



Mini Project

Hypothesis Testing on Customer Personality Analysis Dataset

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Hi, I'm **Rena**, an **Actuarial Science student** passionate about **data science**. Over the past two years of college, I've worked on projects involving statistics, modeling, visualization, and predictive analytics, with **hands-on experience in Python**. I'm passionate about using data to drive smarter decisions.



About Dataset

Customer Personality Analysis



- Analyze the customer segments to identify their behaviors, preferences, and purchasing patterns, enabling businesses to optimize marketing strategies and product offerings.
- From Kaggle ([link dataset](#)).
- 2240 records and 29 features

Features



Features	Description
ID	Customer's unique identifier
Year_Birth	Customer's birth year
Education	Customer's education level





Features	Description
Marital_Status	Marital Status of customer
Income	Customer's yearly household income
Kidhome	Number of children in customer's household
Teenhome	Number of teenagers in customer's household
Dt_Customer	Date of customer's enrollment with the company
Recency	Number of days since customer's last purchase



Features	Description
MntWines	Amount spent on wine in last 2 years
MntFruits	Amount spent on fruits in last 2 years
MntMeatProducts	Amount spent on meat in last 2 years
MntFishProducts	Amount spent on fish in last 2 years
MntSweetProducts	Amount spent on sweets in last 2 years
MntGoldProds	Amount spent on gold in last 2 years



Features	Description
NumDealsPurchases	Number of purchases made with a discount
NumWebPurchases	Number of purchases made through the company's website
NumCatalogPurchases	Number of purchases made using a catalogue
NumStorePurchases	Number of purchases made directly in stores
NumWebVisitsMonth	Number of visits to company's website in the last month
AcceptedCmp3	1 if customer accepted the offer in the 3rd campaign, 0 otherwise



Features	Description
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
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
Complain	1 if the customer complained in the last 2 years, 0 otherwise
Response	1 if customer accepted the offer in the last campaign, 0 otherwise

Probability mass function of NumWebVisitsMonth

Slovin:

339.3939



PMF:

0.1534

Comparison of the probability mass function of a customer having 5 monthly web visits with a customer having more than 5 visits

5 monthly web visits:

0.1259

More than 5 monthly web visits:

0.5217

<

Hypothesis testing to prove whether education has an effect on income or not

Anova test:

Statistic:

27.7392

Pvalue:

1.6677×10^{-22}

Because the p-value > 0.5 , therefore
education has an effect on income.

Thank you

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