LAB ASSESSMENT 4

1)

x = c(175,168,168,190,156,181,182,175,174,179)

y = c(185,169,173,173,188,186,175,174,179,180)

t.test(x,y)

t = 0.947373

p = 0.3575549

if (t < p){ print("There is No Significance difference between the average heights of two groups")}else{ print("There is some Significance difference between the average heights of two groups")}

Graphical user interface, text, application, email

Description automatically generated

2)

x = c(15,10,13,7,9,8,21,9,14,8)

y = c(15,14,12,8,14,7,16,10,15,2)

t.test(x,y,alternative = "greater")

t = 0.050529

p = 0.4801

if (t<p){ print("The recovery time of New drug is not gretaer than Placebo Group")}else{ print("The recovery time of New drug is not gretaer than Placebo Group")}

Text, application, email

Description automatically generated

3)

A = c(14.1,10.1,14.7,13.7,14.0)

B = c(14.0,14.5,13.7,12.7,14.1)

F = var(A,B)

F

c = qf(p=.1, df1=6, df2=8, lower.tail=FALSE)

if (abs(F)<c){print("Ho is Accepted")}else{print("Ho is Rejected")}

Graphical user interface, text, application

Description automatically generated

4)

survey

test = table(survey$Smoke,survey$Exer)

test

chisq.test(test)

X = 5.4885

p = 0.4828

if (X<p){print("The smoking habit of students is independent of the exercise level of the students")}else{print("The smoking habit of students is dependent of the exercise level of the students")}

Text

Description automatically generated

5)

item1<-c(22,42,44,52,45,37)

item2<-c(52,33,8,47,43,32)

item3<-c(16,24,19,18,34,39)

items\_df<-data.frame(item1,item2,item3)

items\_stacked<-stack(items\_df)

res.aov <- aov(values ~ ind, data = items\_stacked)

summary(res.aov)

Text, letter

Description automatically generated

6)

operator1<-c(42.5,39.8,40.2,41.3)

operator2<-c(39.3,40.1,40.5,42.2)

operator3<-c(39.6,40.5,41.3,43.5)

operator4<-c(39.9,42.3,43.4,44.2)

operator5<-c(42.9,42.5,44.9,45.9)

operator6<-c(43.6,43.1,45.1,42.3)

operators=data.frame(operator1,operator2,operator3,operator4,operator5,operator6)

operators\_stacked = stack(operators)

# Compute the analysis of variance

res.aov <- aov(values ~ ind, data = operators\_stacked)

# Summary of the analysis

summary(res.aov)

Text

Description automatically generated

7)

mathematics<-c(68,83,72,55,92)

english<-c(57,94,81,73,68)

french<-c(73,91,63,77,75)

biology<-c(61,86,59,66,87)

subjects<-data.frame(mathematics,english,french,biology)

subjects\_stacked<-stack(subjects)

res.aov <- aov(values ~ ind, data = subjects\_stacked)

summary(res.aov)

# P value is almost 1 which means we cannot reject the null hypothesis

# This could indicate that the subjects are equally difficult

transpose\_subject<-data.frame(t(subjects))

transpose\_subject\_stacked<-stack(transpose\_subject)

res.aov <- aov(values ~ ind, data = transpose\_subject\_stacked)

summary(res.aov)

Text

Description automatically generated