JCC-Meeting.R

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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

#import files  
df <- read.csv("Stats.csv")  
  
#mutate to create mean of Compulsory Papers and Option Papers  
df\_edit <- df %>% mutate("MeanComp" = rowMeans(.[,1:5])) %>%   
 mutate("MeanOpt"= rowMeans(.[,6:8]))  
  
#Check for normality  
shapiro.test(df\_edit$Option\_QM)

##   
## Shapiro-Wilk normality test  
##   
## data: df\_edit$Option\_QM  
## W = 0.89103, p-value = 0.3236

shapiro.test(df\_edit$MeanComp)

##   
## Shapiro-Wilk normality test  
##   
## data: df\_edit$MeanComp  
## W = 0.95174, p-value = 0.7543

shapiro.test(df\_edit$MeanOpt)

##   
## Shapiro-Wilk normality test  
##   
## data: df\_edit$MeanOpt  
## W = 0.95492, p-value = 0.7798

#run student t-test  
Comp\_QM <- t.test(df\_edit$Option\_QM, df\_edit$MeanComp, alternative="greater", paired = T)   
  
Option\_QM <- t.test(df\_edit$Option\_QM, df\_edit$MeanOpt, alternative="greater", paired = F)   
  
Comp\_QM

##   
## Paired t-test  
##   
## data: df\_edit$Option\_QM and df\_edit$MeanComp  
## t = 2.8272, df = 5, p-value = 0.0184  
## alternative hypothesis: true difference in means is greater than 0  
## 95 percent confidence interval:  
## 2.25745 Inf  
## sample estimates:  
## mean of the differences   
## 7.858333

Option\_QM

##   
## Welch Two Sample t-test  
##   
## data: df\_edit$Option\_QM and df\_edit$MeanOpt  
## t = 2.4433, df = 5.1071, p-value = 0.02869  
## alternative hypothesis: true difference in means is greater than 0  
## 95 percent confidence interval:  
## 1.338682 Inf  
## sample estimates:  
## mean of x mean of y   
## 74.950 67.475

#remove outlier years of 2020, 2019  
df\_wo <- df\_edit[3:6,]  
  
#re-run student t-test  
Comp\_QM\_wo <- t.test(df\_wo$Option\_QM, df\_wo$MeanComp, alternative="greater", paired = T)   
  
Option\_QM\_wo <- t.test(df\_wo$Option\_QM, df\_wo$MeanOpt, alternative="greater", paired = F)   
  
Comp\_QM\_wo

##   
## Paired t-test  
##   
## data: df\_wo$Option\_QM and df\_wo$MeanComp  
## t = 1.908, df = 3, p-value = 0.07621  
## alternative hypothesis: true difference in means is greater than 0  
## 95 percent confidence interval:  
## -0.93764 Inf  
## sample estimates:  
## mean of the differences   
## 4.0175

Option\_QM\_wo

##   
## Welch Two Sample t-test  
##   
## data: df\_wo$Option\_QM and df\_wo$MeanOpt  
## t = 1.4335, df = 3.0667, p-value = 0.1226  
## alternative hypothesis: true difference in means is greater than 0  
## 95 percent confidence interval:  
## -2.459105 Inf  
## sample estimates:  
## mean of x mean of y   
## 71.00000 67.07917