DataFest_Analysis

S²LZ₂

```r
library(tidyverse)
library(knitr)
library(broom)
library(nnet) # for multinomial logistic regression
```

R Markdown

```r
CA <- read_csv("~/df_data/CA/ca.csv")
DE <- read_csv("~/df_data/DE/de.csv")
UK <- read_csv("~/df_data/UK/uk.csv")
US18 <- read_csv("~/df_data/US/us_18.csv")
US19 <- read_csv("~/df_data/US/us_19.csv")
```

```r
US18%>%
  count(HEALTH_ROLE)
```

```
## # A tibble: 17 x 2
##    HEALTH_ROLE     n
##          <dbl> <int>
##  1           1   113
##  2           2    52
##  3           3    56
##  4           4   251
##  5           5    12
##  6           6    36
##  7           7    44
##  8           8    51
##  9           9    27
## 10          10    23
## 11          11    16
## 12          12    75
## 13          13     9
## 14          14    50
## 15          15    95
## 16          16   548
## 17          NA 28549
```
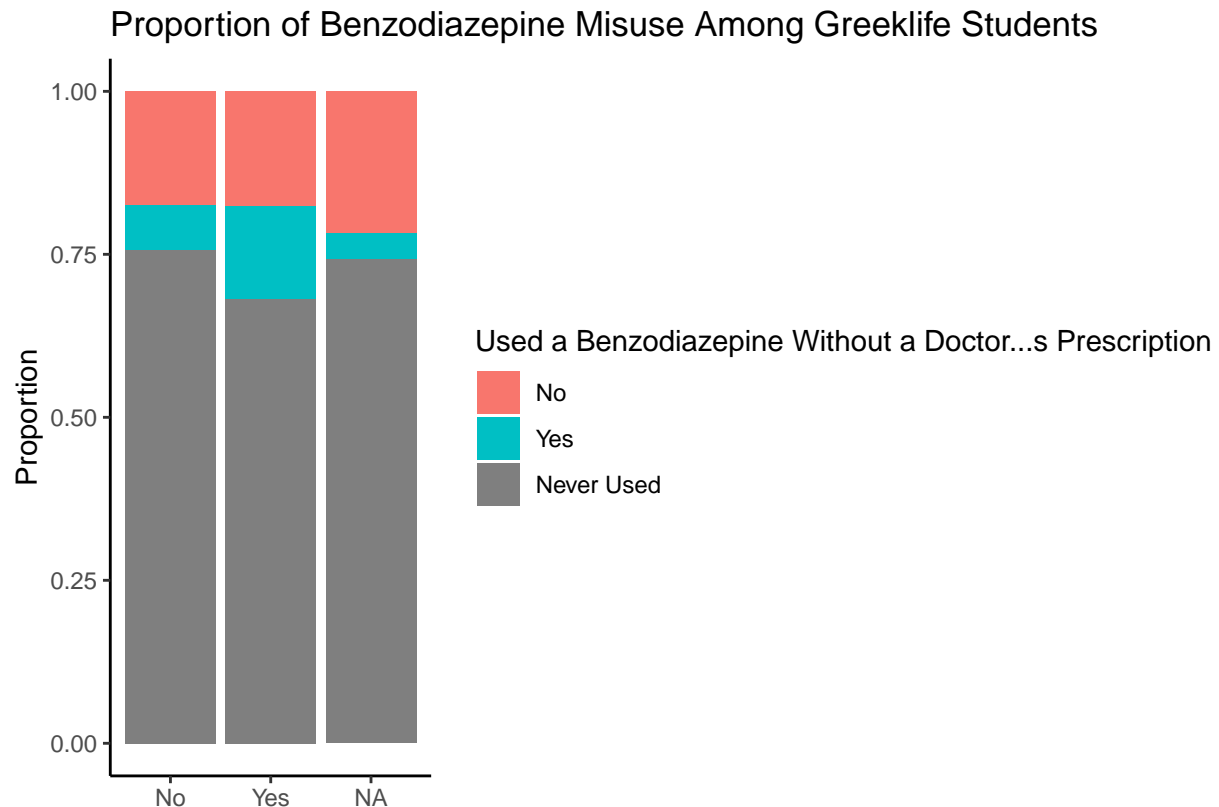
```r
#BENZ, THC, STIM


#BENZ_NUM: 5, 7, 14
#STIM_USE: 5, 7, 14
```

```r
ggplot(data = US18, aes(x = factor(COLLEGE_GREEK), fill = factor(BENZ_NMU)))+
  geom_bar(position = "fill")+
  scale_fill_discrete(labels = c("No",  "Yes",
                                   "Never Used")) +
  scale_x_discrete(labels=c("0" = "No", "1" = "Yes",
                                "NA" = "Not A Student"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Are You A Member of A College Greeklife Organization",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of Benzodiazepine Misuse Among Greeklife Students")
```
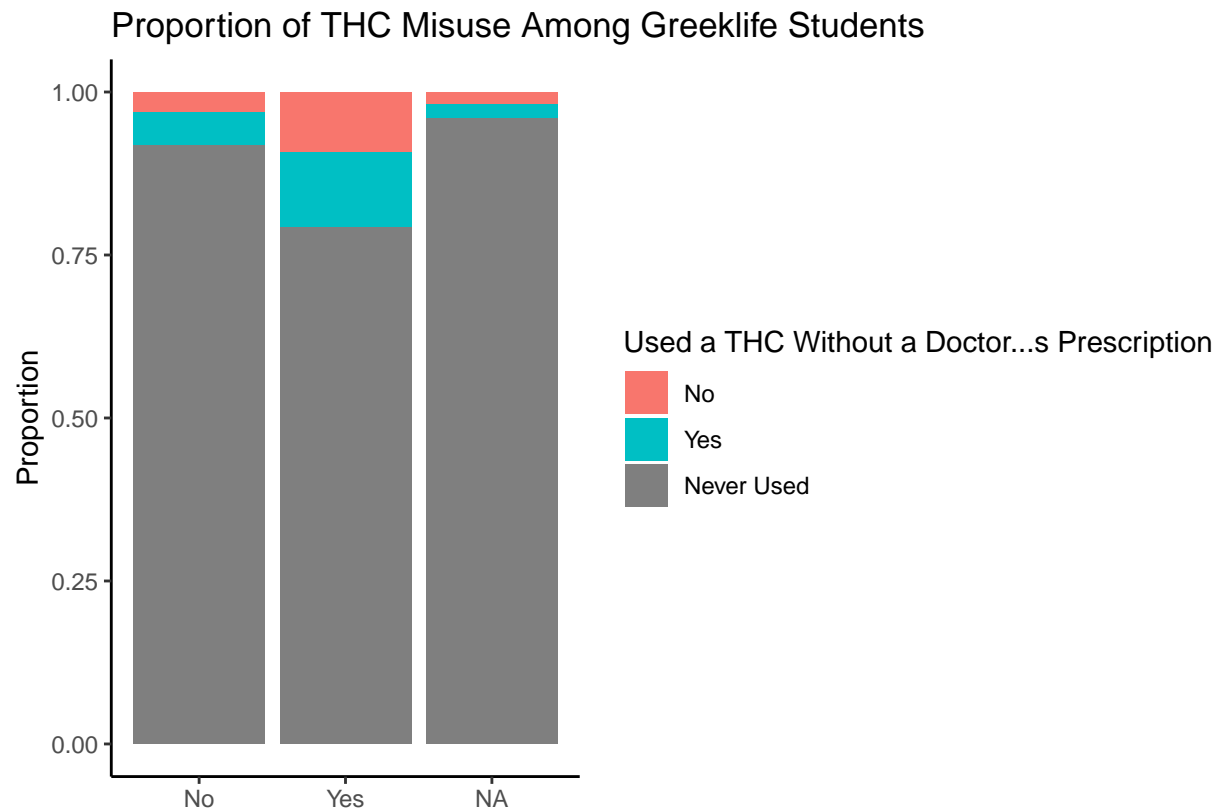

