



# Customer Personality Analysis

## Machine Learning

MACHINE LEARNING PROJECT

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# Introduction:

## PROBLEM STATEMENT

CUSTOMER PERSONALITY ANALYSIS IS A DETAILED STUDY OF A COMPANY'S IDEAL CUSTOMERS. IT HELPS BUSINESSES BETTER UNDERSTAND THEIR CUSTOMER BASE, ENABLING THEM TO TAILOR PRODUCTS AND MARKETING STRATEGIES ACCORDING TO CUSTOMER NEEDS, BEHAVIORS, AND CONCERNS.

INSTEAD OF MARKETING A NEW PRODUCT TO EVERY CUSTOMER, BUSINESSES CAN SEGMENT THEIR CUSTOMERS AND FOCUS MARKETING EFFORTS ON THOSE MOST LIKELY TO MAKE A PURCHASE. THE PRIMARY OBJECTIVES OF THIS PROJECT ARE:

- 1. UNDERSTANDING CUSTOMER ATTITUDES:** ANALYZING WHAT CUSTOMERS SAY ABOUT THE PRODUCT TO UNDERSTAND THEIR SENTIMENTS AND OPINIONS.
- 2. ANALYZING CUSTOMER ACTIONS:** IDENTIFYING CUSTOMER BEHAVIORS TO DETERMINE HOW THEY ENGAGE WITH THE PRODUCT.

# Tools & Technologies Used

THE FOLLOWING TOOLS AND LIBRARIES WERE USED IN THIS PROJECT:

