Exercise 1: F-Test

o Task: Perform an F-test to compare the variances of two groups: Group A and

Group B. Use the following data:

```
# Example data

groupA <- c(72, 75, 78, 71, 74, 77, 76, 73, 75, 78)

groupB <- c(68, 71, 73, 69, 72, 70, 72, 67, 71, 74)

# Conduct F-test for comparing variances

f_test <- var.test(groupA, groupB)

# Print test result

print(f_test)

# Interpretation

if (f_test$p.value < 0.05) {

cat("Reject null hypothesis: Variances are significantly different \n")

} else {

cat("Fail to reject null hypothesis: Variances are not significantly different \n")

}
```

RESULT:

```
> grpa<-c(72,75,78,71,74,77,76,73,75,78)
> grpb<-c(68,71,73,69,72,70,72,67,71,74)
> f_test<-var.test(grpa,grpb)
> print(f_test)

        F test to compare two variances

data:  grpa and grpb
F = 1.1995, num df = 9, denom df = 9, p-value = 0.7908
alternative hypothesis: true ratio of variances is not equal to 1
95 percent confidence interval:
 0.2979504 4.8293671
sample estimates:
ratio of variances
          1.199546
```

Exercise 2: Chi-Square Test

To Task: Perform a Chi-Square test to analyze the association between two

categorical variables using the following contingency table:

```
# Example data (contingency table)

observed <- matrix(c(50, 30, 20, 25), nrow = 2, byrow = TRUE)

Exercise 2: Chi-Square Test

# Conduct Chi-Square test

chi_square_test <- chisq.test(observed)

# Print test result

print(chi_square_test)

# Interpretation

if (chi_square_test$p.value < 0.05) {

cat("Reject null hypothesis: There is a significant association between variables

\n")

} else {

cat("Fail to reject null hypothesis: There is no significant association between

variables \n")

}
```

RESULT:

```
> obs<-matrix(c(50,30,20,25), nrow=2,byrow=TRUE)
> chi_square_test<-chisq.test(obs)
> print(chi_square_test)

        Pearson's Chi-squared test with Yates' continuity correction

data:  obs
X-squared = 3.1129, df = 1, p-value = 0.07768
```