One way ANOVA

One way ANOVA - Assignment

Considering these three classes and their grades, please perform the step-by-step ANOVA analysis, and interpret the results:

y1 = c(18.2, 20.1, 17.6, 16.8, 18.8, 19.7, 19.1)

y2 = c(17.4, 18.7, 19.1, 16.4, 15.9, 18.4, 17.7)

y3 = c(15.2, 18.8, 17.7, 16.5, 15.9, 17.1, 16.7)

What group(s) is different than the others and how?

```
y1 <- c(18.2, 20.1, 17.6, 16.8, 18.8, 19.7, 19.1)
y2 <- c(17.4, 18.7, 19.1, 16.4, 15.9, 18.4, 17.7)
y3 <- c(15.2, 18.8, 17.7, 16.5, 15.9, 17.1, 16.7)

score<-data.frame(y1,y2,y3)
score<-stack(score)
result<-aov(values~ind,data=score)
summary(result)
```

```
##             Df Sum Sq Mean Sq F value Pr(>F)
## ind          2  11.01   5.503   3.968 0.0373 *
## Residuals   18  24.96   1.387
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

notice p=0.0373<0.05, we need to find out how means are different

```
pairwise.t.test(score$values,score$ind,p.adjust.method = "bonferroni")
```

```
##
##  Pairwise comparisons using t tests with pooled SD
##
## data:  score$values and score$ind
##
##    y1    y2
## y2 0.437 -
## y3 0.034 0.636
##
## P value adjustment method: bonferroni
```

we can see that y1 and y3 are significant different in population means