**Will a customer accept the coupon?**

**Summary**

Cleaned the data-set to drop NaN and Null valued column entries.

Once cleaned, observed there were about ~108 responses with the ‘Y’ column populated with customer responses. 62 of those responses were coupon accepts, while the remaining 48 were not accepted. Thereby, we had 57.40% of coupon acceptance rate.

**Observations across entire data set**

Then, visualized the ‘coupon’ column to see the various coupon types presented to customers across the entire data-set. From the plot, inferred that Coffee House type coupons and Coupons for Restaurants < $20 are presented more to customers than the other coupon types.

coupon count

0 Coffee House 37

1 Restaurant(<20) 25

2 Carry out & Take away 19

3 Restaurant(20-50) 14

4 Bar 13

A graph with a number of colored squares

Description automatically generated with medium confidence

Next, observed the ‘temperature’ column with a histogram. It can be concluded that the entire data-set had a higher count for a temperature range of 70-80F.

A graph showing the temperature

Description automatically generated

**Investigating the Bar Coupon types**

1. **From the data set, it can be seen that bar coupon types (14) are the lowest coupon types that get targeted to customers. Of which only 3 bar coupons got accepted by customers, i. e., Y = 1, this constitutes about a 21.43% acceptance rate with bar coupons.**

No of bar coupons accepted: 3

Total no. of bar coupons: 14

Proportion that chose to accept bar coupon (%) : 21.428571428571427

1. **From the bar coupons that got accepted, we had only 1 customer visiting the bar 3 or fewer times a month. This constitutes about 33.33% from those that accepted (1 out of 3).**

From among bar coupons accepted, # that went to the bar 3 or Fewer times a month : 1

Proportion that went to bar 3 or fewer times a month from those that accepted (%): 33.33333333333333

1. From those that accepted, those drivers that go to a bar more than once a month and over the age of 25, were about 2 out of the total 3 accepts.

From among bar coupons accepted, # that went where age > 25 and more than once a month: 2

1. From those that accepted, those drivers who go to bars more than once a month and had passengers that were not a kid and had occupations other than farming, fishing, or forestry were about 2 out of the total 3 accepts.

From among bar coupons accepted, # that went where they go more than once a month and had passengers that are not a kid and had non-farming/non-fish/non-forestry occupation: 2

1. From those that accepted, those drivers going to bars more than once a month, with passengers that were not a kid, and were not widowed (filter1)

*OR* going to bars more than once a month and are under the age of 30 (filter2)

*OR* going to cheap restaurants more than 4 times a month with income is less than 50K (filter3)

These were 2 of the total 3 with an OR of all 3 filters. For filter2, and that is when the income is less than 50k, we had 0 drivers.

For filter1, we have count = 2

For filter2, we have count = 2

For filter3, we have count = 0

**Conclusion:** Bar coupon accepts are about 3, with 2 of them having more than three visits a month. Also, customers with income <50K do not visit the bar. Other user attributes have no noticeable difference given the already low number of Bar coupon acceptance rates.

**Investigating Other Coupon Types**