Proportion of Benzodiazepine Misuse Among Greeklife Students

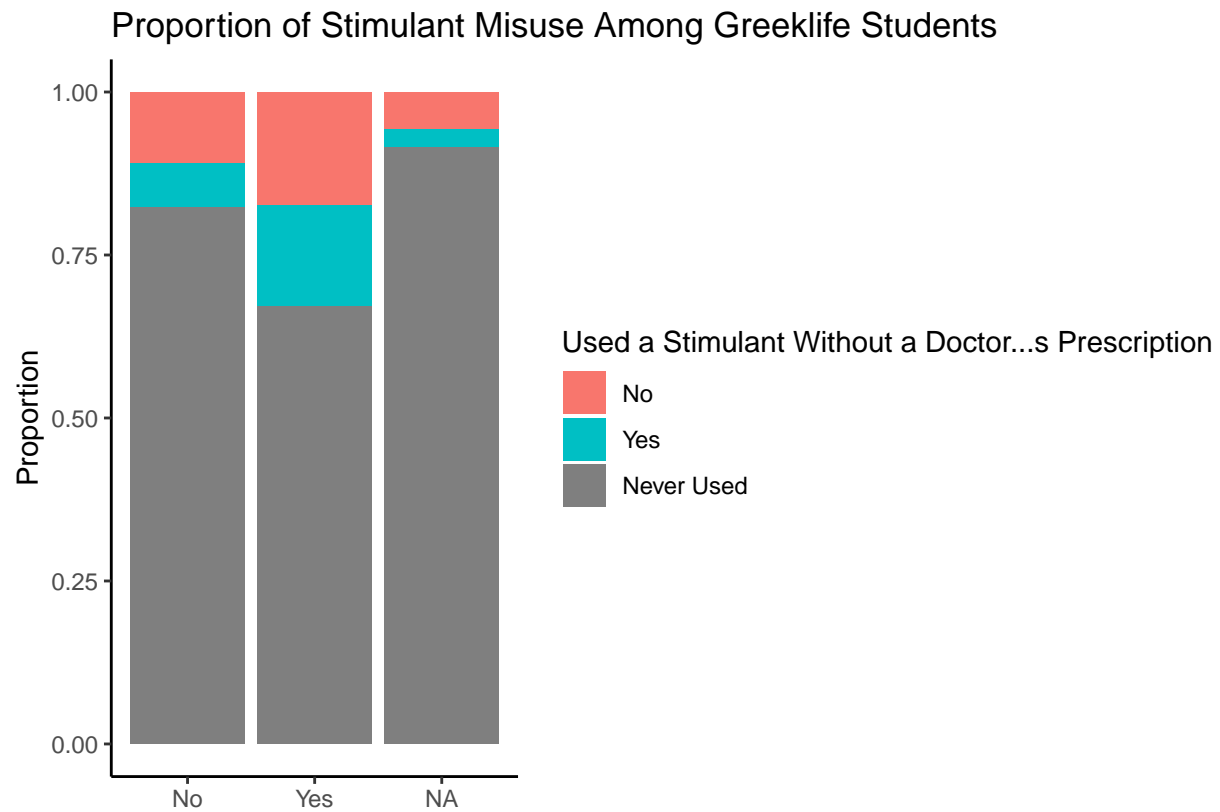u A Member of A College Greeklife Organization

```r
ggplot(data = US18, aes(x = factor(COLLEGE_GREEK), fill = factor(THC_NMU)))+
  geom_bar(position = "fill")+
  scale_fill_discrete(labels = c("No",  "Yes",
                                   "Never Used")) +
  scale_x_discrete(labels=c("0" = "No", "1" = "Yes",
                                "NA" = "Not A Student"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Are You A Member of A College Greeklife Organization",
     fill = "Used a THC Without a Doctor's Prescription ",
      title = "Proportion of THC Misuse Among Greeklife Students")
```

Proportion of THC Misuse Among Greeklife Students

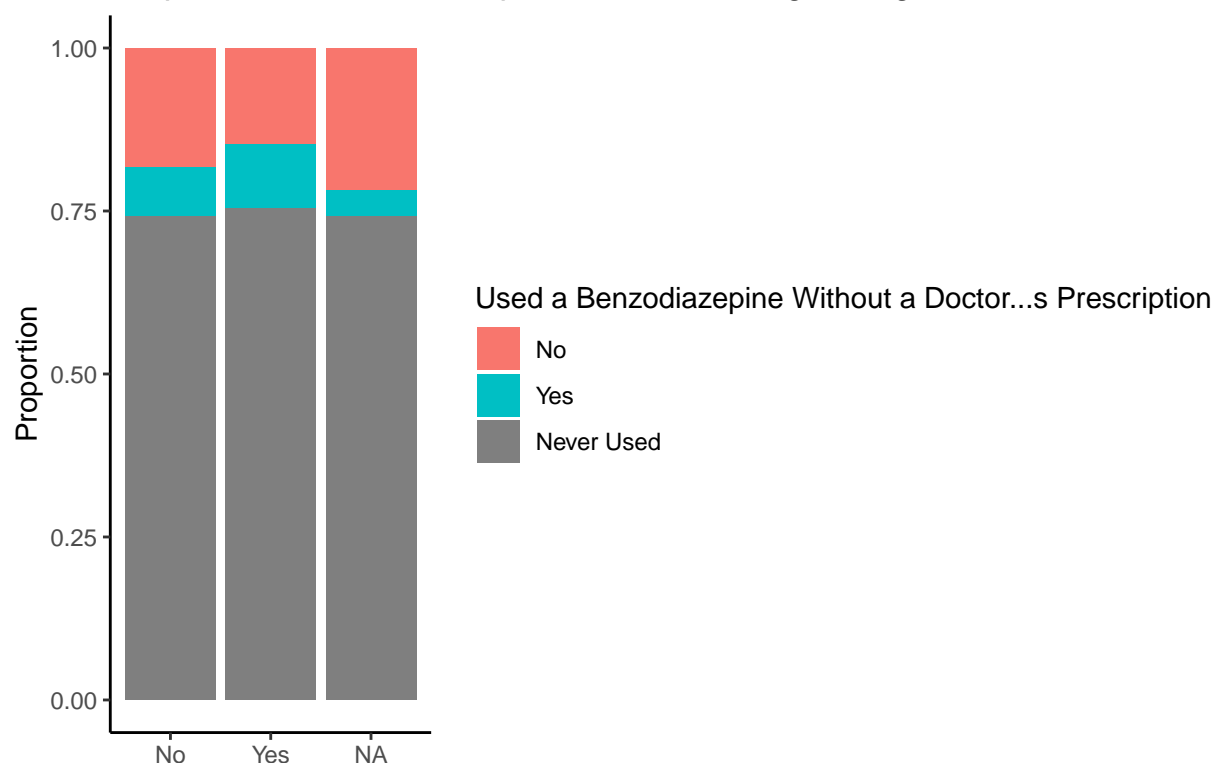Are You A Member of A College Greeklife Organization

```r
ggplot(data = US18, aes(x = factor(COLLEGE_GREEK), fill = factor(STIM_NMU)))+
  geom_bar(position = "fill")+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "No", "1" = "Yes",
                            "NA" = "Not A Student"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Are You A Member of A College Greeklife Organization",
     fill = "Used a Stimulant Without a Doctor's Prescription ",
      title = "Proportion of Stimulant Misuse Among Greeklife Students")
```

Proportion of Stimulant Misuse Among Greeklife Students

Used a Stimulant Without a Doctor...s Prescription
- No
- Yes
- Never Used

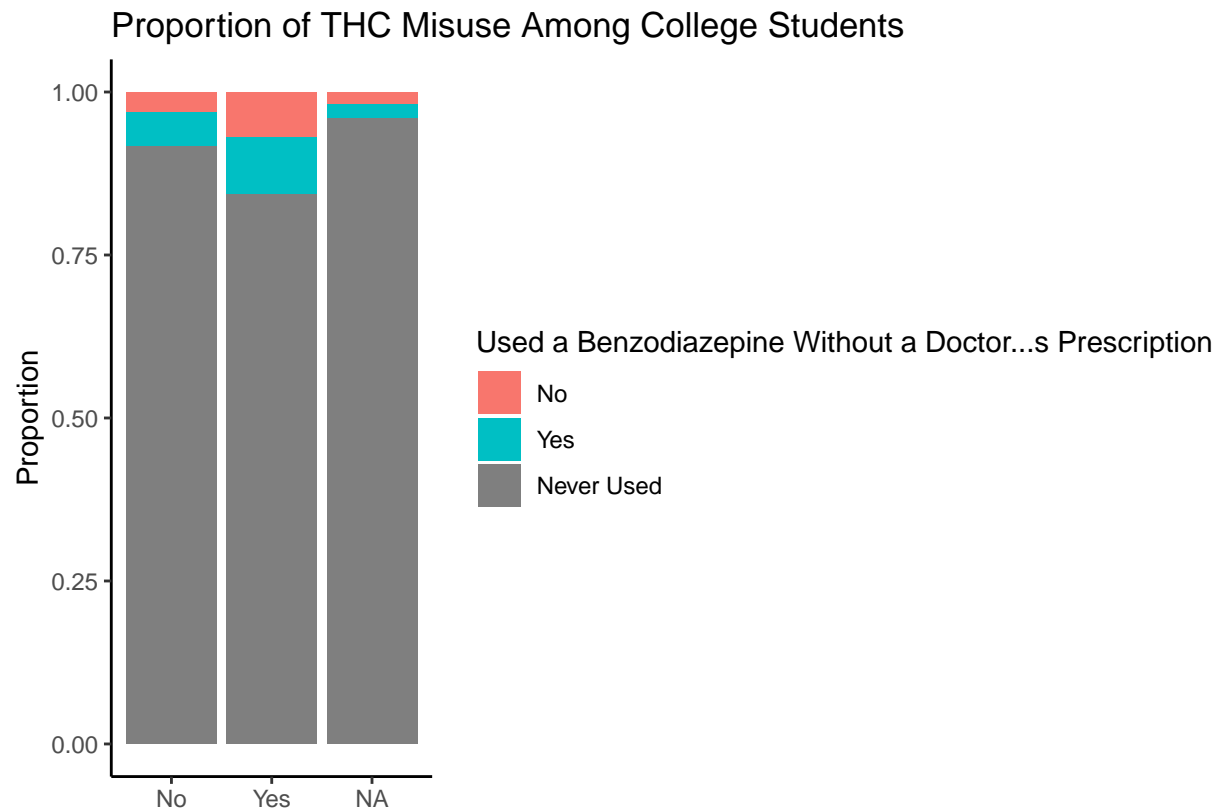You A Member of A College Greeklife Organization

```r
ggplot(data = US18, aes(x = factor(COLLEGE_HOUSING), fill = factor(BENZ_NMU)))+
  geom_bar(position = "fill")+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "No", "1" = "Yes",
                            "NA" = "Not A Student"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Do you currently live in on-campus housing",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of Benzodiazepine Misuse Among College Students")
```

