

Final Project

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```
library(readxl)
Nguyen_screentime<-read_excel("Nguyen_screentime.xlsx")
library(tidyverse)

## — Attaching core tidyverse packages — tidyverse
2.0.0 —
## ✓ dplyr      1.1.4      ✓ readr      2.1.5
## ✓ forcats   1.0.0      ✓ stringr    1.5.1
## ✓ ggplot2    3.5.0      ✓ tibble     3.2.1
## ✓ lubridate 1.9.3      ✓ tidyr      1.3.1
## ✓ purrr     1.0.2
## — Conflicts —
tidyverse_conflicts() —
## ✗ dplyr::filter() masks stats::filter()
## ✗ dplyr::lag()     masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all
conflicts to become errors
```

Null Testing

Claim: Gym attendance is less likely with more hours of screen time than hours of rest time.

P_s : Proportion of gym attendance with higher screen time P_r : Proportion of gym attendance with higher rest time $H_0: P_s = P_r$ vs $H_a: P_s < P_r$

```
table(Nguyen_screentime$Gym)

##
## NO YES
## 31 32

Nguyen_screentime_data<-Nguyen_screentime%>%
  filter(Gym%in%c("YES"))
Nguyen_screentime_data

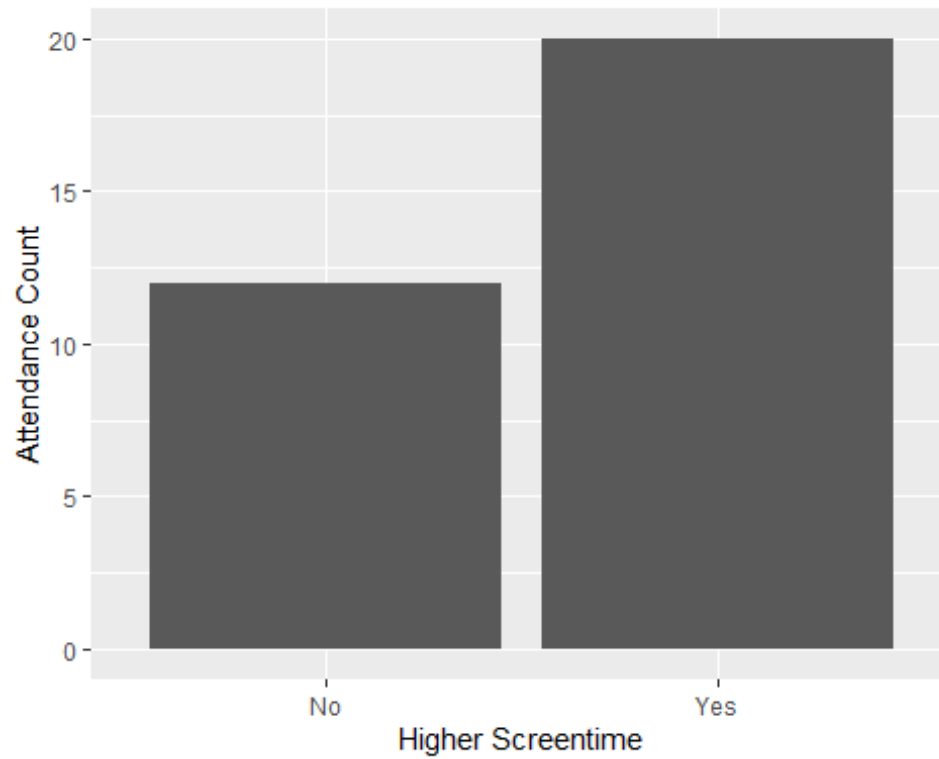
## # A tibble: 32 × 5
##   Week Weekday  Screentime Rest Gym
##   <chr> <chr>      <dbl> <dbl> <chr>
## 1 Week 1 Monday      7.08      2 YES
```

```
## 2 Week 1 Tuesday      5.17      7 YES
## 3 Week 1 Thursday     6.25      5 YES
## 4 Week 1 Saturday     5.58      5 YES
## 5 Week 2 Sunday       3.83      8 YES
## 6 Week 2 Monday       4.33      7 YES
## 7 Week 2 Tuesday      5.17      6 YES
## 8 Week 2 Friday       6.25      7 YES
## 9 Week 2 Saturday     6.08      6 YES
## 10 Week 3 Monday      4.33      6 YES
## # i 22 more rows
```

```
t.test(Nguyen_screentime_data$Screentime,Nguyen_screentime_data$Rest,paired="
TRUE")
```

```
##
## Paired t-test
##
## data: Nguyen_screentime_data$Screentime and Nguyen_screentime_data$Rest
## t = 1.8822, df = 31, p-value = 0.06923
## alternative hypothesis: true mean difference is not equal to 0
## 95 percent confidence interval:
## -0.07597178 1.89353428
## sample estimates:
## mean difference
## 0.9087813
```

```
Nguyen_screentime_graph<-Nguyen_screentime_data%>%
  mutate(`Higher
Screentime`=if_else(Nguyen_screentime_data$Screentime>Nguyen_screentime_data$
Rest,"Yes","No"))%>%
  ggplot(aes(x=`Higher Screentime`))+geom_bar()+labs(y="Attendance Count")
Nguyen_screentime_graph
```



p-value=0.06923>0.05 Accept the H_0 . At 5% significance level, we do not have sufficient evidence to conclude that gym attendance is likelier with a higher rest time.