Water Quality Analysis

18F-0421

12/29/2021

R Markdown

```
library(ggplot2)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

Including Plots

You can also embed plots, for example:

```
dataset <- read.csv("water_portability.csv")

colnames(dataset)
```

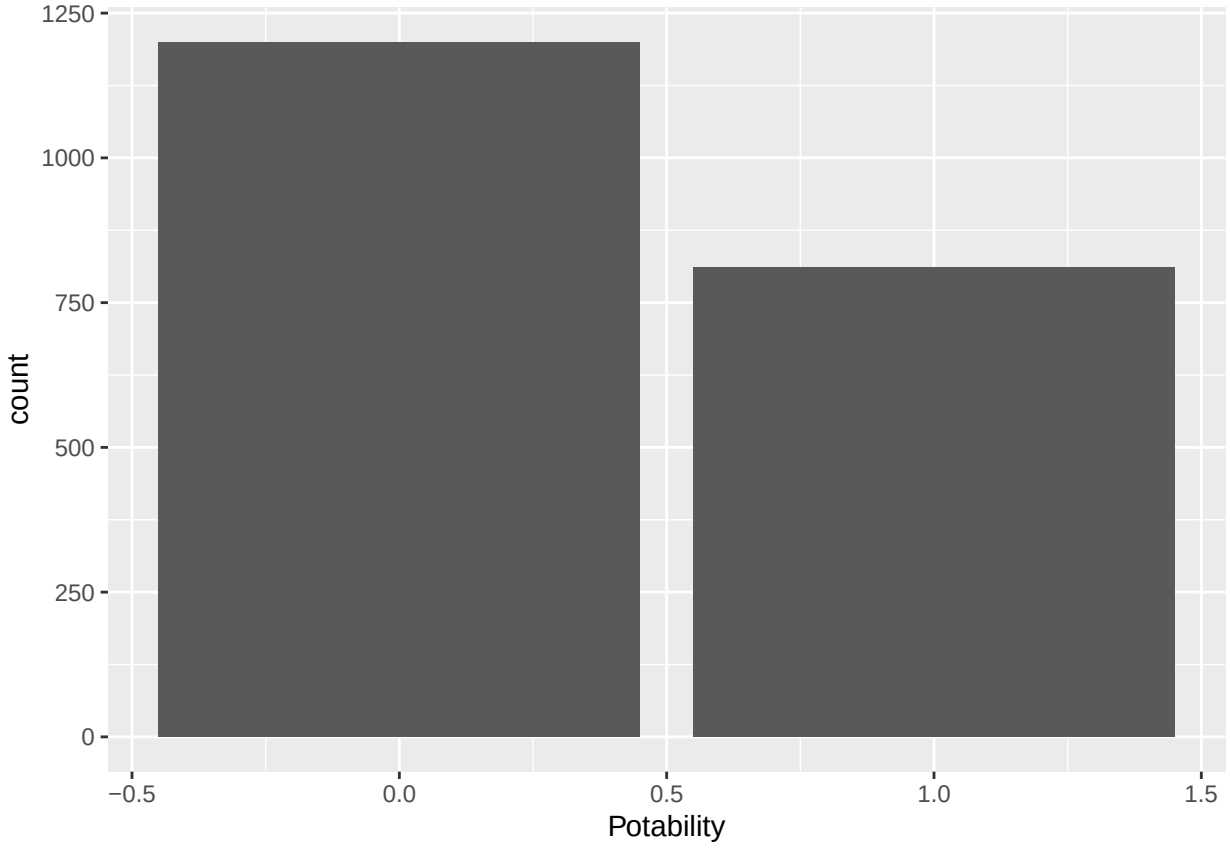
```
##  [1] "ph"              "Hardness"        "Solids"          "Chloramines"
##  [5] "Sulfate"         "Conductivity"    "Organic_carbon"  "Trihalomethanes"
##  [9] "Turbidity"       "Potability"
```

