#Load Libraries  
install.packages("Hmisc")  
library("dplyr")  
library(tidyr)  
library("rcompanion")  
library("car")  
library("Hmisc")  
library("mvnormtest")  
library("effects")  
library("multcomp")

#Explore data:  
TravelOmitNA <- na.omit (Travel)  
head.matrix(TravelOmitNA)TravelGender <- TravelOmitNA %>%group\_by(Gender) %>% summarize(Mean = mean(NumberOfTrips))  
TravelGender  
#Male an Female have equal mean for Number of Trips. (arround 3)TravelOmitNAMeansMarital <- TravelOmitNA %>%group\_by(MaritalStatus) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansMarital  
# Mean Number of trips spread equally among all marital status. (arround 3)TravelOmitNAMeansAge <- TravelOmitNA %>%group\_by(Age) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansAge  
# Mean Number of trips spread equally among all age (arround 2)TravelOmitNAMeansPassport <- TravelOmitNA %>%group\_by(Passport) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansPassport  
# Customers with or without passport both make the average of 3 trips.TravelOmitNAMeansCar <- TravelOmitNA %>%group\_by(OwnCar) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansCar  
# Customers with or without a car both make the average of 3 trips.TravelOmitNAMeansOccupation <- TravelOmitNA %>%group\_by(Occupation) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansOccupation  
#Free Lancer has highest number of trip.  The remaining value remain the same (arround 3).TravelOmitNAMeansIncome <- TravelOmitNA %>%group\_by(MonthlyIncome) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansIncome  
# customers with income of 25460 to 17285 average of 12 to 10 trips.  We should explore more the relationship of income and Trips made.TravelOmitNAMeansPerson <- TravelOmitNA %>%group\_by(NumberOfPersonVisiting) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansPerson  
#group with 2 or 5 person makes less trip in average.TravelOmitNAMeansChildren <- TravelOmitNA %>%group\_by(NumberOfChildrenVisiting) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansChildren  
# Customers without children tend to not make trip. Customers with children, regardless how many, make average 3 trips.TravelOmitNAMeansProduct <- TravelOmitNA %>%group\_by(ProductPitched) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansProduct  
#King package has the least number of trip but not too far behind the rest.TravelOmitNAMeansProdTaken <- TravelOmitNA %>%group\_by(ProdTaken) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansProdTaken  
#ProdTaken have the same means either taken or not.TravelOmitNAMeansCity <- TravelOmitNA %>%group\_by(CityTier) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansCity  
# City Tier 2 has the least number of trips.TravelOmitNAMeansPitch <- TravelOmitNA %>%group\_by(DurationOfPitch) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansPitch  
# Pitch of 127 has average 4 trips. It worth exam the relationship of Pitch Length with NumberofTripsTravelOmitNAMeansPS <- TravelOmitNA %>%group\_by(PitchSatisfactionScore) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansPS  
# All Pitch Satisfaction Score average around 3 trips.TravelOmitNAMeansDesignation <- TravelOmitNA %>%group\_by(Designation) %>% summarize(Mean = mean(NumberOfTrips))  
TravelOmitNAMeansDesignation  
# VP has the lowest average trips.# Choosing Appropriate Statistical Analyses:# Converting categorical variables into numeric values  
TravelOmitNA[sapply(TravelOmitNA, is.factor)] <- data.matrix(TravelOmitNA[sapply(TravelOmitNA, is.factor)])  
TravelOmitNA# Correlation Matrix  
TravelCorMatrix <- rcorr(as.matrix(TravelOmitNA))  
TravelCorMatrix##Matrix Correlation observatioN:  
#DVs: NumberOfTrips and NumberOfPersonVisiting  
##   correlated with each other 0.19 and the following IVs:  
        ##NumberofChildrenVisiting continuous  
        ##NumberofFollowups  
        ##Monthly Income: continuous  
        ##ProductPitch (number of visitors only)  
        ##DurationPitch (number of visitors only)  
        ##Age (number of trips only)# IVs:that have litle correlation with our DVs  
        ##Occupation: Categorical more than 2 levels  
        ##CityTier: Categorical more than 2 levels  
        ##Designation: Categorical more than 2 levels

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# Converting categorical variables into numeric values  
TravelOmitNA[sapply(TravelOmitNA, is.factor)] <- data.matrix(TravelOmitNA[sapply(TravelOmitNA, is.factor)])  
TravelOmitNA

# Correlation Matrix  
TravelCorMatrix <- rcorr(as.matrix(TravelOmitNA))  
TravelCorMatrix