Mean   :2.035   Mean   :0.3342
##  3rd Qu.:2.000   3rd Qu.:2.000   3rd Qu.:0.0000
##  Max.   :4.000   Max.   :4.000   Max.   :3.0000
##     famsup              paid           activities          nursery
##  Length:395         Length:395         Length:395         Length:395
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##     higher            internet           romantic             famrel
##  Length:395         Length:395         Length:395         Min.   :1.000
##  Class :character   Class :character   Class :character   1st Qu.:4.000
##  Mode  :character   Mode  :character   Mode  :character   Median :4.000
##                                                           Mean   :3.944
##                                                           3rd Qu.:5.000
##                                                           Max.   :5.000
##     freetime         goout            Dalc            Walc
##  Min.   :1.000   Min.   :1.000   Min.   :1.000   Min.   :1.000
##  1st Qu.:3.000   1st Qu.:2.000   1st Qu.:1.000   1st Qu.:1.000
##  Median :3.000   Median :3.000   Median :1.000   Median :2.000
##  Mean   :3.235   Mean   :3.109   Mean   :1.481   Mean   :2.291
##  3rd Qu.:4.000   3rd Qu.:4.000   3rd Qu.:2.000   3rd Qu.:3.000
##  Max.   :5.000   Max.   :5.000   Max.   :5.000   Max.   :5.000
##      health         absences            G1              G2
##  Min.   :1.000   Min.   : 0.000   Min.   : 3.00   Min.   : 0.00
##  1st Qu.:3.000   1st Qu.: 0.000   1st Qu.: 8.00   1st Qu.: 9.00
##  Median :4.000   Median : 4.000   Median :11.00   Median :11.00
##  Mean   :3.554   Mean   : 5.709   Mean   :10.91   Mean   :10.71
##  3rd Qu.:5.000   3rd Qu.: 8.000   3rd Qu.:13.00   3rd Qu.:13.00
##  Max.   :5.000   Max.   :75.000   Max.   :19.00   Max.   :19.00
##        G3
##  Min.   : 0.00
##  1st Qu.: 8.00
##  Median :11.00
##  Mean   :10.42
##  3rd Qu.:14.00
##  Max.   :20.00
```

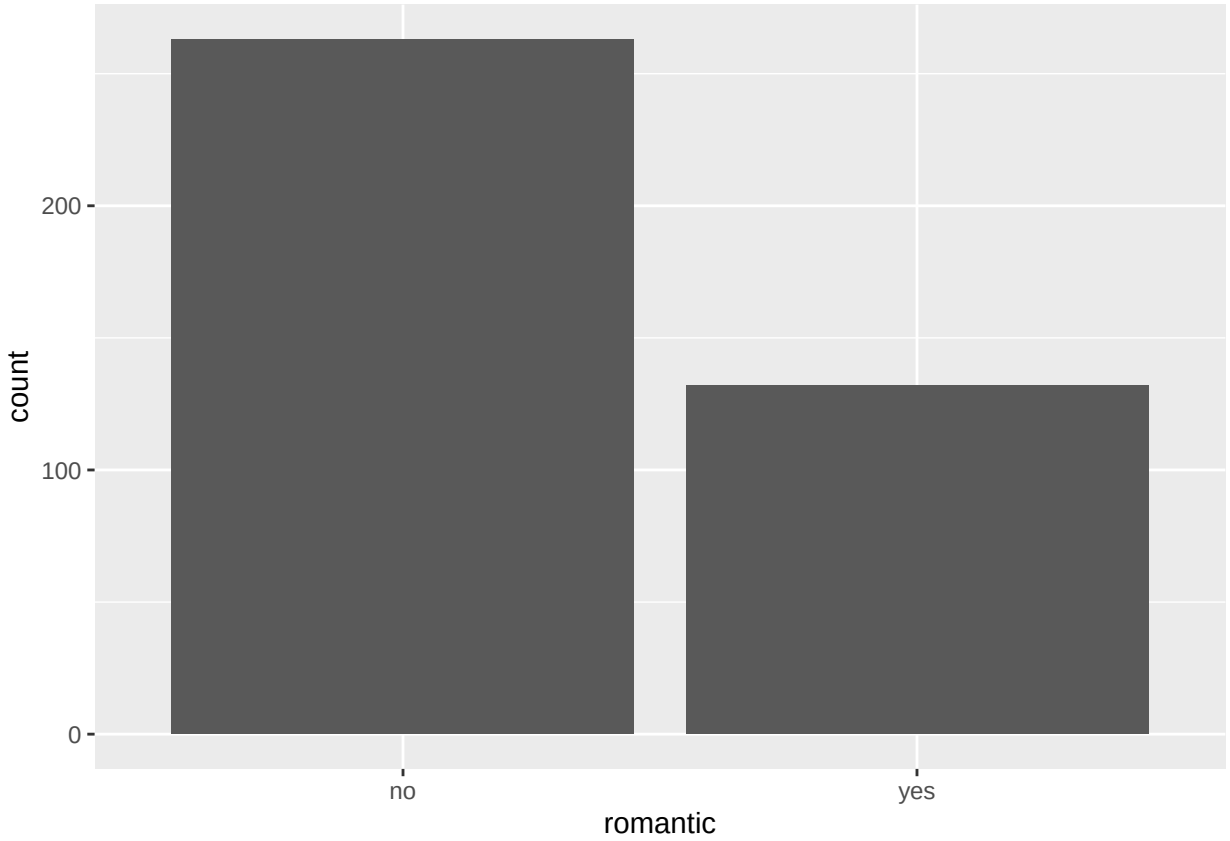
```
ggplot(student_mat, aes(sex)) + geom_bar()
```



Romantic

Students reply either yes or no if they are in a romantic relationship, indicated by the `romantic` variable.

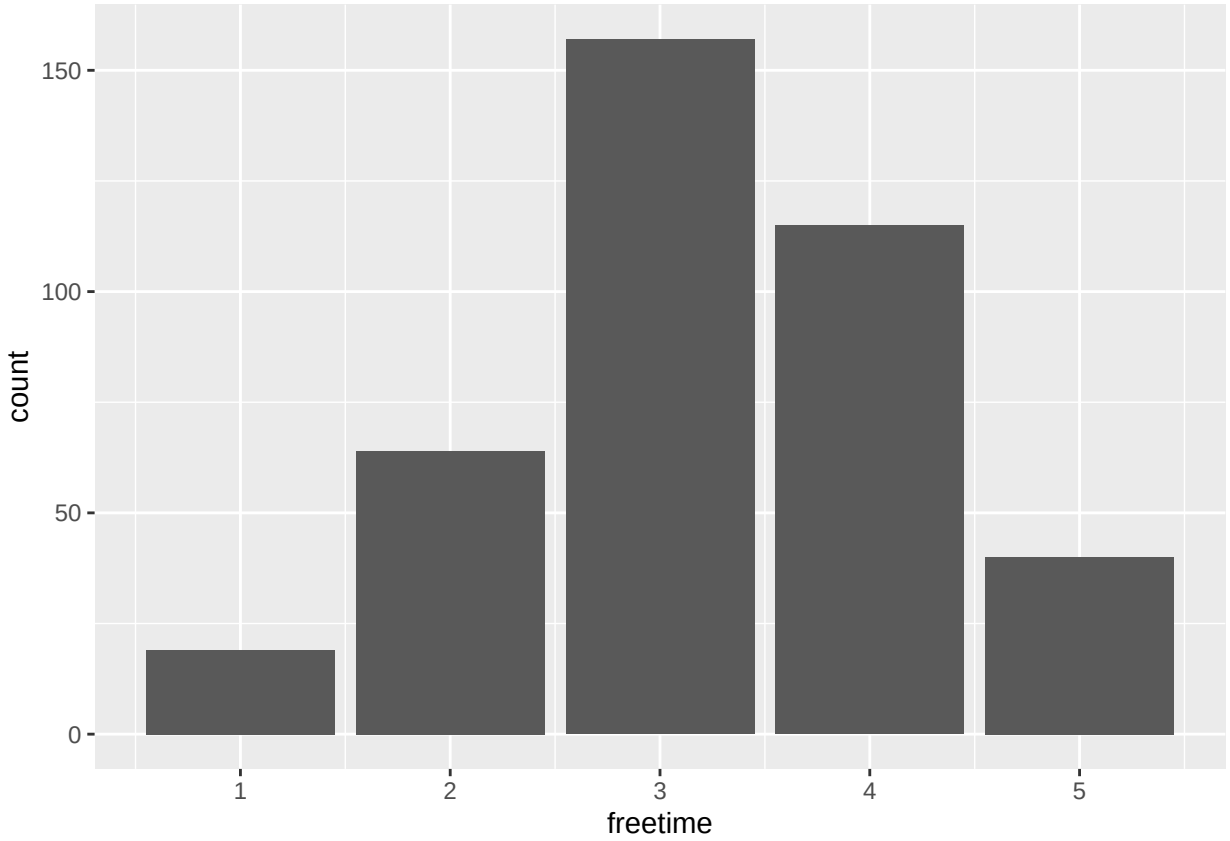
```
ggplot(student_mat, aes(romantic)) + geom_bar()
```



Freetime

Freetime after school rated from 1 very low to 5 very high.

