Imagine driving through town and a coupon is delivered to your cell phone for a restaurant near where you are driving. Would you accept that coupon and take a short detour to the restaurant? Would you accept the coupon but use it on a subsequent trip? Would you ignore the coupon entirely? What if the coupon was for a bar instead of a restaurant? What about a coffee house? Would you accept a bar coupon with a minor passenger in the car? What about if it was just you and your partner in the car? Would weather impact the rate of acceptance? What about the time of day?

Obviously, proximity to the business is a factor on whether the coupon is delivered to the driver or not, but what are the factors that determine whether a driver accepts the coupon once it is delivered to them? How would you determine whether a driver is likely to accept a coupon?

**Overview**

The goal of this project is to use what you know about visualizations and probability distributions to distinguish between customers who accepted a driving coupon versus those that did not.

**Data**

This data comes to us from the UCI Machine Learning repository and was collected via a survey on Amazon Mechanical Turk. The survey describes different driving scenarios including the destination, current time, weather, passenger, etc., and then ask the person whether he will accept the coupon if he is the driver. Answers that the user will drive there ‘right away’ or ‘later before the coupon expires’ are labeled as ‘Y = 1’ and answers ‘no, I do not want the coupon’ are labeled as ‘Y = 0’. There are five different types of coupons -- less expensive restaurants (under $20), coffee houses, carry out & take away, bar, and more expensive restaurants ($20 - $50).

**Deliverables**

Your final product should be a brief report that highlights the differences between customers who did and did not accept the coupons. To explore the data you will utilize your knowledge of plotting, statistical summaries, and visualization using Python. You will publish your findings in a public facing GitHub repository as your first portfolio piece.

After the data was explored and analyzed the following observations were demonstrated:

Questions 1-6 represented various bar coupon scenarios relating to acceptance rates.

* 1. When comparing the acceptance rate between those who went to a bar 3 or fewer times a month to those who went more; the bar coupon was accepted higher at ~57% for those who went to the bar more than three times a month
  2. When comparing the acceptance rate between drivers who go to a bar more than once a month and are over the age of 25 to all others; we concluded there’s a difference of more drivers over 25 who have gone to the bar more frequently as supposed to other drivers at rates 65% vs. 56% respectively.
  3. When comparing acceptance rate between 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; we concluded these drivers have an acceptance rate of 62% vs everyone else at ~57%
  4. Lastly for bar acceptance rate, a similar analysis to #2 was conducted except the driver’s age was 30 and they visited bars more than once a month. Again, the acceptance rate for age 30 was similar to the age 25 data but slightly less at 63% vs everyone else at 56%.

Finally for the independent investigation, we wanted to compare the acceptance rate for drivers with no kids visiting carry out & take aways more than three times a month against everyone else. Our observation noticed the acceptance rate for this scenario yielded ~58% which was quite given everyone else was 42%. My guess as to why this carry out and takeaways can be very expensive when feeding a family with kids, especially if this is conducted more than three times a month. As someone with a large family (spouse plus three kids) I can relate to how expensive dining out can be.