```
summary(dataset)
```

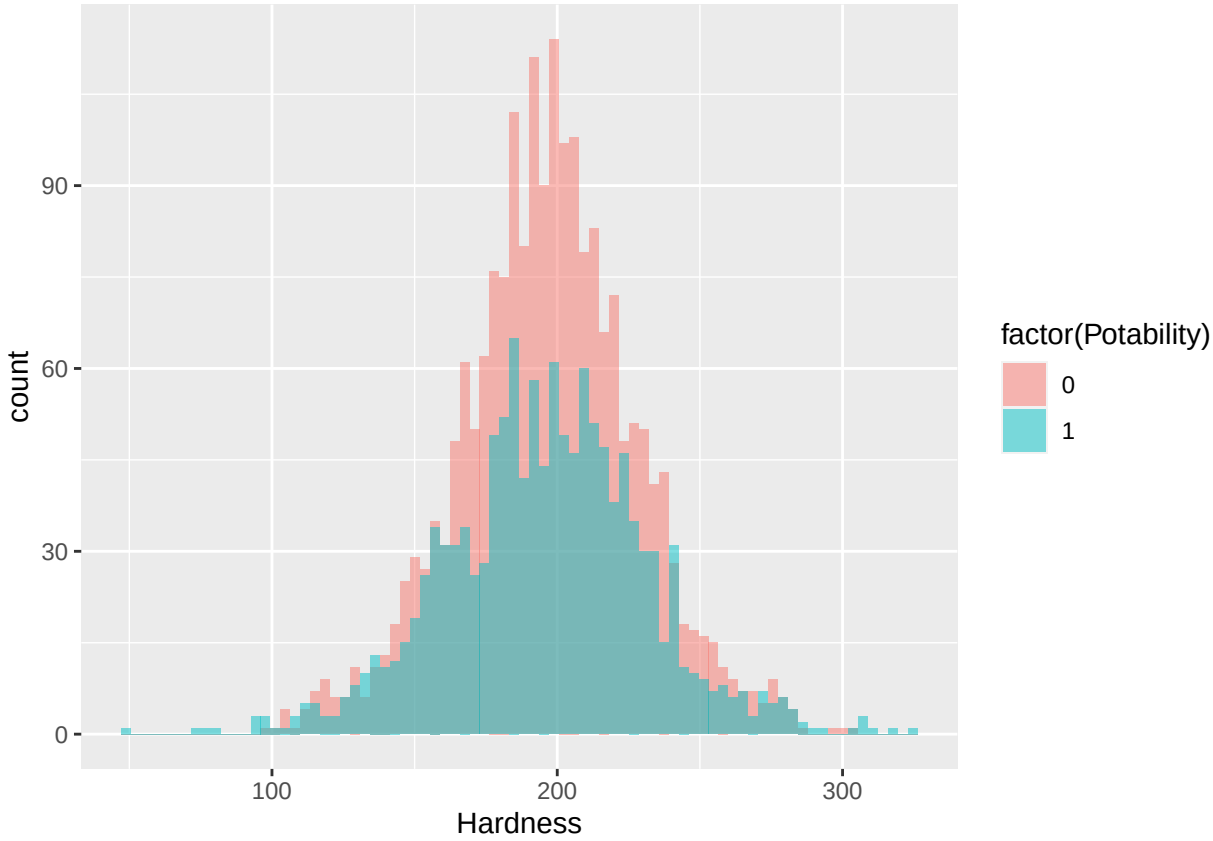
```
##        ph            Hardness          Solids         Chloramines
##  Min.   : 0.000   Min.   : 47.43   Min.   :  320.9   Min.   : 0.352
##  1st Qu.: 6.093   1st Qu.:176.85   1st Qu.:15666.7   1st Qu.: 6.127
##  Median : 7.037   Median :196.97   Median :20927.8   Median : 7.130
##  Mean   : 7.081   Mean   :196.37   Mean   :22014.1   Mean   : 7.122
##  3rd Qu.: 8.062   3rd Qu.:216.67   3rd Qu.:27332.8   3rd Qu.: 8.115
##  Max.   :14.000   Max.   :323.12   Max.   :61227.2   Max.   :13.127
```