```
ggplot(student_mat, aes(freetime)) + geom_bar()
```



Grades

```
describe(student_mat$G3)
```

```
##    vars   n  mean   sd median trimmed  mad min max range  skew kurtosis   se
## X1    1 395 10.42 4.58     11   10.84 4.45   0  20    20 -0.73     0.37 0.23
```

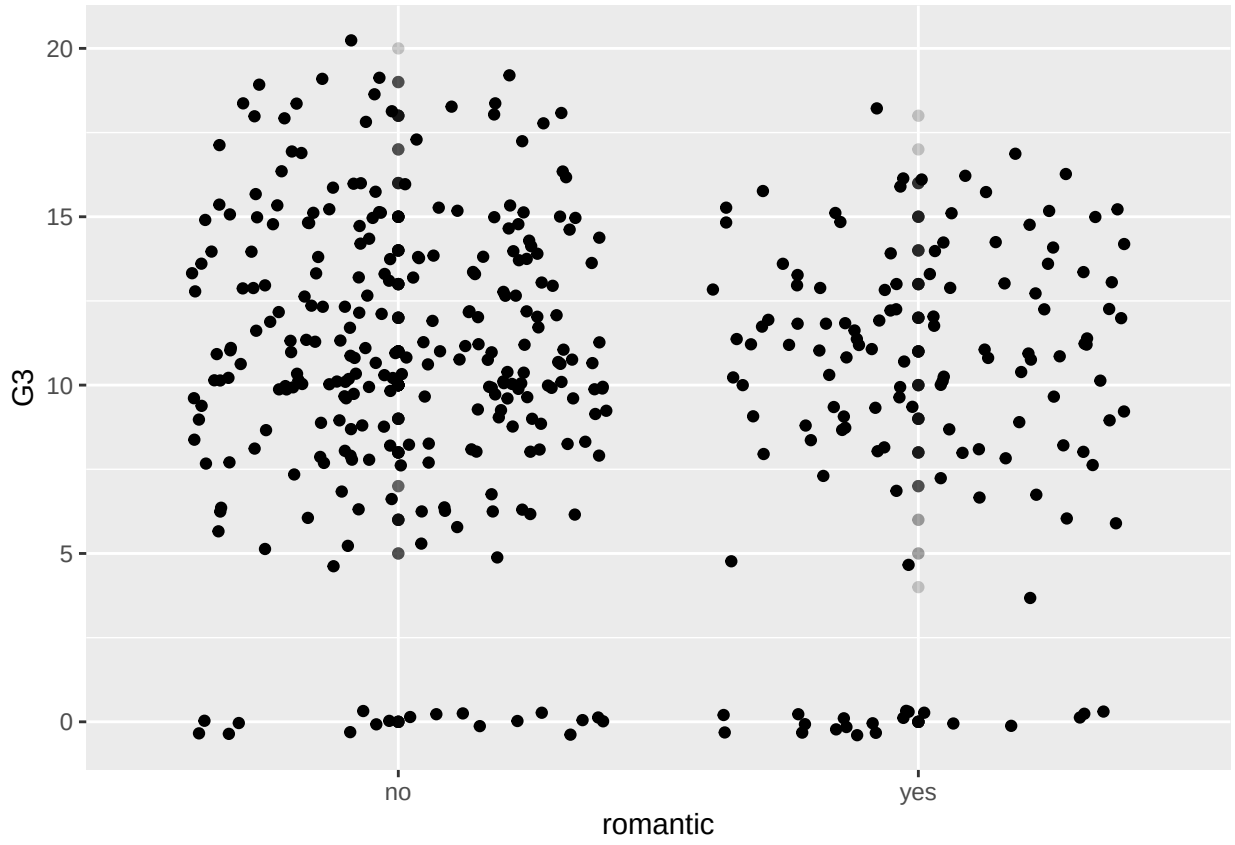
The Romance Model

```
romantic.model <- lm(G3 ~ romantic, data = student_mat)
summary(romantic.model)
```

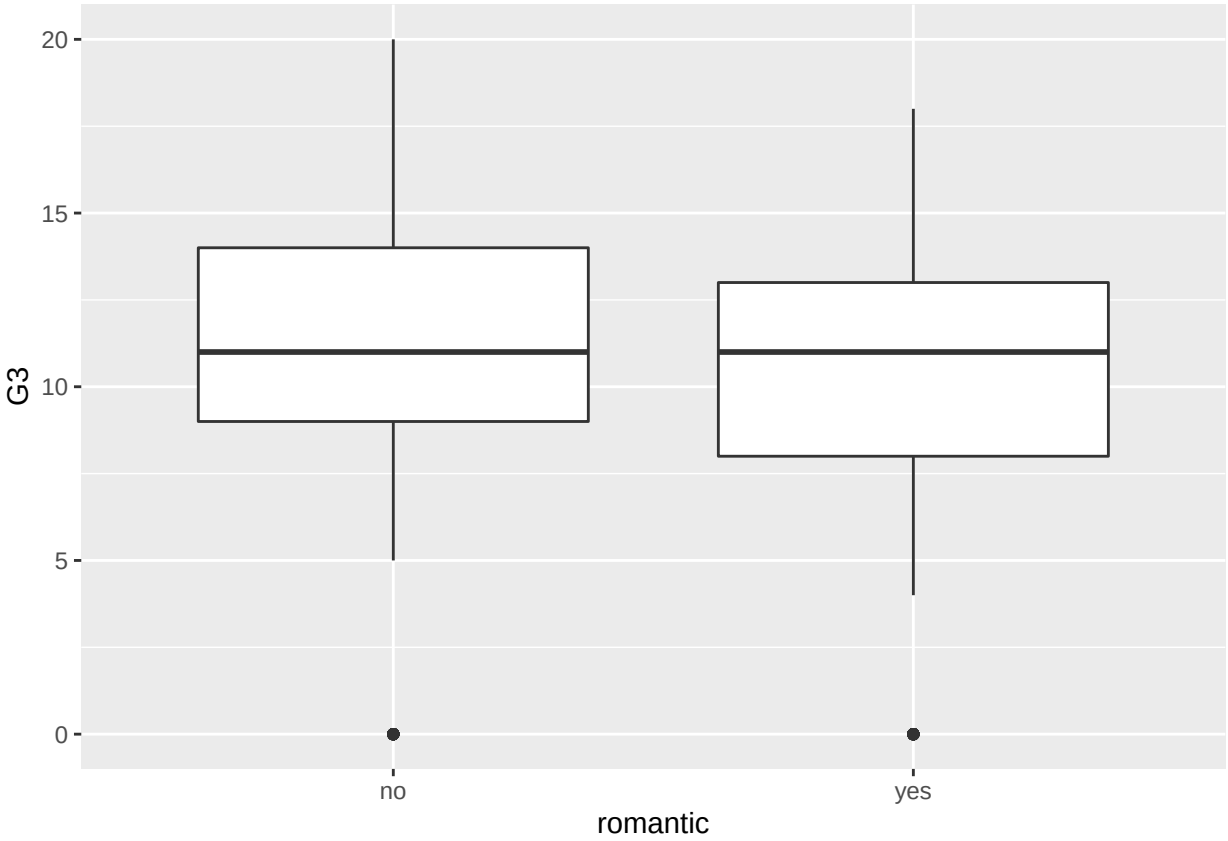
```
##
## Call:
## lm(formula = G3 ~ romantic, data = student_mat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.8365  -1.8365   0.1635   3.1635   9.1635
##
## Coefficients:
```

