Fantaloons Sales managers commented that *%* of males versus females walking in to the store differ based on day of the week. Analyze the data and determine whether there is evidence at *5* *%* significance level to support this hypothesis.

File: **Fantaloons.csv**

**Business Problem:** Find out if proportions of male and female walking in to the store is same or not.

Inputs are Weekdays and Weekend that is **Discrete ,** Outputis also **Discrete.** We proceed with

**2-proportion test .**

🡪Create hypothesis

Ho= Proportions of Male and Female are same

Ha= Proportions of Male and Female are not same

**# p-value = 0.003919 < 0.05 accept alternate hypothesis i.e. Unequal proportions**

🡪Create hypothesis

**#find out whose proportion is higher**

#Ho= Proportions of Male is less than Female

#Ha= Proportions of Male is greater than Female

**# p-value = 0.998 > 0.05 accept null hypothesis**

**Inferences:**

🡪Proportions of Male is walking into store less than Female.

**R-Code:**

**###################Proportional T Test(Fantaloons)##########**

library(readxl)

Fantaloons <- read\_excel(file.choose())

View(Fantaloons)

attach(Fantaloons)

**table1 <- table(Weekdays)**

**table1**

**table2 <- table(Weekend)**

**table2**

**table3 <- table(Weekdays,Weekend)**

**table3**

#Ho= Proportions of Male and Female are same

#Ha= Proportions of Male and Female are not same

**prop.test(x=c(47,167),c(113,287),conf.level = 0.95,alternative = "two.sided")**

**# two. sided ->** means checking for equal proportions of Male and Female walking into stroe or not

**# p-value = 0.003919 < 0.05** accept alternate hypothesis i.e. Unequal proportions

**#find out whose proportion is higher**

#Ho= Proportions of Male is less than Female

#Ha= Proportions of Male is greater than Female

**prop.test(x=c(47,167),c(113,287),conf.level = 0.95,alternative = "greater")**

# p-value = 0.998 > 0.05 accept null hypothesis

**Python code:**

**import pandas as pd**

**from scipy import stats**

**import numpy as np**

**Fantaloons=pd.read\_excel("C:\RAVI\Data science\Assignments\Modue 5 Hypothesis\Fantaloons.xlsx")**

**Fantaloons**

**from statsmodels.stats.proportion import proportions\_ztest**

**tab1= Fantaloons.Weekdays.value\_counts()**

**tab1**

**tab2=Fantaloons.Weekend.value\_counts()**

**tab2**

**pd.crosstab(Fantaloons.Weekdays,Fantaloons.Weekend)**

**count = np.array([47,167])**

**nobs = np.array([113,287])**

#Ho= Proportions of Male and Female are same

#Ha= Proportions of Male and Female are not same

**stats,pval=proportions\_ztest(count,nobs,alternative='two-sided')**

**print(pval)**

# p-value = 0.0027 < 0.05 accept alternate hypothesis i.e. Unequal proportions

#find out whose proportion is higher

#Ho= Proportions of Male is less than Female

#Ha= Proportions of Male is greater than Female

**stats,pval1=proportions\_ztest(count,nobs,alternative='larger')**

**print(pval1)**

# p-value = 0.998 > 0.05 accept null hypothesis