## Analysis of Coupon Acceptance for More Expensive Restaurants ($20-$50)

### Overview

This project analyzes the factors influencing the acceptance of coupons for more expensive restaurants (priced between $20 and $50). Using survey data, we explore various demographics, contextual attributes, and coupon characteristics to identify trends in coupon acceptance.

### Initial Data Cleaning and Preparation

The dataset includes several user and contextual attributes. We focused on the $20-$50 restaurant category due to its lower acceptance rates. The null column "car" was retained for analysis continuity but deemed unnecessary.

Key attributes examined include:

* Income Level
* Frequency of Visits to Restaurants
* Marital Status
* Acceptance Rate (Y = 1 for acceptance, Y = 0 for rejection)

### Acceptance Rate Analysis

Overall Acceptance Rate

* 42.46% acceptance for individuals visiting restaurants 3 or fewer times.
* 64.23% acceptance for individuals visiting restaurants more than 3 times.

#### Influence of Income and Visit Frequency:

| **Income Level** | **Visit Frequency** | **Acceptance Rate** |
| --- | --- | --- |
| **< $50k/yr** | **> 4 visits** | **74.60%** |
| **< $50k/yr** | **< 4 visits** | **40.58%** |
| **> $50k/yr** | **> 4 visits** | **53.33%** |
| **> $50k/yr** | **< 4 visits** | **44.44%** |

#### Marital Status Impact

| **Marital Status** | **Visit Frequency** | **Acceptance Rate** |
| --- | --- | --- |
| **Single** | **> 4 visits** | **67.53%** |
| **Single** | **< 4 visits** | **42.49%** |
| **Together** | **> 4 visits** | **58.70%** |
| **Together** | **< 4 visits** | **42.82%** |

#### Comparison with Cheaper Restaurants

| **Income Level** | **Visit Frequency** | **Acceptance Rate** |
| --- | --- | --- |
| **< $50k/yr** | **> 4 visits** | **47.15%** |
| **< $50k/yr** | **< 4 visits** | **40.64%** |
| **> $50k/yr** | **> 4 visits** | **49.12%** |
| **> $50k/yr** | **< 4 visits** | **42.07%** |

| **Marital Status** | **Visit Frequency** | **Acceptance Rate** |
| --- | --- | --- |
| **Single** | **> 4 visits** | **48.71%** |
| **Single** | **< 4 visits** | **43.32%** |
| **Together** | **> 4 visits** | **47.59%** |
| **Together** | **< 4 visits** | **40.54%** |

## Key Findings

1. Frequency of Dining Out: Frequent diners are more likely to accept coupons, particularly for more expensive options.
2. Income Level: Respondents earning less than $50,000 who frequently dine out show the highest acceptance rates.
3. Marital Status: While there is a slight advantage for single individuals, frequency of visits is a more significant factor.
4. Cost Sensitivity: Lower acceptance rates were observed for cheaper restaurants, indicating different perceived value.
5. Statistical Anomaly: A small sample (4) showed a 100% acceptance rate among respondents with incomes just below $50,000 and more than 4 visits.

## Recommendations

To effectively drive business to more expensive restaurants, marketing strategies should focus on:

* Targeting Frequent Diners: Prioritize individuals who frequently dine out.
* Income Focus: Target the $50,000 income bracket for promotions.
* Marital Status: Consider marketing towards single individuals who dine out often.

# Conclusion

The analysis indicates that frequency of visits is the strongest predictor of coupon acceptance for more expensive dining options. Targeting frequent diners, especially those around the $50,000 income level, could significantly enhance coupon promotion effectiveness for restaurants in this price range.

## Usage

This document provides a summary the analysis and findings. For detailed analysis, refer to the code and visualizations provided in the corresponding repository.