```
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  10.8365     0.2805  38.638  < 2e-16 ***
## romanticyes  -1.2607     0.4852  -2.599  0.00971 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.548 on 393 degrees of freedom
## Multiple R-squared:  0.01689,    Adjusted R-squared:  0.01439
## F-statistic: 6.753 on 1 and 393 DF,  p-value: 0.009713
```

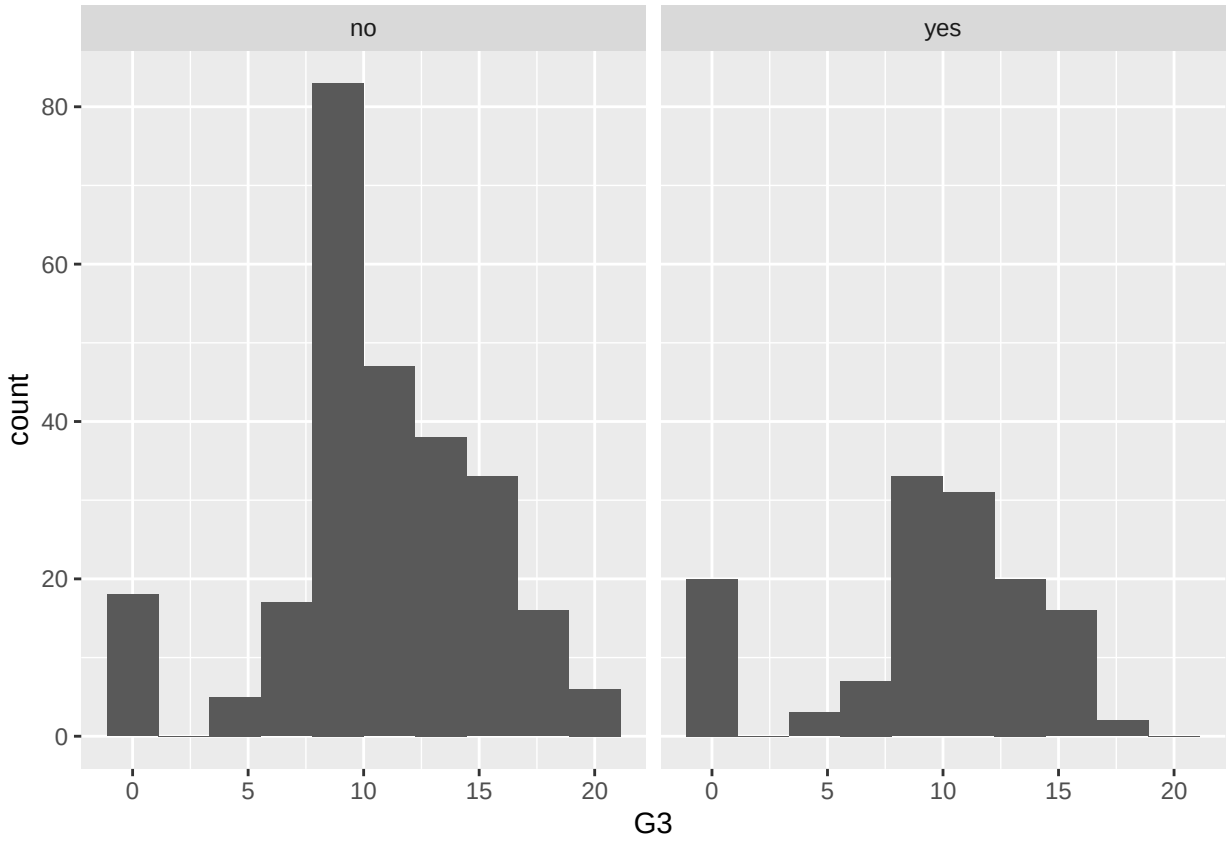
```
ggplot(student_mat, aes(x=romantic, y = G3)) +
  geom_jitter() +
  geom_point(alpha = 0.2)
```




```
ggplot(student_mat, aes(x=romantic, y = G3)) +
  geom_boxplot()
```




```
ggplot(student_mat, aes(x= G3)) +
  geom_histogram(bins = 10) +
  facet_wrap(vars(romantic))
```




```
summary_stats <- student_mat %>%
  group_by(romantic) %>%
  summarise(mean_by_group = mean(G3))
summary_stats
```

```
## # A tibble: 2 x 2
##   romantic mean_by_group
##   <chr>            <dbl>
## 1 no               10.8
## 2 yes               9.58
```

```
describeBy(student_mat$G3,
           group = student_mat$romantic, mat=TRUE)
```

```
##     item group1 vars   n      mean       sd median   trimmed    mad min max
## X11    1     no    1 263 10.836502 4.385946     11 11.113744 4.4478   0  20
## X12    2    yes    1 132  9.575758 4.856916     11  9.971698 3.7065   0  18
##     range       skew   kurtosis        se
## X11    20 -0.6186634  0.5452026 0.2704490
## X12    18 -0.8212904 -0.2272406 0.4227403
```

Making predictions:

```
explanatory_data <- tibble(romantic = c("yes","no"))
explanatory_data
```

```
## # A tibble: 2 x 1
##   romantic
##   <chr>
## 1 yes
## 2 no
```

```
explanatory_data %>%
  mutate(
    response_var = predict(romantic.model, explanatory_data)
  )
```

```
## # A tibble: 2 x 2
##   romantic response_var
##   <chr>           <dbl>
## 1 yes              9.58
## 2 no              10.8
```

Visualizing predictions