- **PYTHON LIBRARIES:** NUMPY, PANDAS, SEABORN, MATPLOTLIB, PLOTLY, SCIKIT-LEARN
- **WEB FRAMEWORK:** FLASK

# Dataset Information

## CUSTOMER'S INFORMATION

**ID:** UNIQUE IDENTIFIER FOR EACH CUSTOMER

**YEAR\_BIRTH:** CUSTOMER'S BIRTH YEAR

**EDUCATION:** CUSTOMER'S EDUCATION LEVEL

**MARITAL\_STATUS:** CUSTOMER'S MARITAL STATUS

**INCOME:** CUSTOMER'S YEARLY HOUSEHOLD INCOME

**KIDHOME:** NUMBER OF KIDS IN THE CUSTOMER'S HOUSEHOLD

**TEENHOME:** NUMBER OF TEENAGERS IN THE CUSTOMER'S HOUSEHOLD

**DT\_CUSTOMER:** DATE OF CUSTOMER'S ENROLLMENT WITH THE COMPANY

**RECENCY:** NUMBER OF DAYS SINCE THE CUSTOMER'S LAST PURCHASE

**COMPLAIN:** WHETHER THE CUSTOMER HAS MADE A COMPLAINT IN THE LAST TWO YEARS (1 = YES, 0 = NO)



## PRODUCT PURCHASE INFORMATION

**MNTWINES:** AMOUNT SPENT ON WINE IN THE LAST 2 YEARS

**MNTFRUITS:** AMOUNT SPENT ON FRUITS IN THE LAST 2 YEARS

**MNTMEATPRODUCTS:** AMOUNT SPENT ON MEAT IN THE LAST 2 YEARS

**MNTFISHPRODUCTS:** AMOUNT SPENT ON FISH IN THE LAST 2 YEARS

**MNTSWEETPRODUCTS:** AMOUNT SPENT ON SWEETS IN THE LAST 2 YEARS

**MNTGOLDPRODS:** AMOUNT SPENT ON GOLD PRODUCTS IN THE LAST 2 YEARS

## PURCHASE CHANNELS

**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 THE COMPANY'S WEBSITE IN THE LAST MONTH

## PROMOTIONAL CAMPAIGNS

**ACCEPTEDCMP1:** WHETHER THE CUSTOMER ACCEPTED THE OFFER IN THE 1ST CAMPAIGN (1 = YES, 0 = NO)

**ACCEPTEDCMP2:** WHETHER THE CUSTOMER ACCEPTED THE OFFER IN THE 2ND CAMPAIGN (1 = YES, 0 = NO)

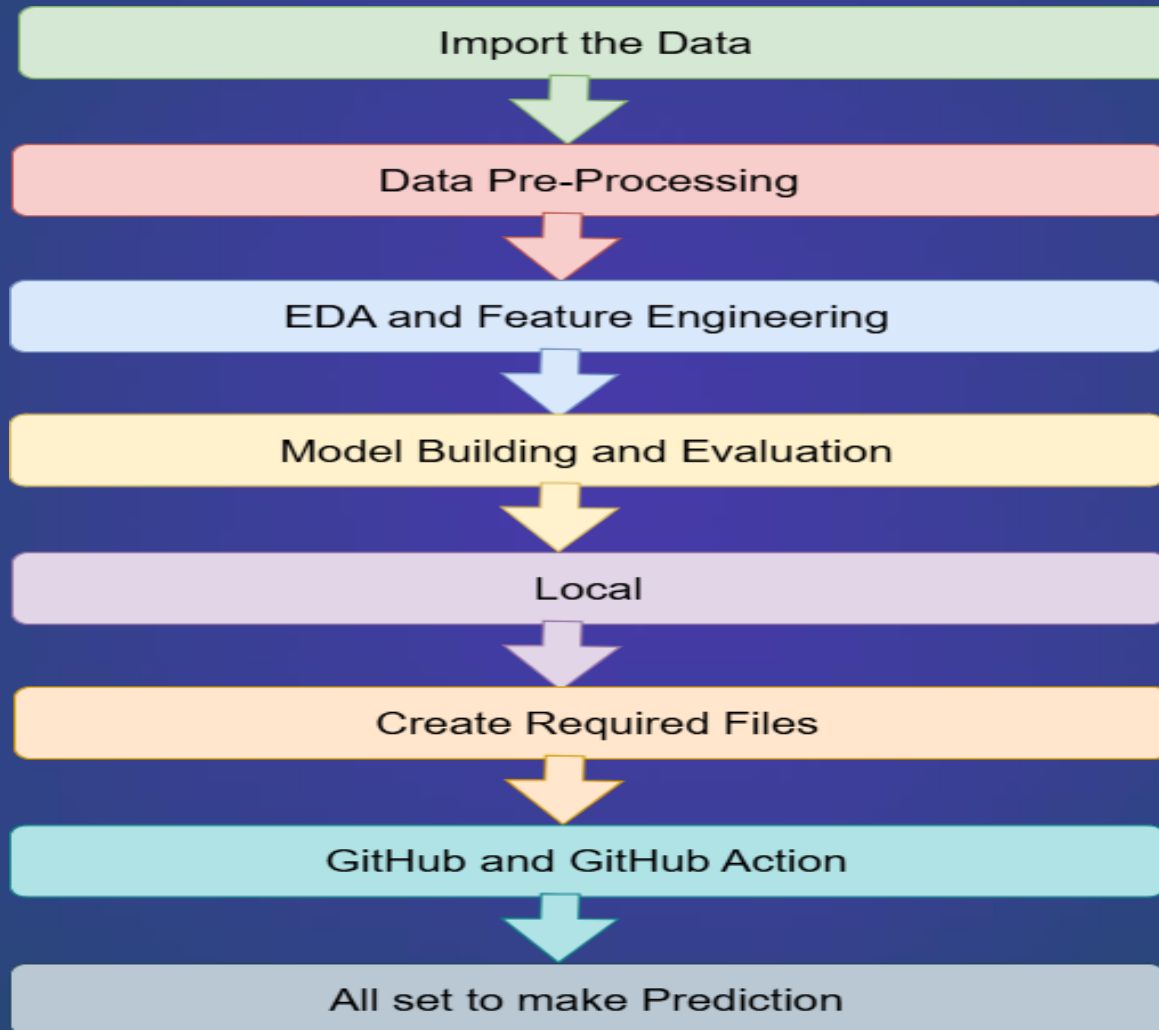
**ACCEPTEDCMP3:** WHETHER THE CUSTOMER ACCEPTED THE OFFER IN THE 3RD CAMPAIGN (1 = YES, 0 = NO)

**ACCEPTEDCMP4:** WHETHER THE CUSTOMER ACCEPTED THE OFFER IN THE 4TH CAMPAIGN (1 = YES, 0 = NO)

**ACCEPTEDCMP5:** WHETHER THE CUSTOMER ACCEPTED THE OFFER IN THE 5TH CAMPAIGN (1 = YES, 0 = NO)

**RESPONSE:** WHETHER THE CUSTOMER ACCEPTED THE OFFER IN THE LAST CAMPAIGN (1 = YES, 0 = NO)

# Methodology



# Conclusion

CUSTOMER PERSONALITY ANALYSIS USING MACHINE LEARNING HELPS BUSINESSES OPTIMIZE THEIR MARKETING STRATEGIES BY IDENTIFYING KEY CUSTOMER SEGMENTS. THIS APPROACH ENHANCES DECISION-MAKING, IMPROVES CUSTOMER SATISFACTION, AND BOOSTS REVENUE BY TARGETING THE RIGHT CUSTOMERS WITH RELEVANT PRODUCTS AND PROMOTIONS.