```
##  NA's   :491
##     Sulfate        Conductivity   Organic_carbon  Trihalomethanes
##  Min.   :129.0   Min.   :181.5   Min.   : 2.20   Min.   :  0.738
##  1st Qu.:307.7   1st Qu.:365.7   1st Qu.:12.07   1st Qu.: 55.845
##  Median :333.1   Median :421.9   Median :14.22   Median : 66.622
##  Mean   :333.8   Mean   :426.2   Mean   :14.28   Mean   : 66.396
##  3rd Qu.:360.0   3rd Qu.:481.8   3rd Qu.:16.56   3rd Qu.: 77.337
##  Max.   :481.0   Max.   :753.3   Max.   :28.30   Max.   :124.000
##  NA's   :781                                     NA's   :162
##    Turbidity       Potability
##  Min.   :1.450   Min.   :0.0000
##  1st Qu.:3.440   1st Qu.:0.0000
##  Median :3.955   Median :0.0000
##  Mean   :3.967   Mean   :0.3901
##  3rd Qu.:4.500   3rd Qu.:1.0000
##  Max.   :6.739   Max.   :1.0000
##
```

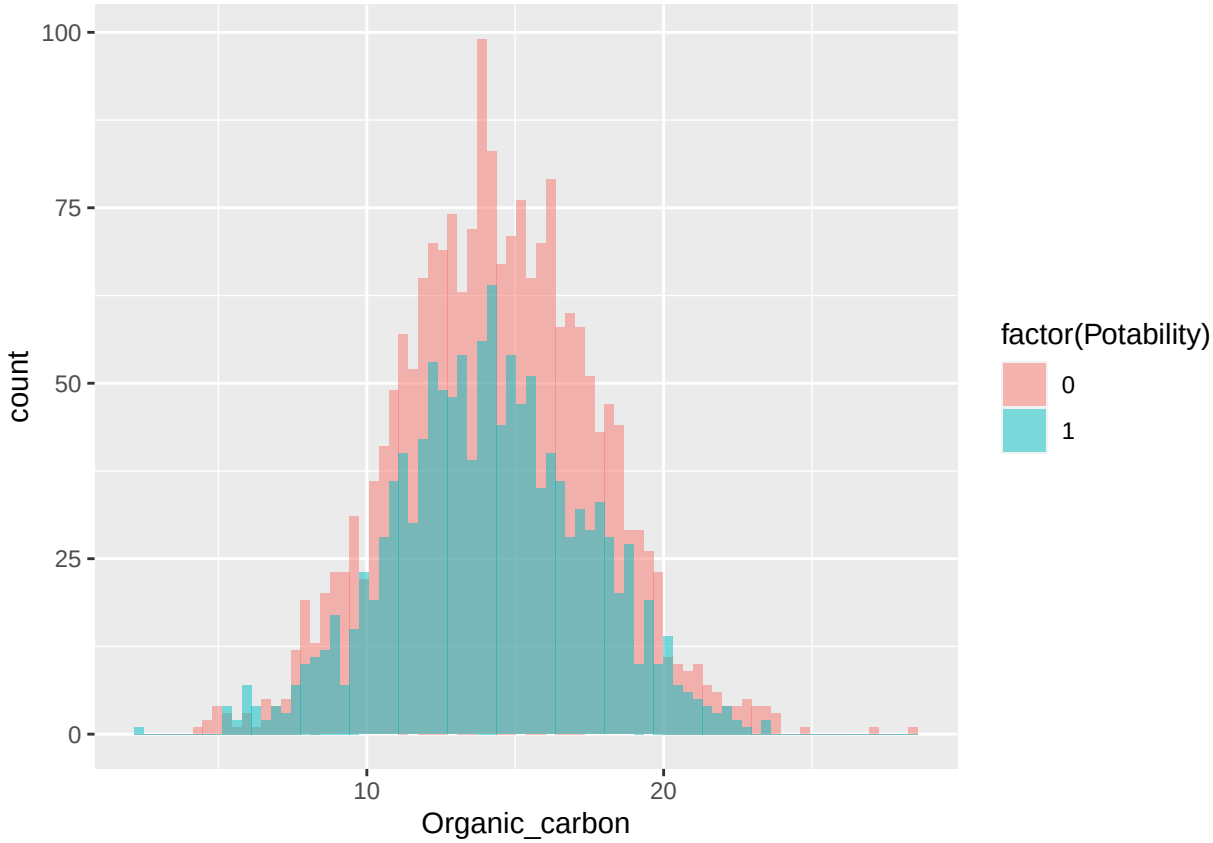
```r
newdata <- dataset[complete.cases(dataset),]