```
#Predict the grade for each student
predict(romantic.model)
```

```
##         1         2         3         4         5         6         7         8
## 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502 10.836502 10.836502
##         9        10        11        12        13        14        15        16
## 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502
##        17        18        19        20        21        22        23        24
## 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502
##        25        26        27        28        29        30        31        32
## 10.836502 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        33        34        35        36        37        38        39        40
##  9.575758 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        41        42        43        44        45        46        47        48
##  9.575758  9.575758 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        49        50        51        52        53        54        55        56
## 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502  9.575758
##        57        58        59        60        61        62        63        64
## 10.836502 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        65        66        67        68        69        70        71        72
##  9.575758 10.836502  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502
##        73        74        75        76        77        78        79        80
##  9.575758 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        81        82        83        84        85        86        87        88
##  9.575758 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        89        90        91        92        93        94        95        96
## 10.836502 10.836502  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502
##        97        98        99       100       101       102       103       104
```

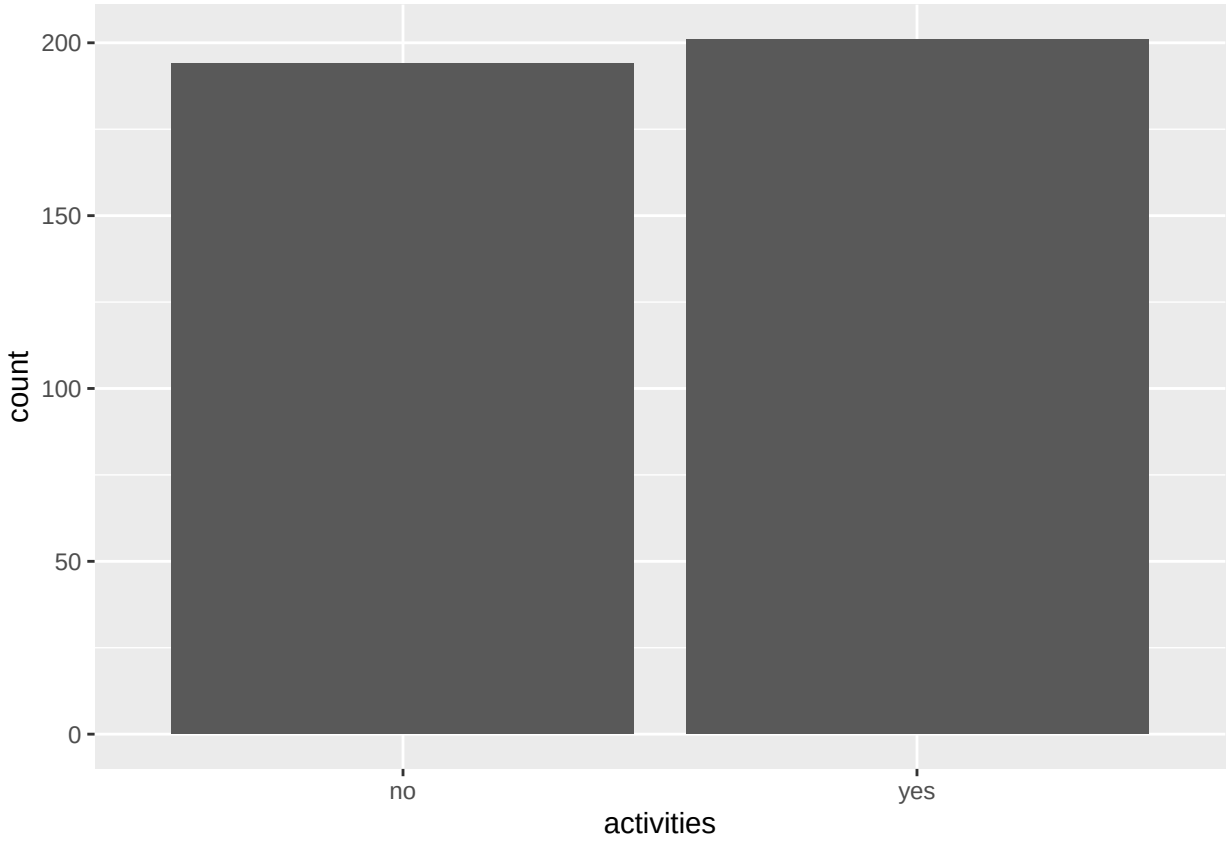
```
## 10.836502  9.575758 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        105        106        107        108        109        110        111        112
## 10.836502 10.836502 10.836502 10.836502  9.575758  9.575758 10.836502 10.836502
##        113        114        115        116        117        118        119        120
## 10.836502 10.836502  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502
##        121        122        123        124        125        126        127        128
## 10.836502 10.836502  9.575758 10.836502  9.575758 10.836502  9.575758 10.836502
##        129        130        131        132        133        134        135        136
## 10.836502 10.836502  9.575758  9.575758  9.575758 10.836502  9.575758  9.575758
##        137        138        139        140        141        142        143        144
## 10.836502  9.575758  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502
##        145        146        147        148        149        150        151        152
## 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502  9.575758  9.575758
##        153        154        155        156        157        158        159        160
##  9.575758  9.575758  9.575758 10.836502 10.836502 10.836502 10.836502  9.575758
##        161        162        163        164        165        166        167        168
##  9.575758  9.575758 10.836502 10.836502  9.575758 10.836502 10.836502  9.575758
##        169        170        171        172        173        174        175        176
## 10.836502  9.575758 10.836502  9.575758 10.836502  9.575758 10.836502 10.836502
##        177        178        179        180        181        182        183        184
## 10.836502 10.836502  9.575758  9.575758 10.836502  9.575758 10.836502  9.575758
##        185        186        187        188        189        190        191        192
## 10.836502  9.575758  9.575758  9.575758  9.575758 10.836502 10.836502 10.836502
##        193        194        195        196        197        198        199        200
## 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502 10.836502 10.836502
##        201        202        203        204        205        206        207        208
## 10.836502 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502  9.575758
##        209        210        211        212        213        214        215        216
## 10.836502  9.575758 10.836502  9.575758 10.836502 10.836502 10.836502 10.836502
##        217        218        219        220        221        222        223        224
##  9.575758 10.836502 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502
##        225        226        227        228        229        230        231        232
## 10.836502  9.575758 10.836502 10.836502  9.575758  9.575758  9.575758 10.836502
##        233        234        235        236        237        238        239        240
##  9.575758 10.836502 10.836502  9.575758  9.575758  9.575758 10.836502 10.836502
##        241        242        243        244        245        246        247        248
##  9.575758 10.836502 10.836502 10.836502  9.575758 10.836502 10.836502  9.575758
##        249        250        251        252        253        254        255        256
##  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502
##        257        258        259        260        261        262        263        264
## 10.836502 10.836502 10.836502  9.575758  9.575758 10.836502 10.836502 10.836502
##        265        266        267        268        269        270        271        272
##  9.575758 10.836502  9.575758 10.836502  9.575758  9.575758 10.836502  9.575758
##        273        274        275        276        277        278        279        280
## 10.836502  9.575758  9.575758  9.575758  9.575758 10.836502  9.575758 10.836502
##        281        282        283        284        285        286        287        288
##  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502
##        289        290        291        292        293        294        295        296
## 10.836502 10.836502  9.575758 10.836502  9.575758 10.836502 10.836502 10.836502
##        297        298        299        300        301        302        303        304
## 10.836502  9.575758 10.836502  9.575758  9.575758 10.836502 10.836502 10.836502
##        305        306        307        308        309        310        311        312
##  9.575758 10.836502 10.836502  9.575758  9.575758 10.836502  9.575758  9.575758
##        313        314        315        316        317        318        319        320
```