Proportion of Benzodiazepine Misuse Among College Students

Used a Benzodiazepine Without a Doctor...s Prescription

- No
- Yes
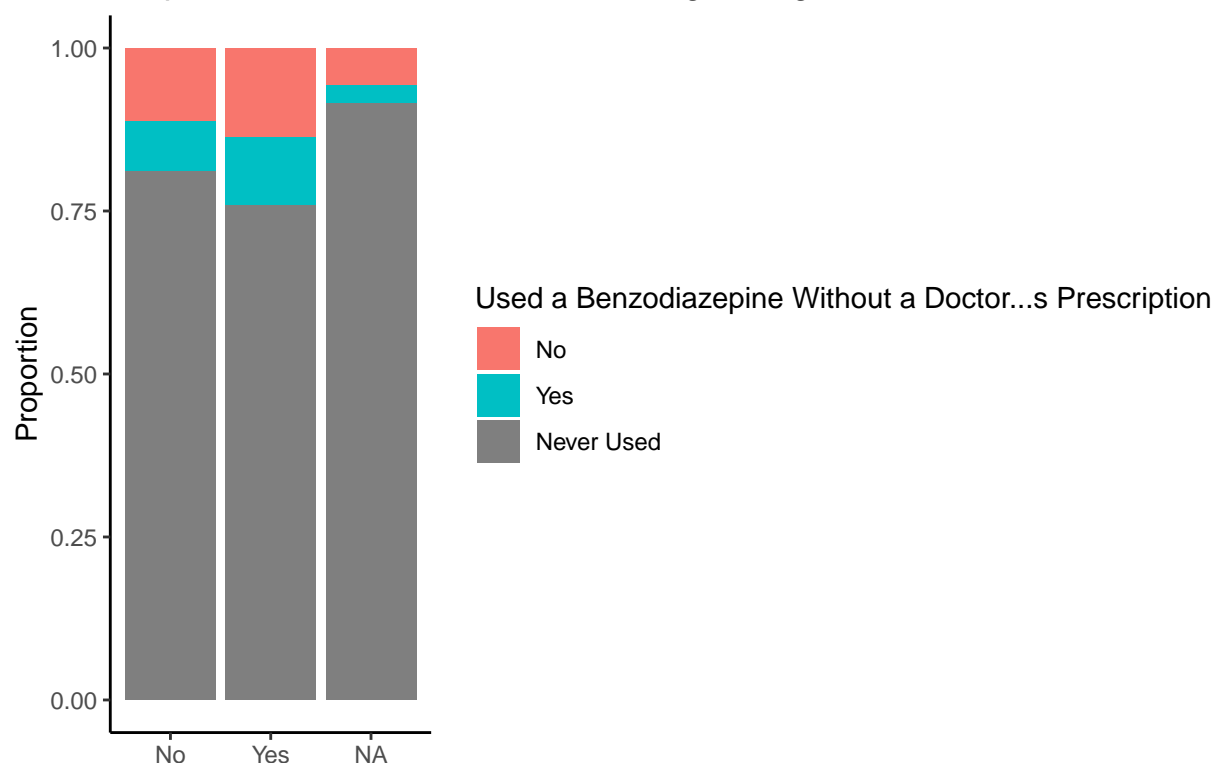- Never Used

Do you currently live in on−campus housing

```r
ggplot(data = US18, aes(x = factor(COLLEGE_HOUSING), fill = factor(THC_NMU)))+
  geom_bar(position = "fill")+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "No", "1" = "Yes",
                            "NA" = "Not A Student"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Do you currently live in on-campus housing",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of THC Misuse Among College Students")
```

Proportion of THC Misuse Among College Students

Used a Benzodiazepine Without a Doctor...s Prescription

- No
- Yes
- Never Used

Do you currently live in on−campus housing

```r
ggplot(data = US18, aes(x = factor(COLLEGE_HOUSING), fill = factor(STIM_NMU)))+
  geom_bar(position = "fill")+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "No", "1" = "Yes",
                            "NA" = "Not A Student"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Do you currently live in on-campus housing",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of Stimulant Misuse Among College Students")
```

Proportion of Stimulant Misuse Among College Students

Used a Benzodiazepine Without a Doctor...s Prescription
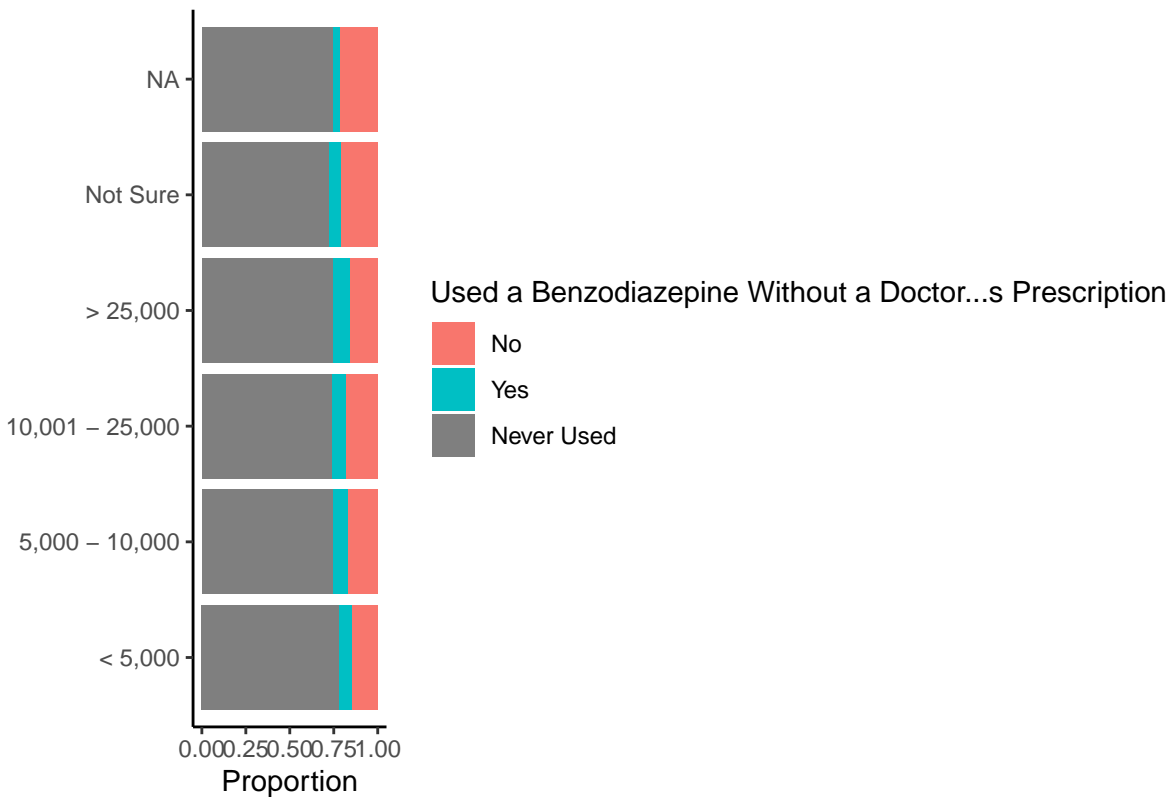
- No
- Yes
- Never Used

