Assignment 3

In this assignment, you are tasked to run different types of hypotheses testing for a marketing campaign response that shows data of previous customer responses to previous campaigns and a history of recency and the monetary value that they have spent on different products of the firm. We also have data on some customer demographics such as income and education. Please refer to the description of each variable in the data at the end of this document. For each question, you need to write down the H0 and Ha specifically so that we know what is being rejected, if any.

Q1) Propose a t-test analysis that you think would be an interesting question for the marketing team. You need to first explain in detail why you believe the suggested hypothesis you have in mind could be of any interest to marketers. Then run the t-test in R and interpret the findings and what implication that specific finding might have for marketers.

Q2) Propose a correlation analysis that you think would be an interesting question for the marketing team. You need to first explain in detail why you believe the suggested hypothesis you have in mind could be of any interest to marketers. Then run the correlation analysis in R and interpret the findings and what implications that specific finding might have for marketers.

Q3) Propose a chi-square analysis that you think would be an interesting question for the marketing team. You need to first explain in detail why you believe the suggested hypothesis you have in mind could be of any interest to marketers. Then run the chi-square analysis in R and interpret the findings and what implication that specific finding might have for marketers.

Q4) For each of the previous questions, describe if we can say any causal statement as the result of t-test, chi-square and correlation analysis. Why or why not? Explain with the specific hypothesis that you used for each of previous questions.

Data description

AcceptedCmp1 - 1 if customer accepted the offer in the 1st campaign, 0 otherwise
AcceptedCmp2 - 1 if customer accepted the offer in the 2nd campaign, 0 otherwise
AcceptedCmp3 - 1 if customer accepted the offer in the 3rd campaign, 0 otherwise
AcceptedCmp4 - 1 if customer accepted the offer in the 4th campaign, 0 otherwise
AcceptedCmp5 - 1 if customer accepted the offer in the 5th campaign, 0 otherwise
Response (target) - 1 if customer accepted the offer in the last campaign, 0 otherwise
Complain - 1 if customer complained in the last 2 years
DtCustomer - date of customer's enrolment with the company
Education - customer's level of education
Marital - customer's marital status
Kidhome - number of small children in customer's household
Teenhome - number of teenagers in customer's household
Income - customer's yearly household income
MntFishProducts - amount spent on fish products in the last 2 years
MntMeatProducts - amount spent on meat products in the last 2 years
MntFruits - amount spent on fruits products in the last 2 years
MntSweetProducts - amount spent on sweet products in the last 2 years
MntWines - amount spent on wine products in the last 2 years
MntGoldProds - amount spent on gold products in the last 2 years
NumDealsPurchases - number of purchases made with discount
NumCatalogPurchases - number of purchases made using catalogue
NumStorePurchases - number of purchases made directly in stores
NumWebPurchases - number of purchases made through company's web site
NumWebVisitsMonth - number of visits to company's web site in the last month
Recency - number of days since the last purchase

Good luck 😊