```
## 10.836502  9.575758  9.575758  9.575758 10.836502  9.575758 10.836502 10.836502
##       321       322       323       324       325       326       327       328
##  9.575758  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502 10.836502
##       329       330       331       332       333       334       335       336
## 10.836502  9.575758 10.836502  9.575758 10.836502  9.575758 10.836502 10.836502
##       337       338       339       340       341       342       343       344
## 10.836502  9.575758 10.836502 10.836502  9.575758 10.836502  9.575758  9.575758
##       345       346       347       348       349       350       351       352
## 10.836502  9.575758  9.575758  9.575758  9.575758 10.836502 10.836502 10.836502
##       353       354       355       356       357       358       359       360
##  9.575758 10.836502  9.575758  9.575758 10.836502  9.575758  9.575758 10.836502
##       361       362       363       364       365       366       367       368
##  9.575758 10.836502  9.575758  9.575758 10.836502 10.836502  9.575758  9.575758
##       369       370       371       372       373       374       375       376
##  9.575758  9.575758  9.575758  9.575758  9.575758 10.836502 10.836502 10.836502
##       377       378       379       380       381       382       383       384
##  9.575758 10.836502  9.575758 10.836502 10.836502  9.575758 10.836502 10.836502
##       385       386       387       388       389       390       391       392
## 10.836502 10.836502  9.575758 10.836502 10.836502 10.836502 10.836502 10.836502
##       393       394       395
## 10.836502 10.836502 10.836502
```

The Activities Model

Students reply yes or no if they have extra curricular activities, indicated by the `activities` variables.

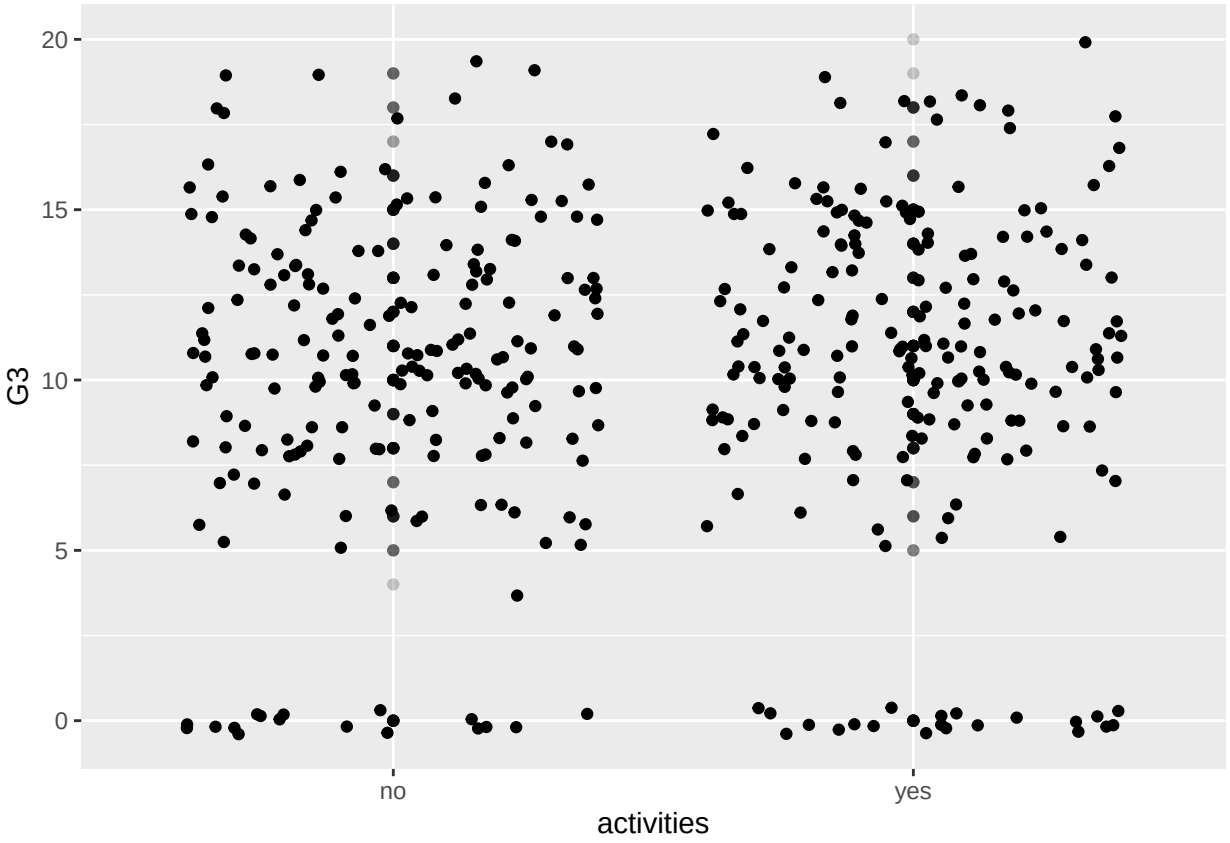
```
ggplot(student_mat, aes(activities)) + geom_bar()
```



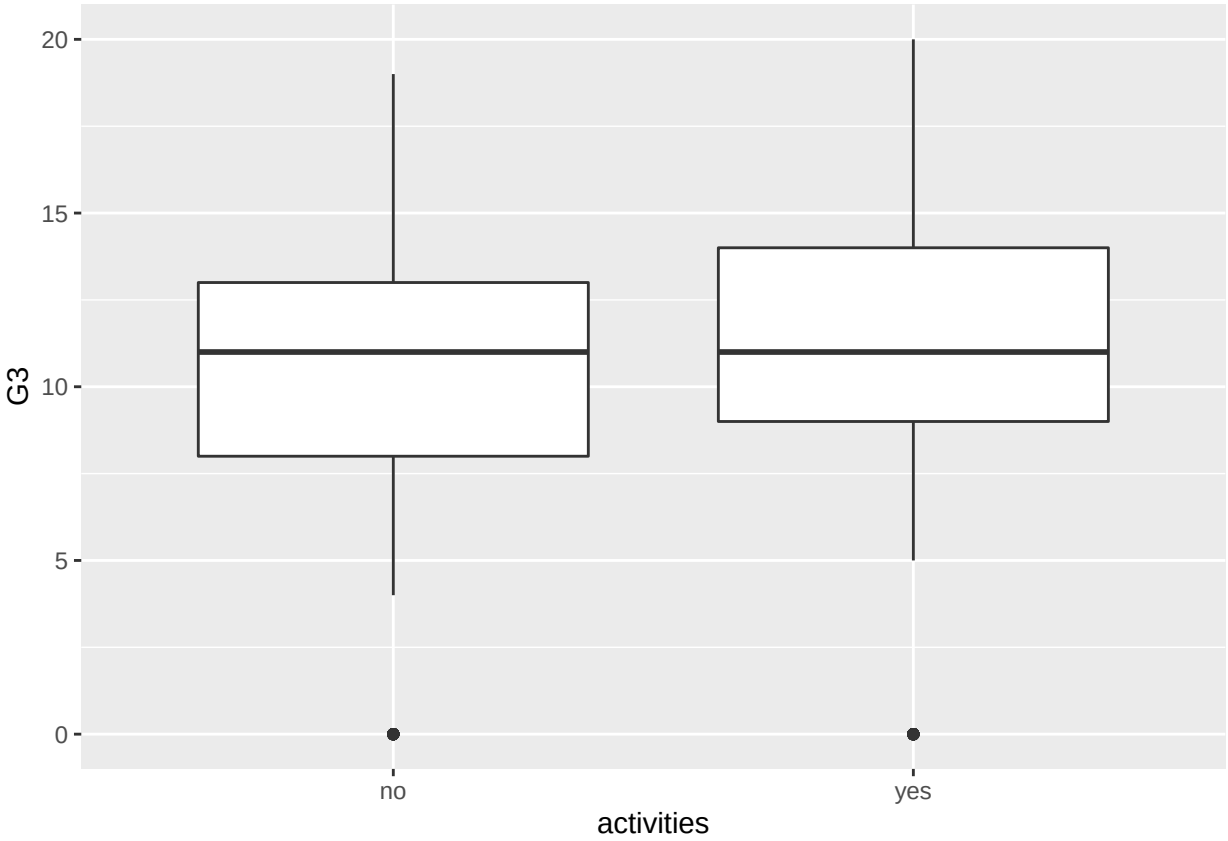

```
activities.model <- lm(G3 ~ activities, data = student_mat)
summary(activities.model)
```

```
##
## Call:
## lm(formula = G3 ~ activities, data = student_mat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.4876  -2.3402   0.5124   3.5124   9.5124
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept)    10.3402     0.3293  31.400   <2e-16 ***
## activitiesyes   0.1474     0.4616   0.319     0.75
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.587 on 393 degrees of freedom
## Multiple R-squared:  0.0002592,  Adjusted R-squared:  -0.002285
## F-statistic: 0.1019 on 1 and 393 DF,  p-value: 0.7497
```

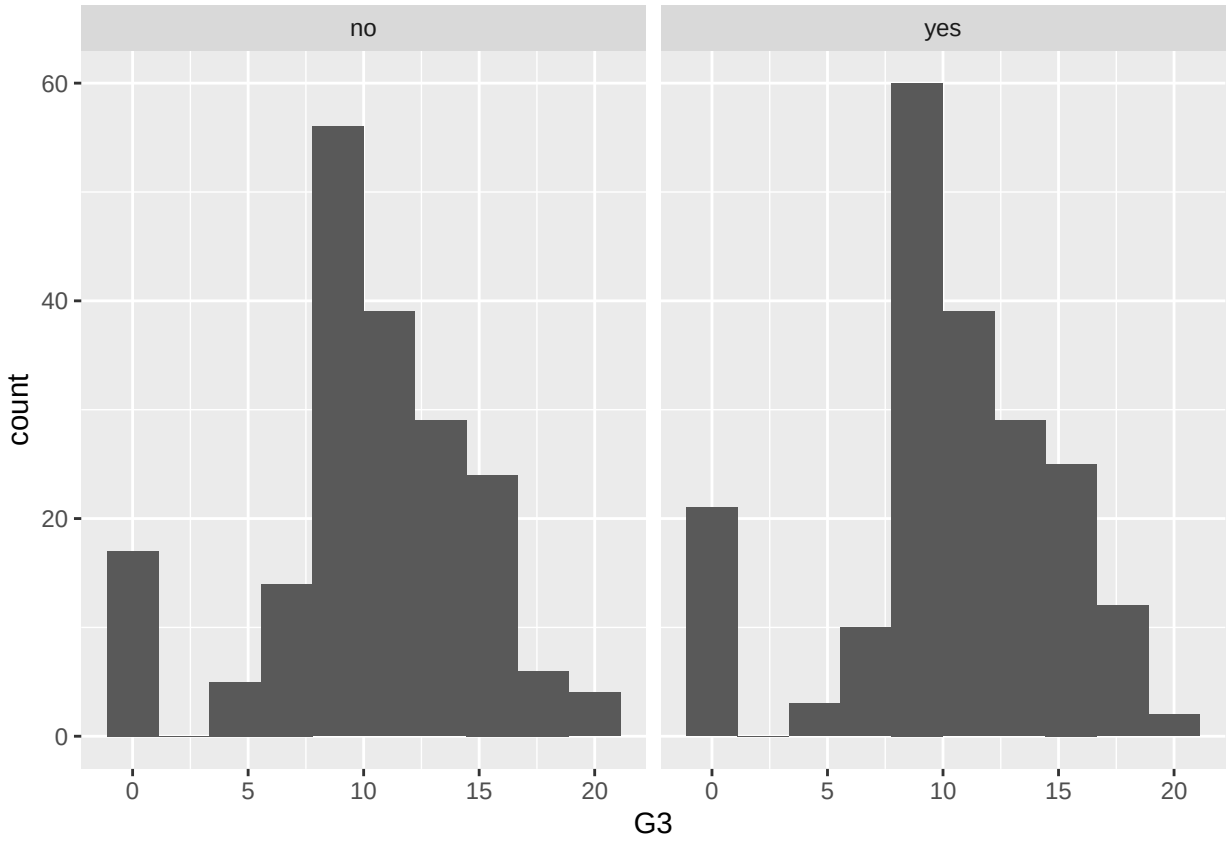
```
ggplot(student_mat, aes(x=activities, y = G3)) +
  geom_jitter() +
  geom_point(alpha = 0.2)
```




