






A/B Testing Analysis for Newsletter Conversion Rates


Overview

This project delves into the statistical analysis of A/B testing data  for newsletter conversion rates. A/B testing, or split testing , is the science of comparing two versions of a webpage, email, or other marketing asset by altering a single variable (like subject line, content, images ) to discover which variant garners a higher conversion rate.


Dataset


Our dataset is a collection of conversion rates for two distinct newsletters : Conversion_A and Conversion_B. Each entry represents a conversion rate observed from different recipients .

Objective


The mission is clear: to deduce which newsletter variant—A or B—boasts a higher conversion rate and to verify the statistical significance  of this observed difference.


Methodology

Data Visualization: We employ histograms with Kernel Density Estimates (KDE)  to visualize and compare the distribution of conversion rates for both newsletter variants.


Hypothesis Testing: A two-sample t-test  is conducted to rigorously evaluate the difference in means between the two independent samples.

Hypotheses



Null Hypothesis (H0): Newsletter A's mean conversion rate is equal to or greater than Newsletter B's .

Alternative Hypothesis (H1): Newsletter A's mean conversion rate is less than that of Newsletter B .



Tools Used

Python  is our chosen instrument, with a suite of libraries at our disposal—pandas, numpy, seaborn, scipy, and matplotlib—to conduct data analysis and hypothesis testing.

Results

The t-test speaks: a statistically significant difference in conversion rates is uncovered, leading us to reject the null hypothesis . The evidence indicates that Newsletter B outshines Newsletter A in terms of conversion rate .

Recommendations

With the data narrative concluded, the recommendation is to bestow the mantle to Newsletter B for forthcoming campaigns . This strategic shift is poised to potentially elevate conversion rates and lead us to greater heights .