Do you currently live in on−campus housing

```
ggplot(data = US18, aes(x = factor(COLLEGE_SIZE), fill = factor(BENZ_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "< 5,000", "1" = "5,000 - 10,000",
                            "2" = "10,001 - 25,000",
                            "3" = "> 25,000",
                            "4" = "Not Sure",
                            "NA" = "Not A Student"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "How Many Students Are Enrolled in Your Current College/University",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of Benzodiazepine Misuse Among College Students")
```
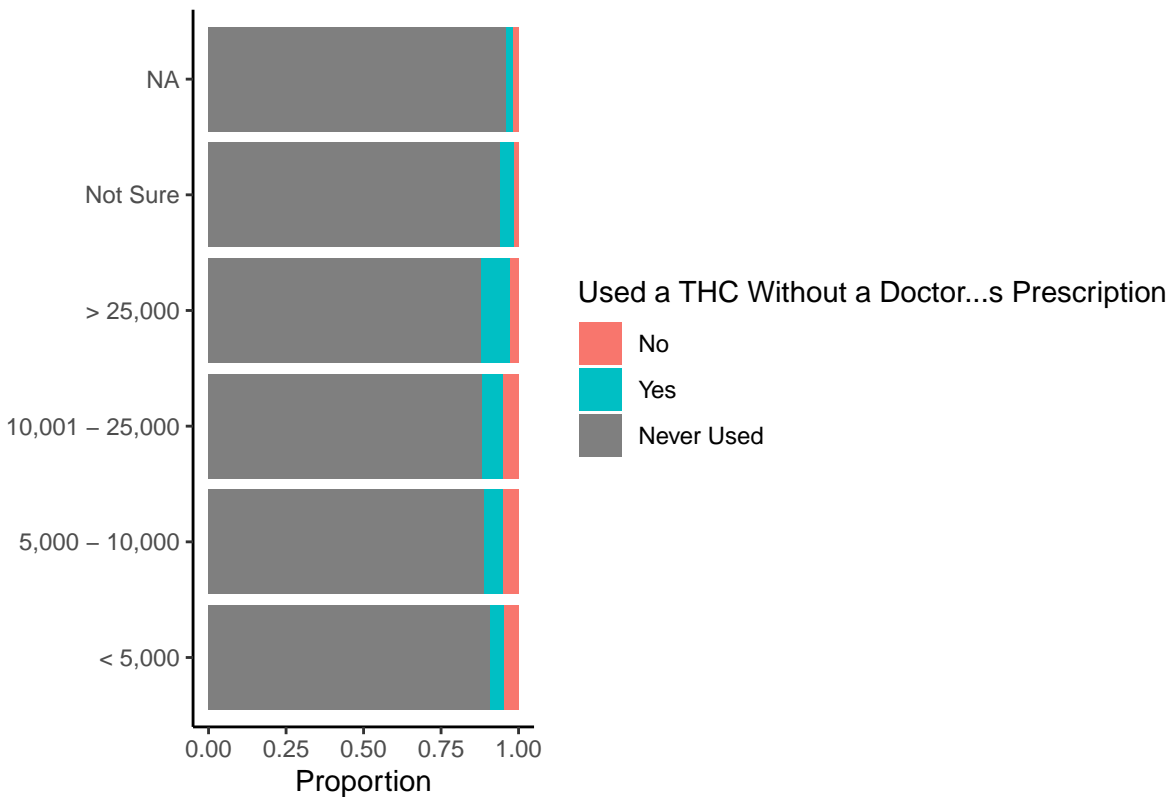
Proportion of Benzodiazepine Misuse Among College Students


```r
ggplot(data = US18, aes(x = factor(COLLEGE_SIZE), fill = factor(THC_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "< 5,000", "1" = "5,000 - 10,000",
                            "2" = "10,001 - 25,000",
                            "3" = "> 25,000",
                            "4" = "Not Sure",
                            "NA" = "Not A Student"))+
  theme_classic() +
labs(y = "Proportion",
     x = "How Many Students Are Enrolled in Your Current College/University",
    fill = "Used a THC Without a Doctor's Prescription ",
     title = "Proportion of THC Misuse Among College Students")
```
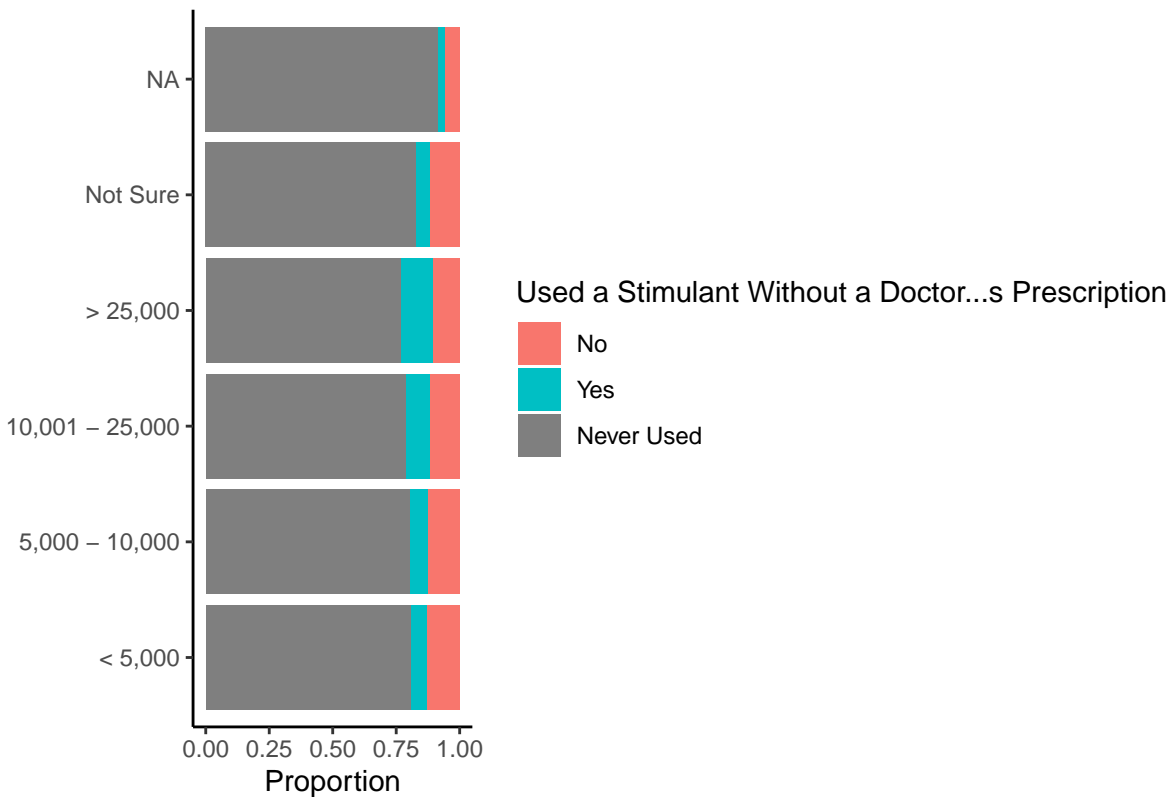
Proportion of THC Misuse Among College Students

```
ggplot(data = US18, aes(x = factor(COLLEGE_SIZE), fill = factor(STIM_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "< 5,000", "1" = "5,000 - 10,000",
                            "2" = "10,001 - 25,000",
                            "3" = "> 25,000",
                            "4" = "Not Sure",
                            "NA" = "Not A Student"))+
  theme_classic() +
labs(y = "Proportion",
      x = "How Many Students Are Enrolled in Your Current College/University",
    fill = "Used a Stimulant Without a Doctor's Prescription ",
     title = "Proportion of Stimulant Misuse Among College Students")
```
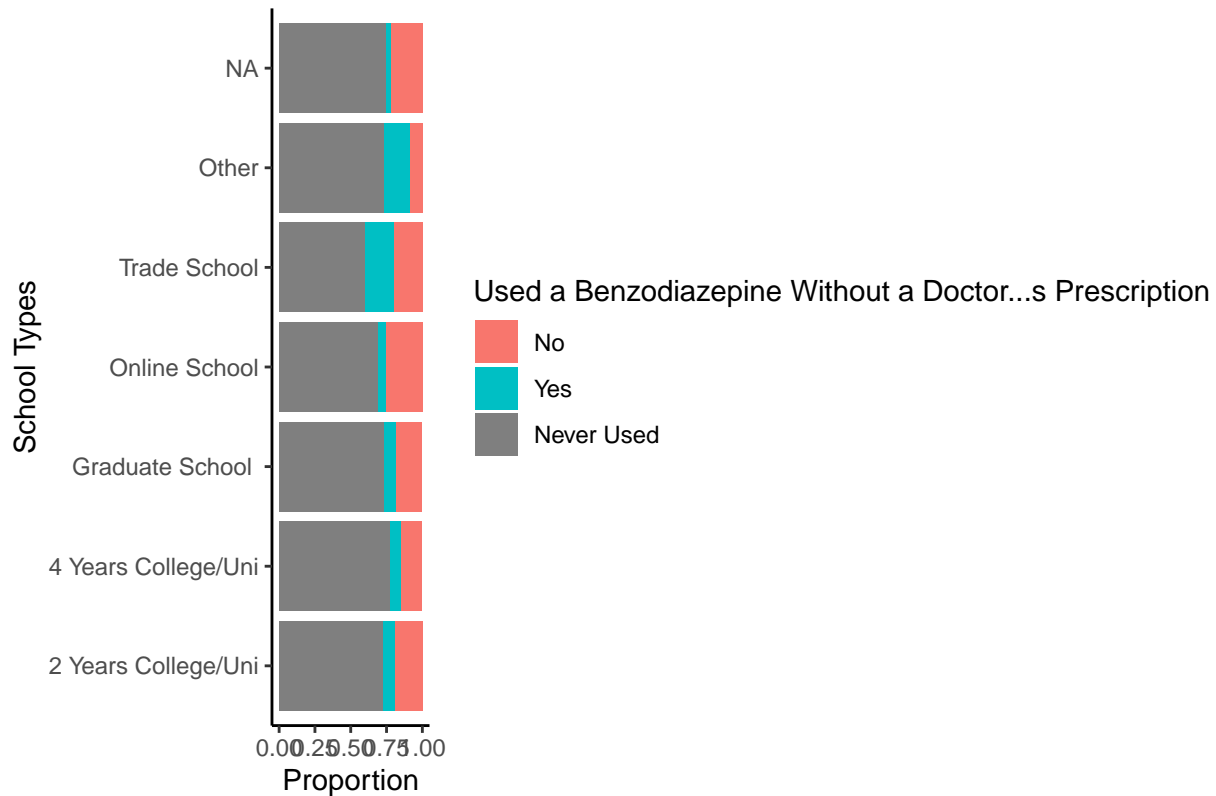
Proportion of Stimulant Misuse Among College Students