```
ggplot(student_mat, aes(x=activities, y = G3)) +
  geom_boxplot()
```




```
ggplot(student_mat, aes(x= G3)) +
  geom_histogram(bins = 10) +
  facet_wrap(vars(activities))
```




```
summary_stats <- student_mat %>%
  group_by(activities) %>%
  summarise(mean_by_group = mean(G3))
summary_stats
```

```
## # A tibble: 2 x 2
##   activities mean_by_group
##   <chr>              <dbl>
## 1 no                  10.3
## 2 yes                 10.5
```

Making predictions:

```
explanatory_data <- tibble(activities = c("yes","no"))
explanatory_data
```

```
## # A tibble: 2 x 1
##   activities
##   <chr>
## 1 yes
## 2 no
```

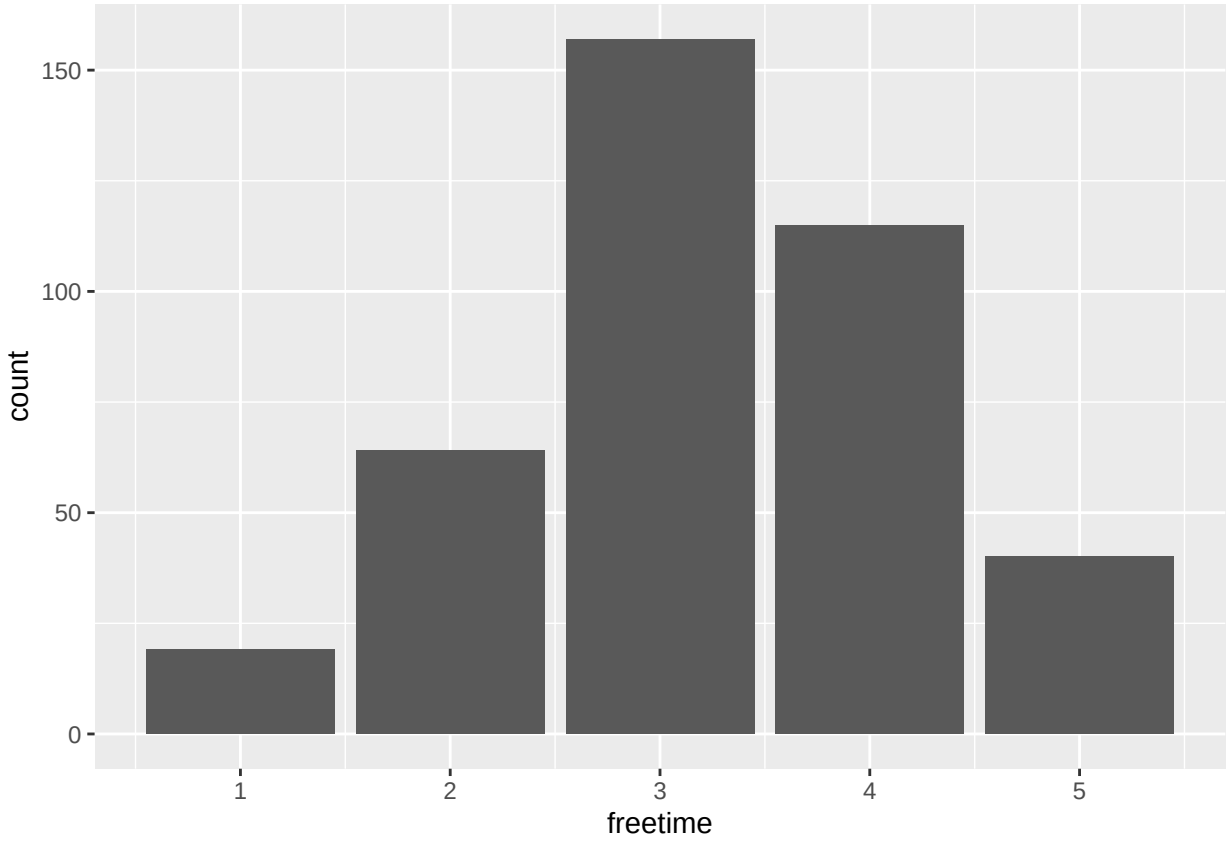
```
explanatory_data %>%
  mutate(
    respnse_var = predict(activities.model, explanatory_data)
  )
```

```
## # A tibble: 2 x 2
##   activities respnse_var
##   <chr>            <dbl>
## 1 yes               10.5
## 2 no                10.3
```

Freetime

Freetime after school rated from 1 very low to 5 very high.

```
ggplot(student_mat, aes(freetime)) + geom_bar()
```




```
freetime.model <- lm(G3 ~ freetime, data = student_mat)
summary(freetime.model)
```

