**Will the Customer Accept the Coupon?**

In this application, I have used two types of coupon data (Bar & CoffeeHouse) to perform data analysis, plotting, statistical summarization, and data visualization to get an idea about differences between customers who did and did not accept the coupons. I have prepared brief report about list of high-level activities performed and key highlights of data insights.

**List of high-level activities performed:**

* Understand the requirement and dataset for the application.
* Used few python packages such as Pandas, NumPy, Seaborn, Matplotlib and Plotly to perform asked activities such as load the data set, perform statistical analysis, visualization, data correction, perform various operations with data.
* Read, analyze, clean and distribution of coupon data using histogram.
* Investigate the data to get data insights through data grouping, aggregation, and visualization (Histogram, Bar Chart etc.).
* Five distinct types of coupons: Restaurant under 20, Carry-Out & Take Away, Restaurant 20-50, Bar and Coffee House. The Coffee House coupon has highest distribution among all types and its acceptance rate is higher compared to Bar coupon acceptance rate.

**Highlights on differences between customers who did and did not accept the Bar coupons:**

* Bar coupon acceptance rate is 40.94% for a given data where customer will use it right away or before it expires.
* Coupon acceptance rate for customers who went to bar three or more times is 76.17%, while coupon acceptance rate is 37.04% for customers who went less than 3 times.
* Coupon acceptance rate for customers who went to bar more than one time and above age 25 is 69.29%, while coupon acceptance rate for remaining customers is 33.40%.
* Coupon acceptance rate is higher for customers who went to bar more than one time and age is between 25-30.
* The coupon acceptance is lower for those customers who work in farming, fishing, or forestry as well customers who carry kid as passengers.
* The highest Coupon Acceptance rate is 76.17% for customers who went to bar three or more times and their acceptance is even higher than overall Bar coupon acceptance rate.

**Highlights on differences between customers who did and did not accept the CoffeeHouse coupons:**

* CoffeeHouse Coupon Acceptance rate is 49.70% for a given data where customer will use coupon right away or before it expires.
* CoffeeHouse coupons acceptance rate for customers who went to a CoffeeHouse more than three times is 67.40 %, while customers who went to a CoffeeHouse less than 3 times is 44.60 %.
* CoffeeHouse coupons acceptance rate is more than 50% for customers who go to a CoffeeHouse more than once a month either alone or with friends / partner.
* The coupon acceptance rate is lower for customers who visits CoffeeHouse one or less time a month.
* The highest CoffeeHouse coupons acceptance rate is 76.63% for customers who go to a CoffeeHouse more than once a month with Friends or Partner and their acceptance is even higher than overall CoffeeHouse coupon acceptance rate.

**Key Highlights**

* There are five distinct types of coupons: Restaurant under 20, Carry-Out & Take Away, Restaurant 20-50, Bar and Coffee House. The Coffee House coupon has highest distribution among all types and its acceptance rate is higher compared to Bar coupon acceptance rate.
* The Bar coupon acceptance rate is 40.94% for a given data where customer will use it right away or before it expires.
* The highest Bar Coupon Acceptance rate is 76.17% for customers who went to bar three or more times and their acceptance is even higher than overall Bar coupon acceptance rate.
* The CoffeeHouse Coupon Acceptance rate is 49.70% for a given data where customer will use coupon right away or before it expires.
* The highest CoffeeHouse coupons acceptance rate is 76.63% for customers who go to a CoffeeHouse more than once a month with Friends or Partner and their acceptance is even higher than overall CoffeeHouse coupon acceptance rate.

**Next steps and recommendations:**

* Further analysis of bar coupons data to get an insight on why Bar coupon acceptance rate is lower for customers who visits at-least once but less than three times and identify the parameters (if any) which reduces their acceptance rate.
* Further analysis of coffee house coupons data for customers age between 40 and 50 to get an insight of why their coupon rejection rate is higher than their acceptance rate.
* Data exploration for Restaurant under 20, Carry-Out & Take Away, Restaurant 20-50 types of coupons to get insights on their coupon acceptance rate.