How Many Students Are Enrolled in Your Current College/Universit

Used a Stimulant Without a Doctor...s Prescription
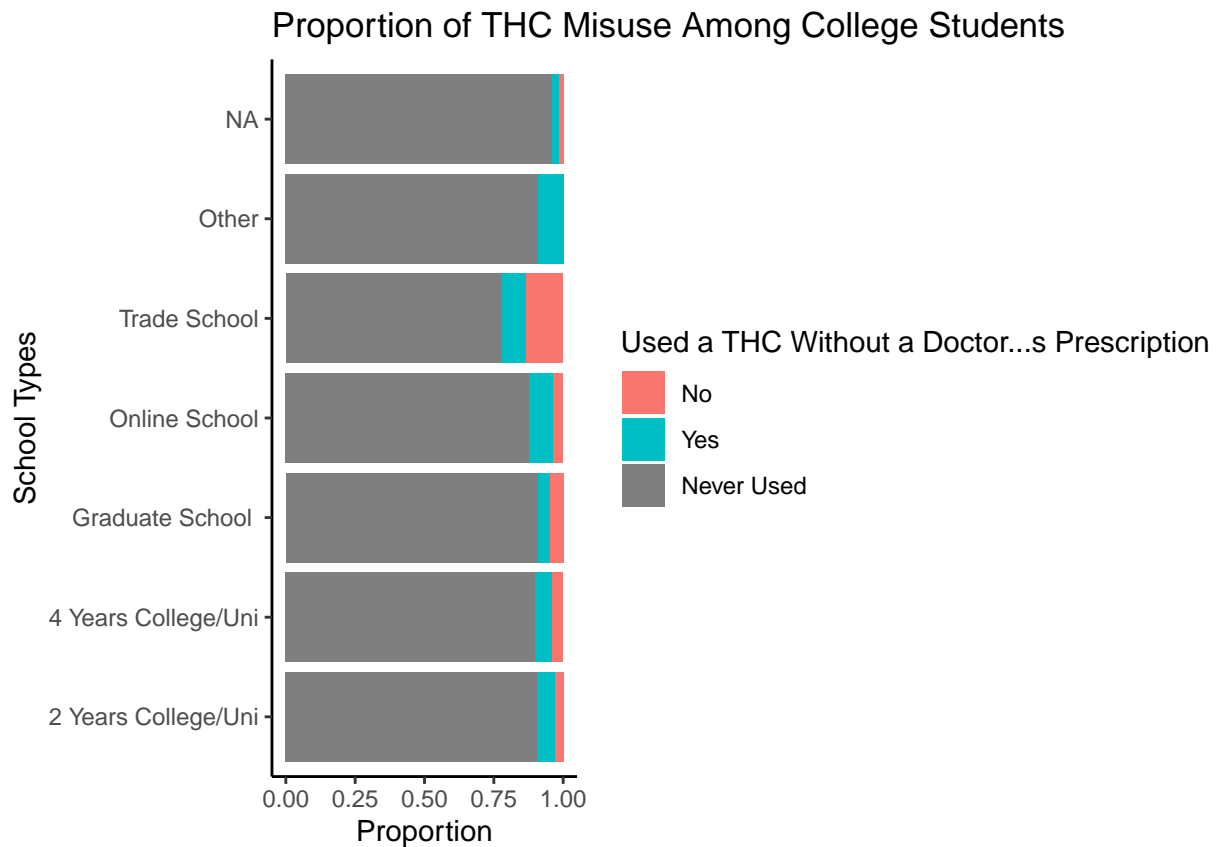- No
- Yes
- Never Used

```
ggplot(data = US18, aes(x = factor(COLLEGE_LENGTH), fill = factor(BENZ_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                   "Never Used")) +
  scale_x_discrete(labels=c("1" = "2 Years College/Uni",
                             "2" = "4 Years College/Uni",
                            "3" = "Graduate School ",
                            "4" = "Online School",
                            "5" = "Trade School",
                            "6" = "Other",
                            "NA" = "Not A Student"))+
  theme_classic() +
labs(y = "Proportion",
      x = "School Types",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of Benzodiazepine Misuse Among College Students")
```
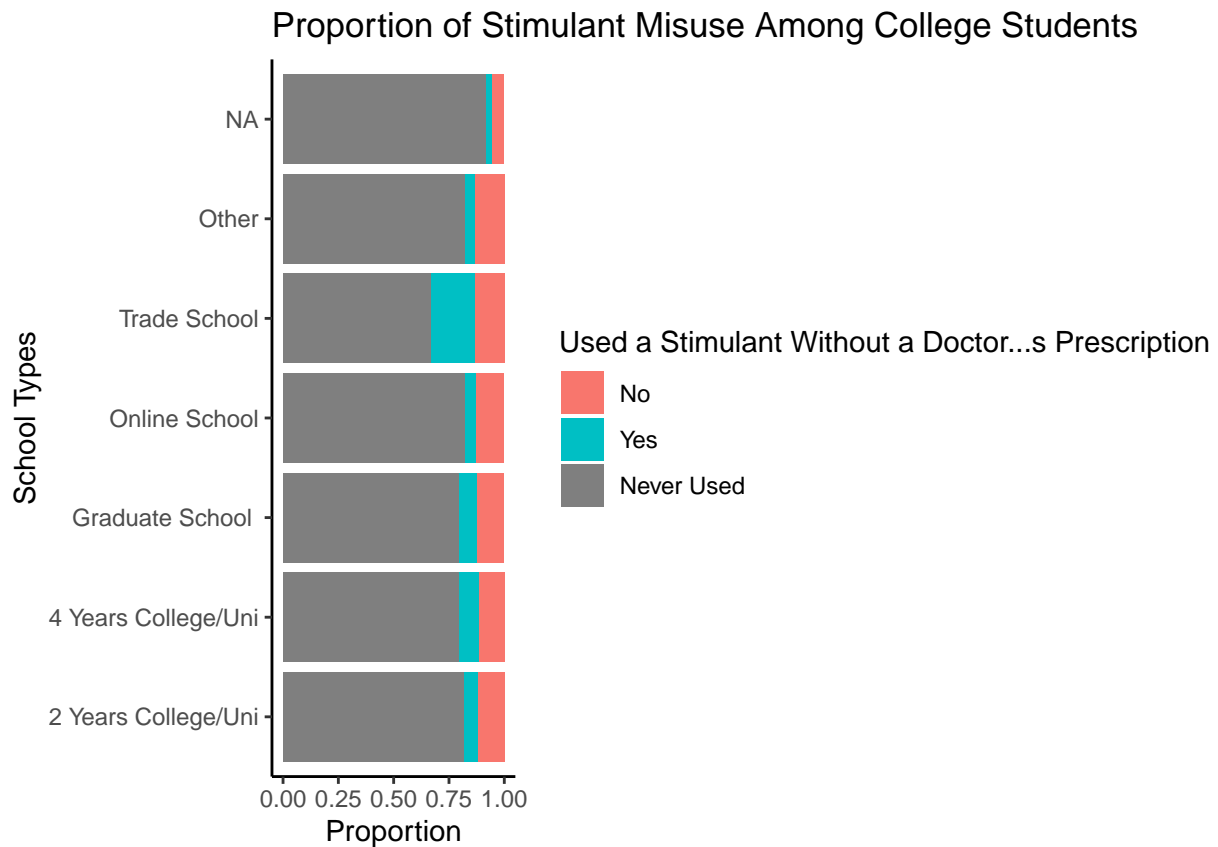
Proportion of Benzodiazepine Misuse Among College Students


```
ggplot(data = US18, aes(x = factor(COLLEGE_LENGTH), fill = factor(THC_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                  "Never Used")) +
  scale_x_discrete(labels=c("1" = "2 Years College/Uni",
                            "2" = "4 Years College/Uni",
                         "3" = "Graduate School ",
                         "4" = "Online School",
                         "5" = "Trade School",
                         "6" = "Other",
                         "NA" = "Not A Student"))+
  theme_classic() +
labs(y = "Proportion",
     x = "School Types",
    fill = "Used a THC Without a Doctor's Prescription ",
     title = "Proportion of THC Misuse Among College Students")
```