```
##
## Call:
## lm(formula = G3 ~ freetime, data = student_mat)
```

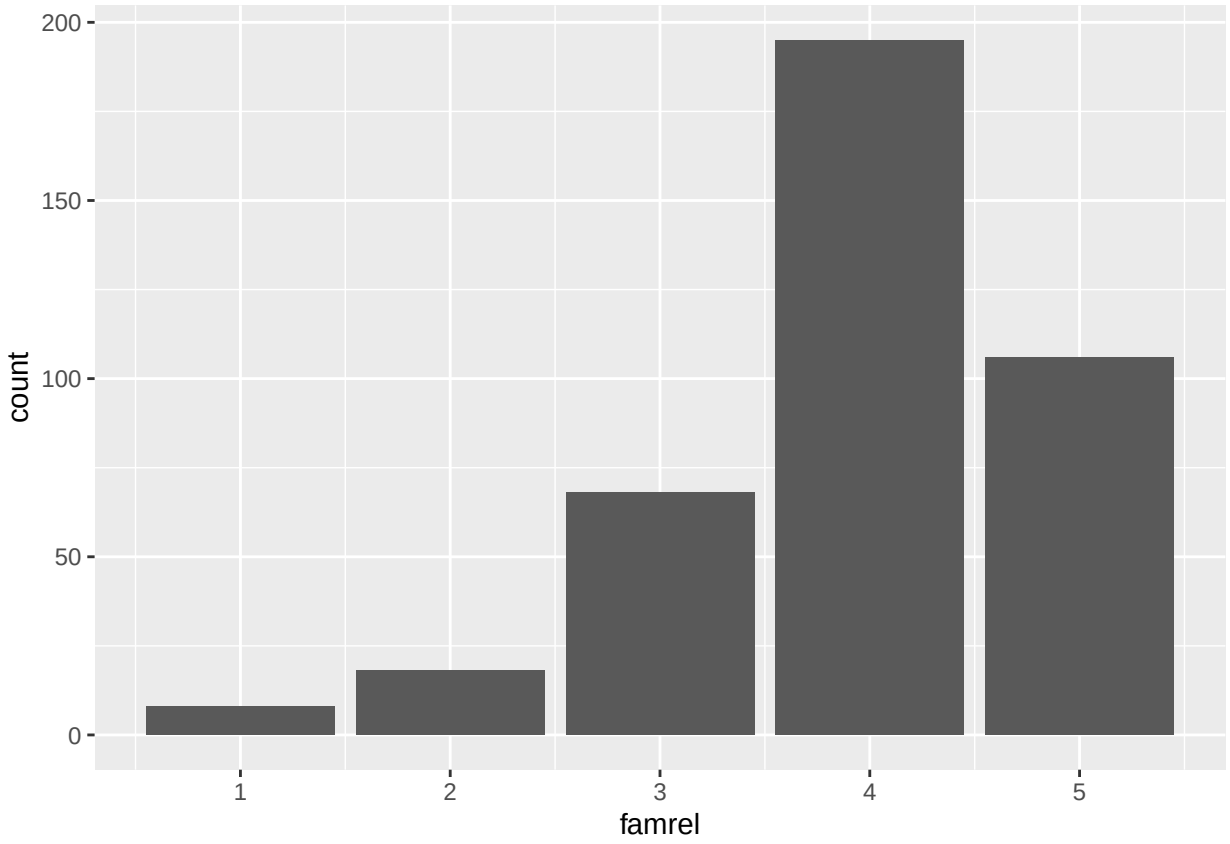
```
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.5067  -2.3511   0.5452   3.4933   9.6489
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept) 10.24739    0.78330  13.082   <2e-16 ***
## freetime     0.05186    0.23135   0.224    0.823
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.587 on 393 degrees of freedom
## Multiple R-squared:  0.0001279,  Adjusted R-squared:  -0.002416
## F-statistic: 0.05025 on 1 and 393 DF,  p-value: 0.8227
```

Not significant!

Family Relationship

`famrel` indicated the quality of family relationships on a scale from (numeric: from 1 - very bad to 5 - excellent)

```
ggplot(student_mat, aes(famrel)) + geom_bar()
```



```
famrel.model <- lm(G3 ~ famrel, data = student_mat)
summary(famrel.model)
```

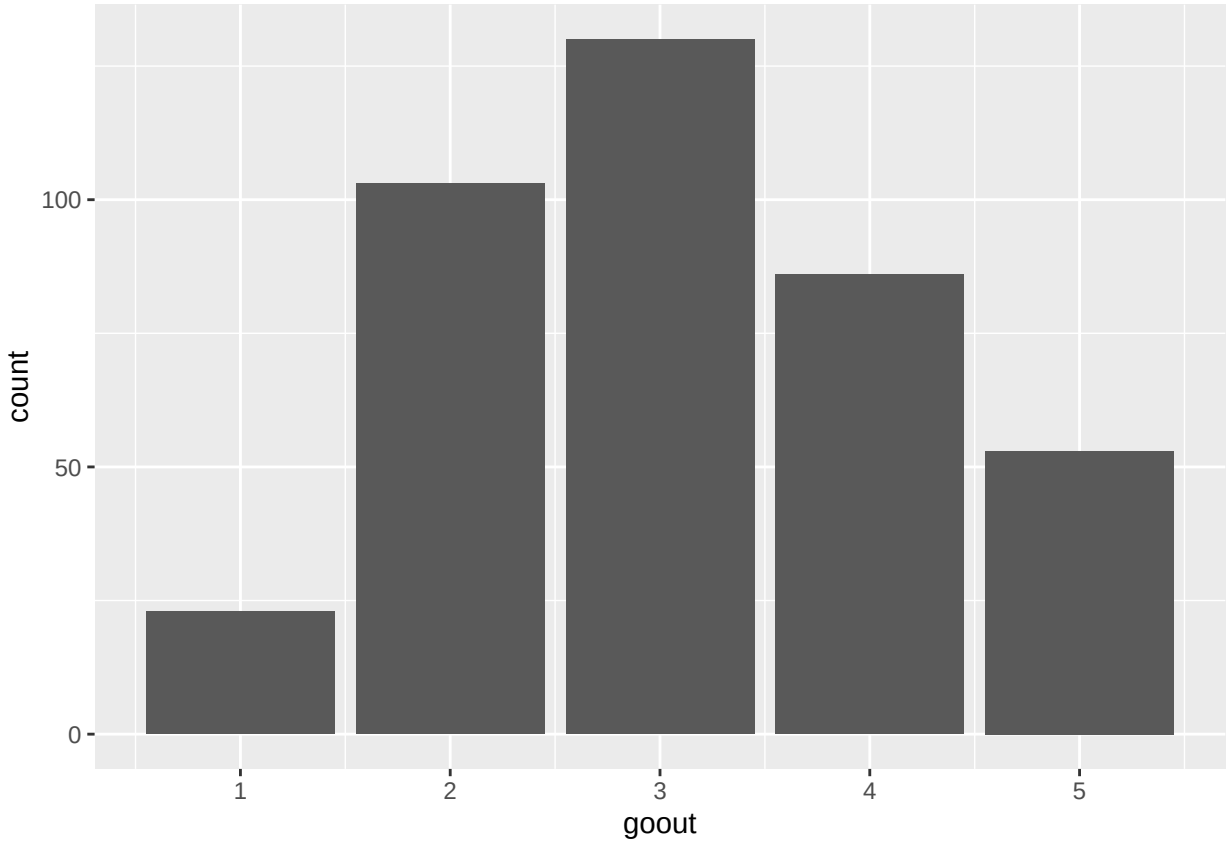
```
##
## Call:
## lm(formula = G3 ~ famrel, data = student_mat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.6922  -2.1674   0.5702   3.3078   9.5702
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   9.3800     1.0411    9.01   <2e-16 ***
## famrel        0.2624     0.2574    1.02    0.309
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.581 on 393 degrees of freedom
## Multiple R-squared:  0.002638,   Adjusted R-squared:  0.0001004
## F-statistic:  1.04 on 1 and 393 DF,  p-value: 0.3086
```

No significance

Going Out

goout indicates if students go out with friends rated from (numeric: from 1 - very low to 5 - very high)

