data211_final_project

LangeData211

2023-11-27

R Markdown

```
# Create a data frame
Weight_LL_File <- data.frame(
  Date = c("10/3", "10/4", "10/5", "10/6", "10/7", "10/8", "10/9", "10/10", "10/11", "10/12", "10/13",
  Weight = c(216.2, 215.2, 216.8, 218.0, 219.0, 218.4, 217.8, 220.2, 221.4, 219.8, 219.4, 218.2, 218.0,
  Pushups_40 = c("no", "no", "no", "no", "no", "no", "no", "no", "no", "no", "no", "no", "no", "no", "n
)
```

Run t-test

```
# Split the data into two groups
group_no <- Weight_LL_File$Weight[Weight_LL_File$Pushups_40 == "no"]
group_yes <- Weight_LL_File$Weight[Weight_LL_File$Pushups_40 == "yes"]

#  t-test
t_test_result <- t.test(group_yes, group_no, alternative = "less")
names(t_test_result$estimate) <- c("mean of Pushups_yes", "mean of Pushup_no")

# Print the result
print(t_test_result)
```

```
##
##  Welch Two Sample t-test
##
## data:  group_yes and group_no
## t = -5.9231, df = 47.499, p-value = 1.7e-07
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -1.66941
## sample estimates:
## mean of Pushups_yes   mean of Pushup_no
##            215.2571            217.5862
```

```
# Conlclusion
# We reject the null hypothesis since the result p-value is below the observed
# p-value
```

Creating a graph

```
# Load ggplot2
library(ggplot2)
```

```
## Warning: package 'ggplot2' was built under R version 4.2.3
```

```
Weight_LL_File$Date <- as.Date(Weight_LL_File$Date, format = "%m/%d")

# Create the plot
ggplot(Weight_LL_File, aes(x=Date, y=Weight, color=Pushups_40)) +
  geom_line() +
  geom_point() +
  labs(title="Weight Tracking Over Time",
       x="Date", y="Weight", color="Pushup Completed") +
  theme_minimal() +
  scale_color_manual(values = c("yes" = "blue", "no" = "red"))
```