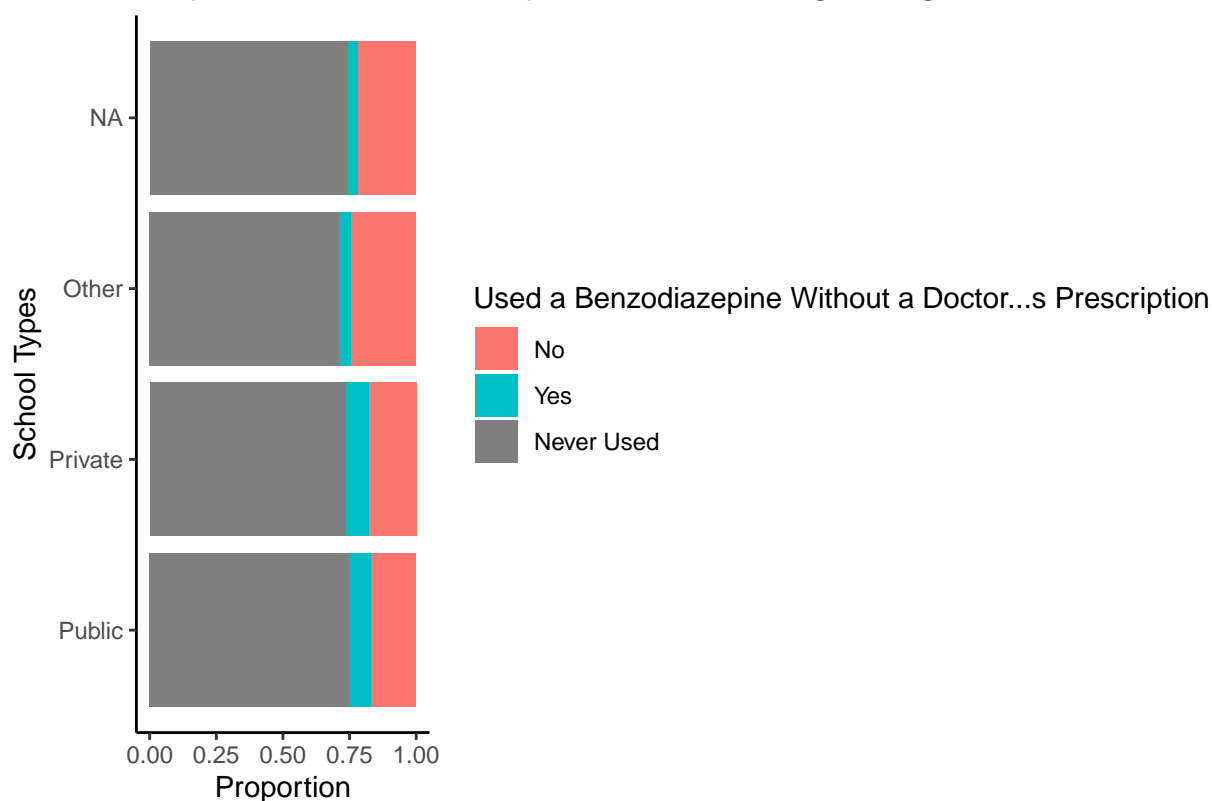## Proportion of THC Misuse Among College Students


```
ggplot(data = US18, aes(x = factor(COLLEGE_LENGTH), fill = factor(STIM_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                "Never Used")) +
  scale_x_discrete(labels=c("1" = "2 Years College/Uni",
                           "2" = "4 Years College/Uni",
                       "3" = "Graduate School ",
                       "4" = "Online School",
                       "5" = "Trade School",
                       "6" = "Other",
                       "NA" = "Not A Student"))+
  theme_classic() +
labs(y = "Proportion",
     x = "School Types",
    fill = "Used a Stimulant Without a Doctor's Prescription ",
     title = "Proportion of Stimulant Misuse Among College Students")
```

