

Store X Analysis Tool

Store X is a small market offering food products to their customers. At times, Store X carries out promotional campaigns. These campaigns are primarily done to boost sales and increase revenues. However, the success of these campaigns is dependent on the number of customers who respond to them; therefore, the identification of these customers is important to the success of the campaign.


To identify these customers, we can use the **Store X Analysis Tool**, which provides certain metrics related to the store, and carries out a machine learning algorithm to predict whether a customer is likely to respond to a campaign or not, given certain consumer information.

Once the tool is opened, the first page that is presented is the home page (shown in **Figure 1**), which provides a brief overview of the insights that the tool generates, in addition to a location where a dataset must be uploaded.

The specific dataset that must be uploaded is one that contains general customer information, information related to sales and purchases, and information related to Store X's previous promotional campaigns.

When the dataset is fully uploaded, the user will be redirected to the main analysis tool, which consists of four pages: the data overview page, the dashboards page, the prediction models page, and the final prediction page.

Please upload your dataset of interest here!

 Drag and drop file here
Limit 200MB per file • CSV

Browse files

Store X Analysis Tool

Welcome to the Store X Analysis Tool! This tool enables us to view our dataset, gain insights on customers, sales, purchases, and campaigns with the use of dashboards, and even predict whether a customer is likely to respond to a campaign or not!

In all businesses, it is vital every once in a while to carry out promotional campaigns for your products or services; these campaigns are likely to increase the sales of the business. However, in order to increase sales at an optimal level, these promotions must be sent to customers who are likely to utilize and respond to these campaigns. As a result, the identification of these customers is significant and vital in the success of the campaign.

To begin identifying the customers who are most likely to accept our offers, simply upload the dataset above!

Figure 1

Data overview page

The data overview page (shown in **Figure 2**) provides a tool that simply enables the user to view the dataset. There is a checkbox that shows the data when the checkbox is enabled. When the checkbox is enabled, the user can immediately see only the first record of the dataset. The user can decide how many records they want to see using a slider. Each record reflects a different customer; since the dataset has 2,212 records, we have 2,212 customers.

Select the page of interest

Data Overview

☒ Click here to view the dataset!

How many rows of the dataset do you want to see?

1 151 2212

	Year_Birth	Education	Income	Recency	MntWines	MntFruits	MntMeatProducts	MntFishProducts	MntSweetProducts	NumDealsPurchases	NumVisits
0	1957	Graduation	58138	58	635	88	546	172	88	3	
1	1954	Graduation	46344	38	11	1	6	2	1	2	
2	1965	Graduation	71613	26	426	49	127	111	21	1	
3	1984	Graduation	26646	26	11	4	20	10	3	2	
4	1981	PhD	58293	94	173	43	118	46	27	5	
5	1967	Master	62513	16	520	42	98	0	42	2	
6	1971	Graduation	55635	34	235	65	164	50	49	4	
7	1985	PhD	33454	32	76	10	56	3	1	2	
8	1974	PhD	30351	19	14	0	24	3	3	1	
9	1950	PhD	5648	68	28	0	6	1	1	1	
11	1976	Basic	7500	59	6	16	11	11	1	1	

Figure 2

Dashboards page

The dashboards page (shown in **Figure 3**) provides a tool that enables the user to view dashboards containing insights extracted from the uploaded dataset. There are four dashboards to choose from: the customer overview dashboard, the sales breakdown dashboard, the purchase breakdown & complaint dashboard, and the previous campaign performance dashboard.

Customer overview dashboard

The customer overview dashboard highlights five main customer demographics: year of birth, education level, relationship status, income, and recency. The dashboard answers the following questions:

- What is the age distribution of our customers?
- How old are most of our customers?
- How old is our oldest customer?
- How old is your youngest customer?
- What level of education do most of our customers possess?
- What percentage of our customers are in a relationship?
- What percentage of our customers are not in a relationship?
- What is the median yearly income of our customers?
- How much does our lowest income customer earn?
- How much does our highest income customer earn?
- On average, how many days has it been since the most recent purchase of a customer

Sales breakdown dashboard

The sales breakdown dashboard provides an overview on the sales of Store X. The dashboard answers the following questions:

- What product categories do we sell?
- What are our total sales?
- What product category makes up the highest percentage of sales?
- How much does each product category generate in sales?

Purchase breakdown & complaints dashboard

The purchase breakdown & complaints breakdown dashboard provides an overview on the purchases of customers and a brief overview on customer complaints. The dashboard answers the following questions:

- Where do customers purchase their products (online vs. physical)?
- What percentage of customer purchases were carried out in online and physical stores?
- How many customer purchases were carried out in online and physical stores?
- How many units have customers purchased?
- What are the chances of a customer visiting the online store and carrying out a purchase?
- What percentage of purchases were made on a discount?
- What is the percentage of customer complaints?

Previous campaign performance dashboard

The previous campaign performance dashboard provides an overview on Store X's previous promotional campaigns. The dashboard answers the following questions:

- What are the success rates of our previous campaigns?
- How many customers have responded to our previous campaigns?

Select the page of interest

Dashboards

What dashboard would you like to see?

☒ Customer Overview

☐ Sales Breakdown

☐ Purchase Breakdown & Complaints

☐ Previous Campaign Performance

Figure 3

Prediction model page

The prediction model page (shown in **Figure 4**) provides a tool that enables the user to view specific supervised machine learning algorithms to predict whether a customer is likely to respond to a promotional campaign or not. Four supervised learning models are shown: logistic regression, K-nearest neighbors, decision trees, and random forests. The confusion matrix and the ROC curve are plotted for all models. In addition, the accuracy for all four models is shown.

What supervised ML algorithm would you like to see in predicting whether a customer will respond to a campaign or not?

☒ Logistic Regression

☐ KNN

☐ Decision Tree

☐ Random Forest

Logistic regression accurately predicts whether a customer will respond to a campaign or not 84.20% of the time

Figure 4

Final prediction page

The final prediction page (shown in **Figure 5**) provides a tool that enables the user to predict whether a customer is likely to respond to a promotional campaign or not, given certain customer information such as their year of birth, total amount spent, total purchases, etc. The random forest classifier was used to predict response.

Select the page of interest

Predicting Response to Campaigns

What year was the customer born?

1940

What is the customer's highest level of education?

2n Cycle

What is the customer's income?

0.00

Is the customer in a relationship?

Yes

How many days has it been since the customer visited the store?

0

Predict

The customer is likely to not respond to the campaign

Figure 5