```
ggplot(student_mat, aes(goout)) + geom_bar()
```




```
goout.model <- lm(G3 ~ goout, data = student_mat)
summary(goout.model)
```

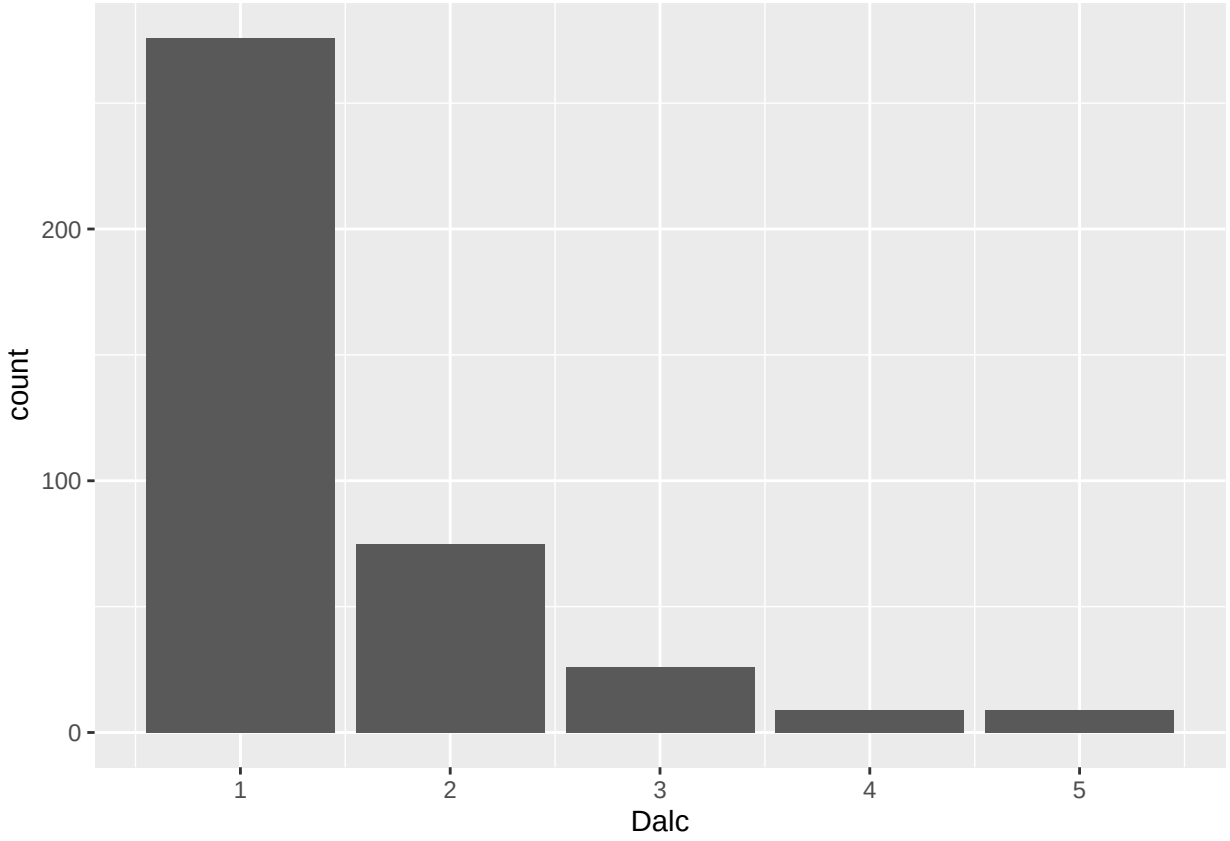
```
##
## Call:
## lm(formula = G3 ~ goout, data = student_mat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -11.5676  -1.9282   0.4324   3.0718   9.0718
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  12.1141     0.6793  17.833  < 2e-16 ***
## goout        -0.5465     0.2057  -2.656  0.00823 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.547 on 393 degrees of freedom
## Multiple R-squared:  0.01763,    Adjusted R-squared:  0.01513
## F-statistic: 7.054 on 1 and 393 DF,  p-value: 0.008229
```

Significance!!

Alcohol Consumption

Dalc indicated the workday alcohol consumption from very low to very high and Walc indicates weekend alcohol consumption, also from very low to very high.

```
ggplot(student_mat, aes(Dalc)) + geom_bar()
```



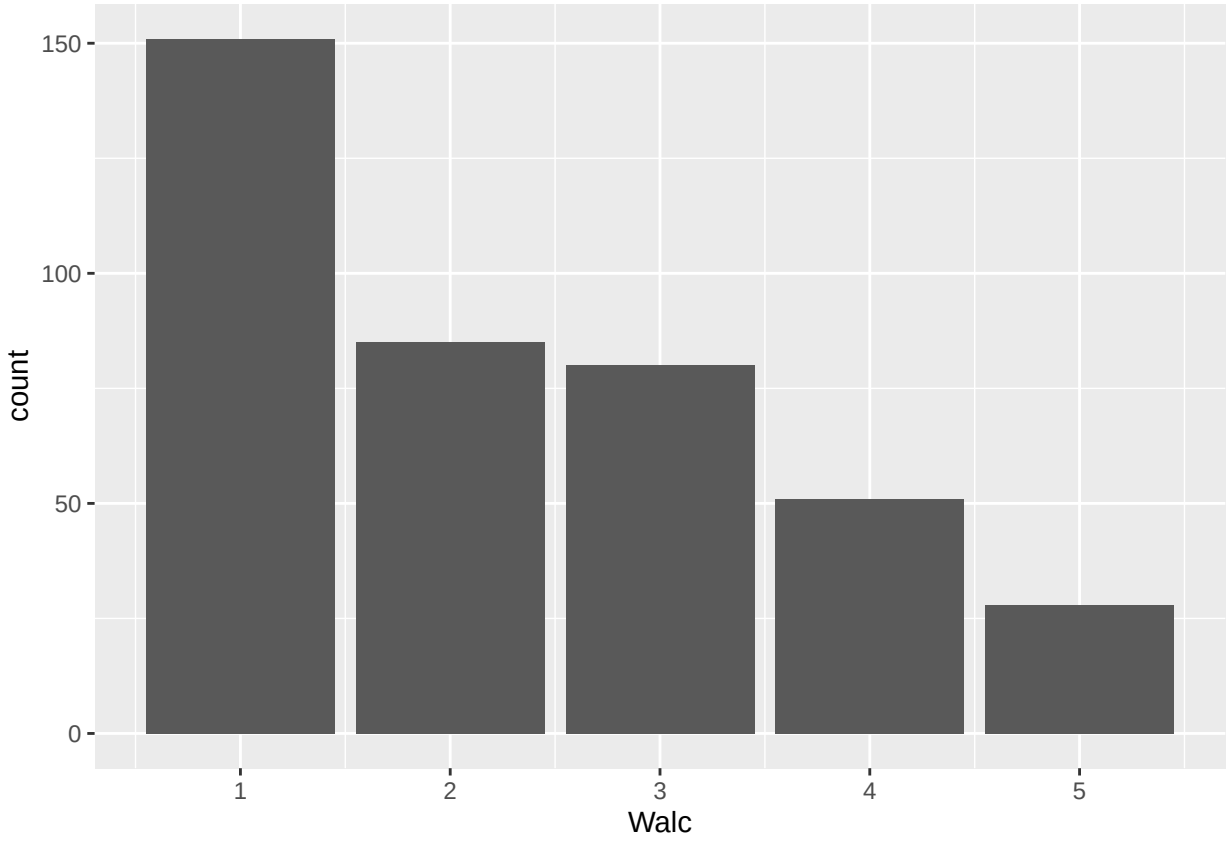

```
Dalc.model <- lm(G3 ~ Dalc, data = student_mat)
summary(Dalc.model)
```

```
##
## Call:
## lm(formula = G3 ~ Dalc, data = student_mat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.5504  -1.9881   0.4496   3.4496   9.4496
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  10.8316     0.4476  24.201   <2e-16 ***
## Dalc         -0.2811     0.2591  -1.085    0.278
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
## Residual standard error: 4.58 on 393 degrees of freedom
## Multiple R-squared:  0.002988,   Adjusted R-squared:  0.0004508
## F-statistic: 1.178 on 1 and 393 DF,  p-value: 0.2785
```

Not significant

```
ggplot(student_mat, aes(Walc)) + geom_bar()
```




```
Walc.model <- lm(G3 ~ Walc, data = student_mat)
summary(Walc.model)
```

```
##
## Call:
## lm(formula = G3 ~ Walc, data = student_mat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.6537  -2.0071   0.3463   3.3463   9.3463
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  10.8385     0.4708  23.019   <2e-16 ***
## Walc         -0.1848     0.1792  -1.031    0.303
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
##
## Residual standard error: 4.581 on 393 degrees of freedom
## Multiple R-squared:  0.002698,   Adjusted R-squared:  0.00016
## F-statistic: 1.063 on 1 and 393 DF,  p-value: 0.3032
```

Not significant

Academic Help

```
model <- lm(G3 ~ paid, data = student_mat)
summary(model)
```

```
##
## Call:
## lm(formula = G3 ~ paid, data = student_mat)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -10.9227  -1.9860   0.0773   3.0773  10.0140
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   9.9860     0.3119  32.012   <2e-16 ***
## paidyes       0.9367     0.4608   2.033   0.0428 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.563 on 393 degrees of freedom
## Multiple R-squared:  0.0104, Adjusted R-squared:  0.007885
## F-statistic: 4.131 on 1 and 393 DF,  p-value: 0.04277
```

Domestic Life

Conclusion

Why is this analysis important? Limitations of the analysis?