Proportion of Stimulant Misuse Among College Students


```r
ggplot(data = US18, aes(x = factor(COLLEGE_TYPE), fill = factor(BENZ_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                  "Never Used")) +
  scale_x_discrete(labels=c("0" = "Public",
                            "1" = "Private",
                            "2" = "Other"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "School Types",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of Benzodiazepine Misuse Among College Students")
```
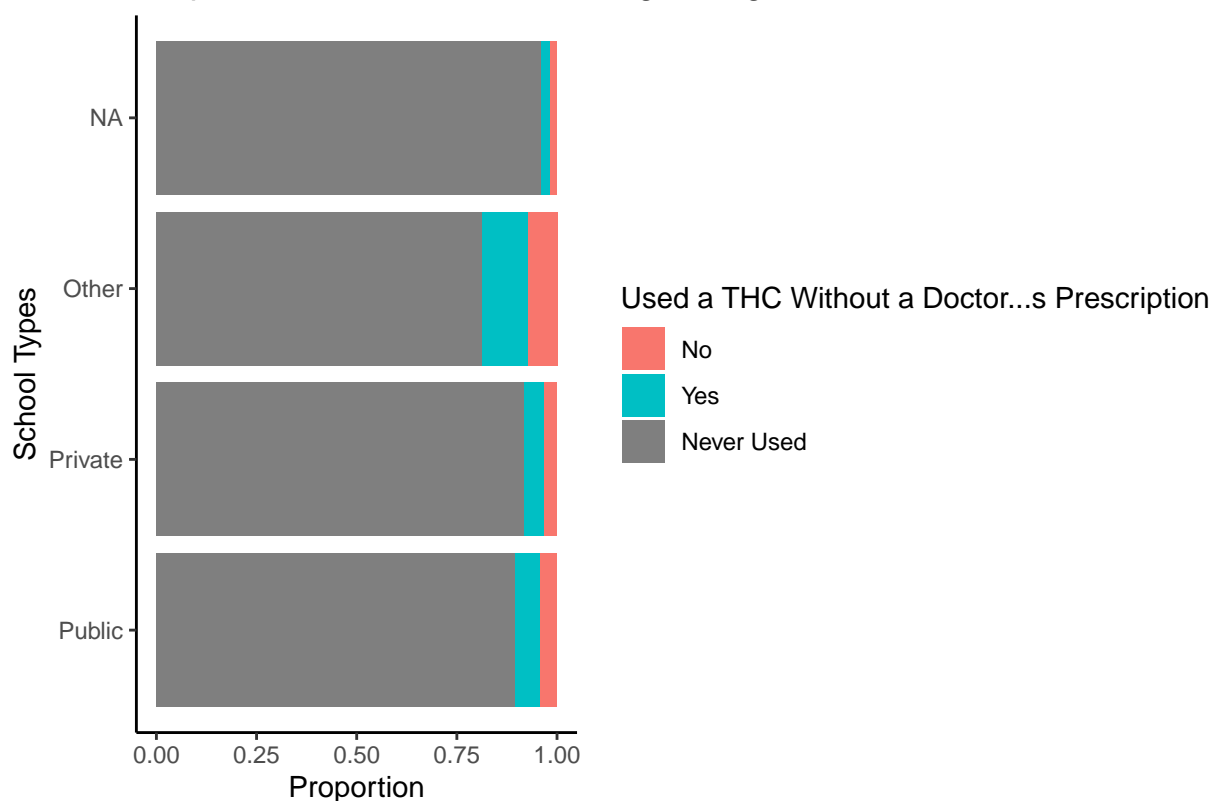
Proportion of Benzodiazepine Misuse Among College Students


```
ggplot(data = US18, aes(x = factor(COLLEGE_TYPE), fill = factor(THC_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                    "Never Used")) +
  scale_x_discrete(labels=c("0" = "Public",
                              "1" = "Private",
                            "2" = "Other"))+
  theme_classic() +
 labs(y = "Proportion",
       x = "School Types",
     fill = "Used a THC Without a Doctor's Prescription ",
      title = "Proportion of THC Misuse Among College Students")
```
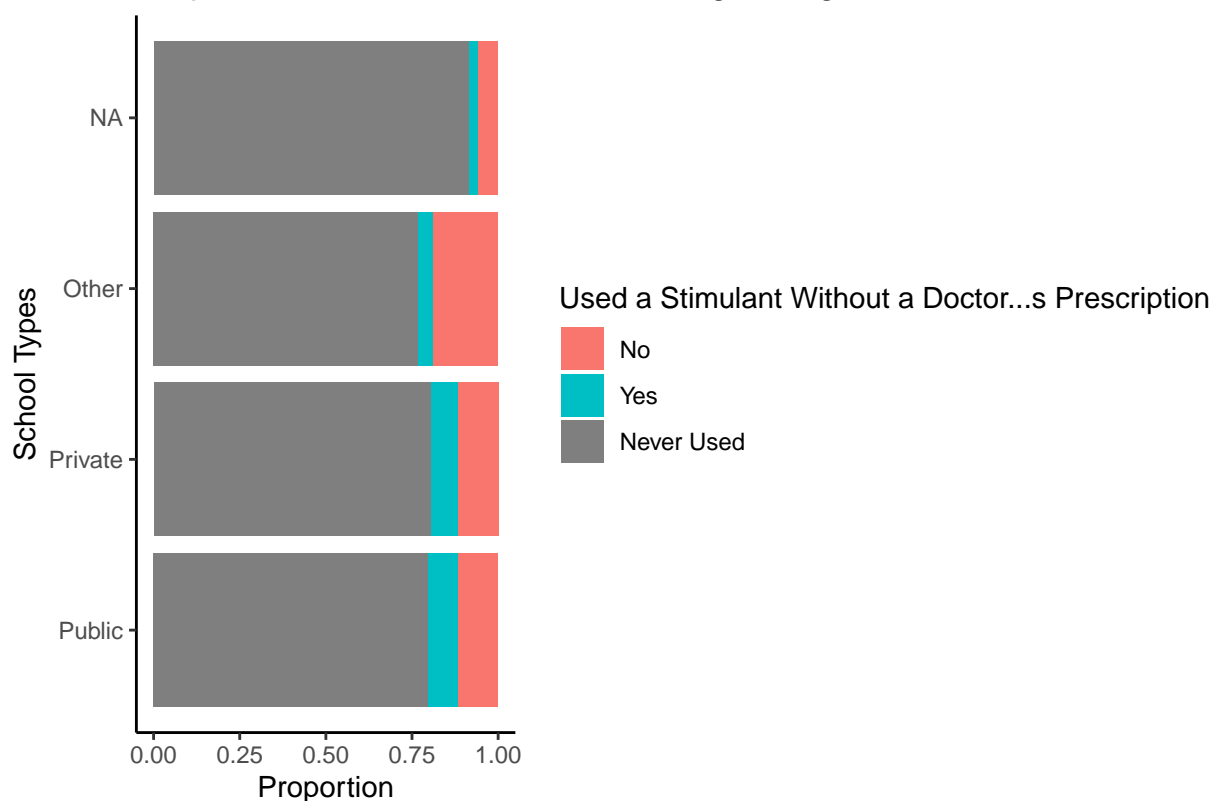
Proportion of THC Misuse Among College Students


```
ggplot(data = US18, aes(x = factor(COLLEGE_TYPE), fill = factor(STIM_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                  "Never Used")) +
  scale_x_discrete(labels=c("0" = "Public",
                             "1" = "Private",
                            "2" = "Other"))+
  theme_classic() +
 labs(y = "Proportion",
       x = "School Types",
     fill = "Used a Stimulant Without a Doctor's Prescription ",
      title = "Proportion of Stimulant Misuse Among College Students")
```
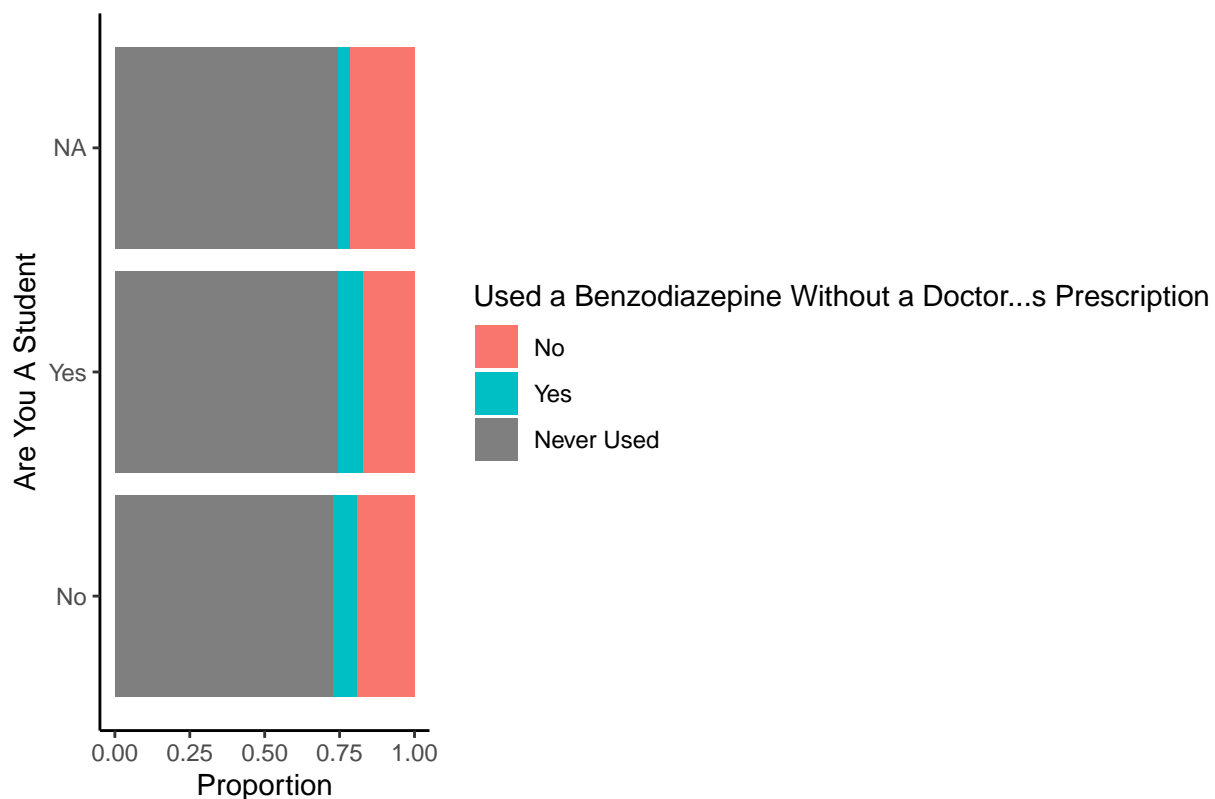
Proportion of Stimulant Misuse Among College Students


```
ggplot(data = US18, aes(x = factor(DEM_COLLEGE), fill = factor(BENZ_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                  "Never Used")) +
  scale_x_discrete(labels=c("0" = "No",
                              "1" = "Yes",
                            "NA" = "Not a Student in the past 3 months"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Are You A Student",
     fill = "Used a Benzodiazepine Without a Doctor's Prescription ",
      title = "Proportion of Benzodiazepine Misuse Among College Students")
```