ggplot2::ggplot(newdata,aes(Potability))+
  ggplot2::geom_bar()
```




```r
ggplot(dataset,aes( Hardness, fill  = factor(Potability)))+
  geom_histogram(position = "identity", alpha = 0.5, bins = 80)
```

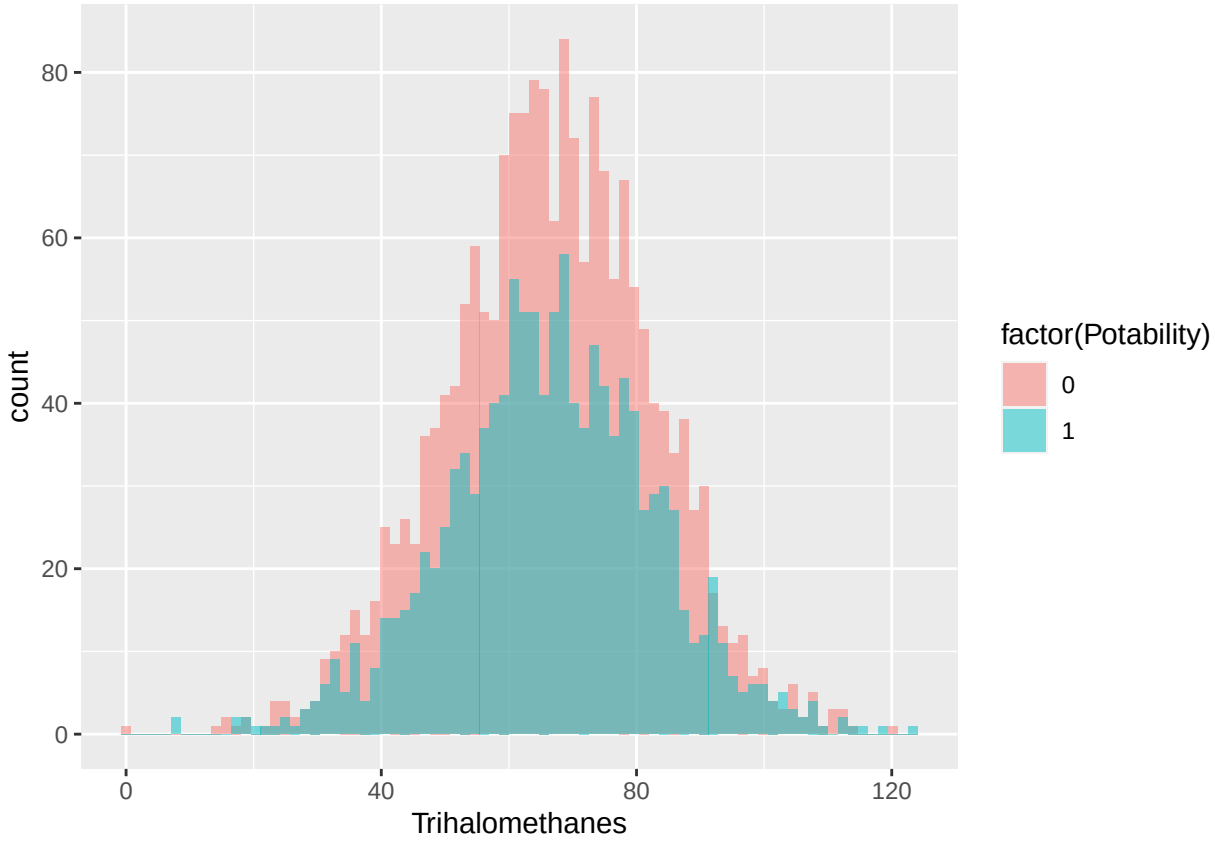



```
ggplot(dataset,aes( Organic_carbon, fill  = factor(Potability)))+
  geom_histogram(position = "identity", alpha = 0.5, bins = 80)
```




```
ggplot(dataset,aes( Trihalomethanes, fill  = factor(Potability)))+
  geom_histogram(position = "identity", alpha = 0.5, bins = 80)
```

```
## Warning: Removed 162 rows containing non-finite values (stat_bin).
```


80
60
40
20
0
count
0
40
80
120
Trihalomethanes
factor(Potability)
0
1