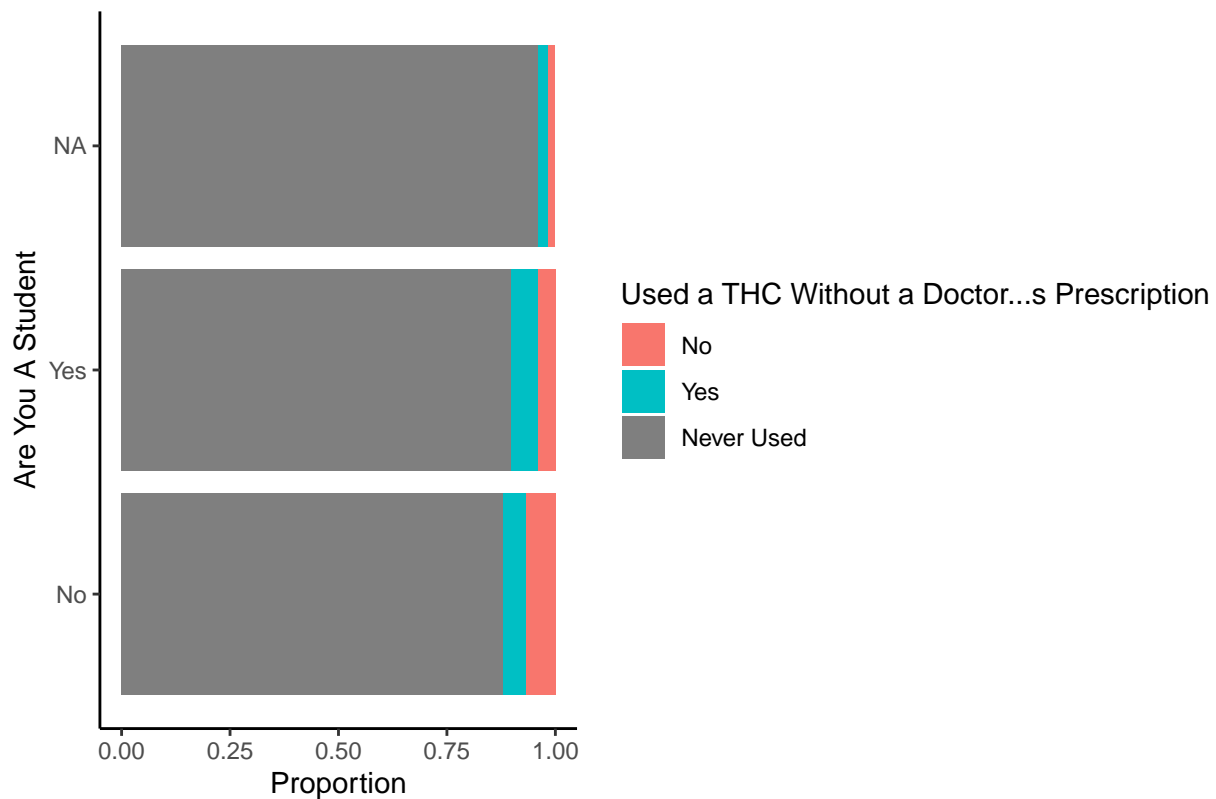## Proportion of Benzodiazepine Misuse Among College Students


```
ggplot(data = US18, aes(x = factor(DEM_COLLEGE), fill = factor(THC_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "No",
                            "1" = "Yes",
                            "NA" = "Not a Student in the past 3 months"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Are You A Student",
    fill = "Used a THC Without a Doctor's Prescription ",
     title = "Proportion of THC Misuse Among College Students")
```

## Proportion of THC Misuse Among College Students


```r
ggplot(data = US18, aes(x = factor(DEM_COLLEGE), fill = factor(STIM_NMU)))+
  geom_bar(position = "fill")+
  coord_flip()+
  scale_fill_discrete(labels = c("No",  "Yes",
                                 "Never Used")) +
  scale_x_discrete(labels=c("0" = "No",
                            "1" = "Yes",
                            "NA" = "Not a Student in the past 3 months"))+
  theme_classic() +
 labs(y = "Proportion",
      x = "Are You A Student",
     fill = "Used a Stimulant Without a Doctor's Prescription ",
      title = "Proportion of Stimulant Misuse Among College Students")
```

Proportion of Stimulant Misuse Among College Students

Used a Stimulant Without a Doctor...s Prescription

No
Yes
Never Used
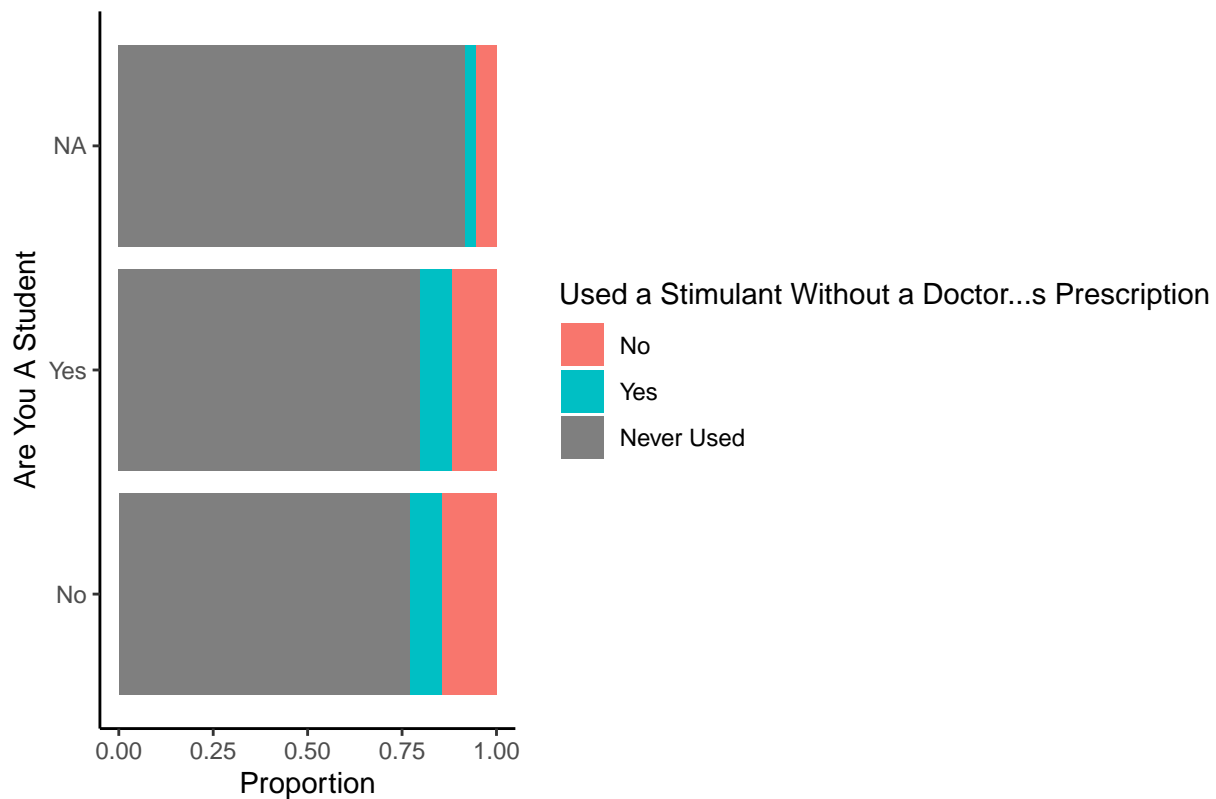
Including Plots

```
## # A tibble: 187 x 2
##    names            x
##    <chr>        <dbl>
##  1 DATE             0
##  2 STATUS           0
##  3 DEM_GENDER       0
##  4 DEM_AGE          0
##  5 DEM_STDNT        0
##  6 DEM_VET          0
##  7 DEM_HEALTH       0
##  8 DEM_LOCATION     0
##  9 DEM_POSTAL       0
## 10 DEM_MARITAL      0
## # ... with 177 more rows

## # A tibble: 185 x 2
##    names            x
##    <chr>        <dbl>
##  1 DATE             0
##  2 STATUS           0
##  3 QLANG            0
##  4 DEM_GENDER       0
##  5 DEM_AGE          0
##  6 DEM_ABOR         0
##  7 DEM_ABOR_TYPE 9574
```

```
##  8 DEM_STDNT         0
##  9 DEM_VET           0
## 10 DEM_HEALTH        0
## # ... with 175 more rows

## # A tibble: 199 x 2
##    names             x
##    <chr>         <dbl>
##  1 DATE              0
##  2 STATUS            0
##  3 DEM_GENDER        0
##  4 DEM_AGE           0
##  5 DEM_STDNT         0
##  6 DEM_VET           0
##  7 DEM_HEALTH        0
##  8 DEM_POSTAL        0
##  9 DEM_HISPANIC      0
## 10 DEM_RACE          0
## # ... with 189 more rows

## # A tibble: 523 x 2
##    names             x
##    <chr>         <dbl>
##  1 DATE              0
##  2 STATUS            0
##  3 QLANG             0
##  4 DEM_GENDER        0
##  5 DEM_AGE           0
##  6 DEM_POSTAL        0
##  7 DEM_REGION        0
##  8 DEM_INCOME        0
##  9 DEM_HOME          0
## 10 DEM_GENHEALTH     0
## # ... with 513 more rows

## # A tibble: 523 x 2
##    names             x
##    <chr>         <dbl>
##  1 DATE              0
##  2 STATUS            0
##  3 QLANG             0
##  4 DEM_GENDER        0
##  5 DEM_AGE           0
##  6 DEM_POSTAL        0
##  7 DEM_REGION        0
##  8 DEM_INCOME        0
##  9 DEM_HOME          0
## 10 DEM_GENHEALTH     0
## # ... with 513 more rows

## # A tibble: 156 x 2
##    names             x
##    <chr>         <dbl>
##  1 DATE              0
##  2 STATUS            0
##  3 QLANG             0
```

```
##  4 DEM_GENDER      0
##  5 DEM_AGE         0
##  6 DEM_LOCATION    0
##  7 DEM_POSTAL      0
##  8 DEM_STDNT       0
##  9 DEM_VET         0
## 10 DEM_HEALTH      0
## # ... with 146 more rows
```

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.