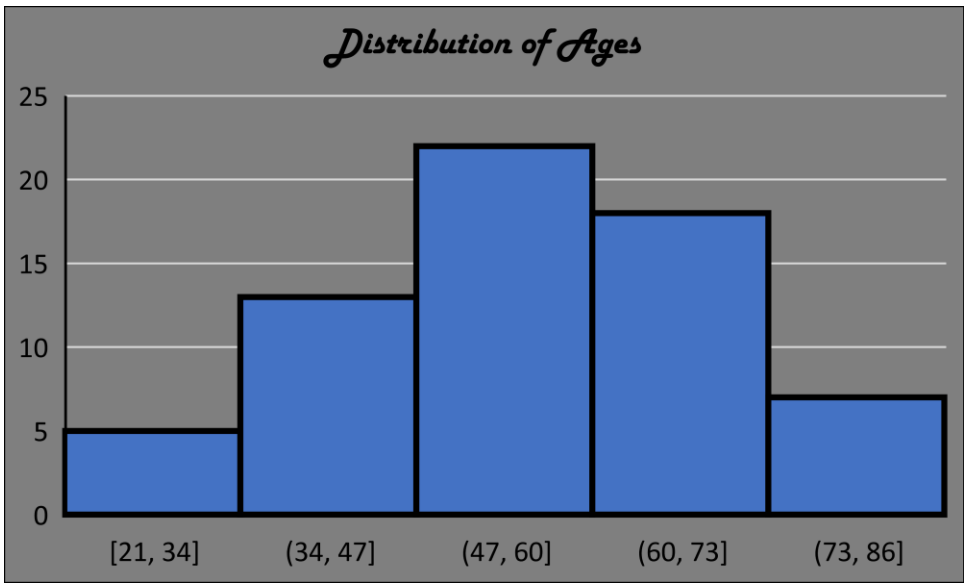
Credit Card Sales Analysis

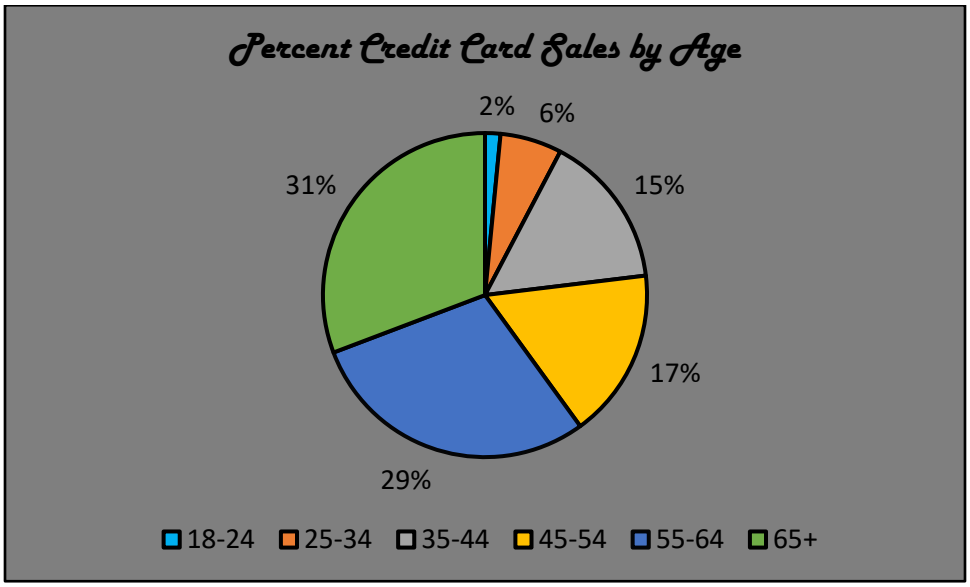
Age

To start, we are going to look at the ages of our clients at time of credit card application. Our sample spans a range of 64.87 years with a minimum value of 21.29 and a maximum of 86.16. The distribution of ages is approximately normally distributed. Meaning that the data is roughly symmetrical, following a bell-shaped curve. A skewness of -0.12 suggests that the data is very slightly left skewed implying that there are outliers present in the younger age groups. Our median (58.25) being larger than our mean (56.84) further proves this point. However, when calculating our lower "fence" we get a value of 16 which is much lower than our minimum value of 21.29. This implies that there are no true outliers and that our data is symmetrical but with a slightly higher concentration of applicants in the older age ranges.



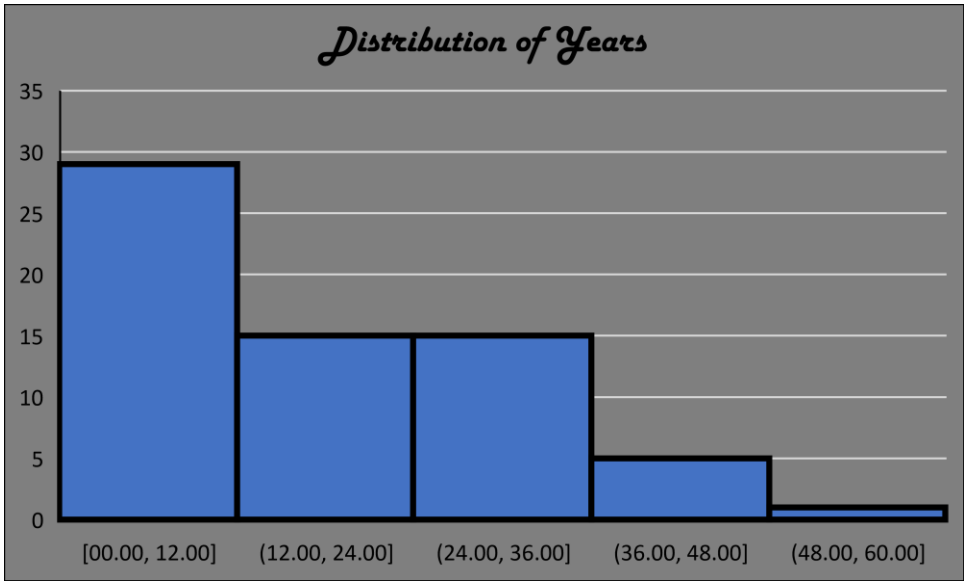
The average age of customers applying for credit cards is 56.84. When calculating for a 95% confidence interval, we get an interval between the ages of 53 and 61 years of age. Meaning that we can be 95% sure that our population parameter (μ) falls within this interval. When compared to the average national retirement age of 63, these numbers are astonishingly high. It appears that customers who are closer to retirement age are the ones applying more often than those in their

teens, twenties, thirties, and forties. This is made even more apparent when looking at the age group breakdown as shown in the graph below. 60% of credit card sales came from people aged 55 and older compared to a measly 8% from the 18 to 34 age groups. Even more surprising is the 31% coming from customers aged 65 and older, a count that includes five 80+ year olds.



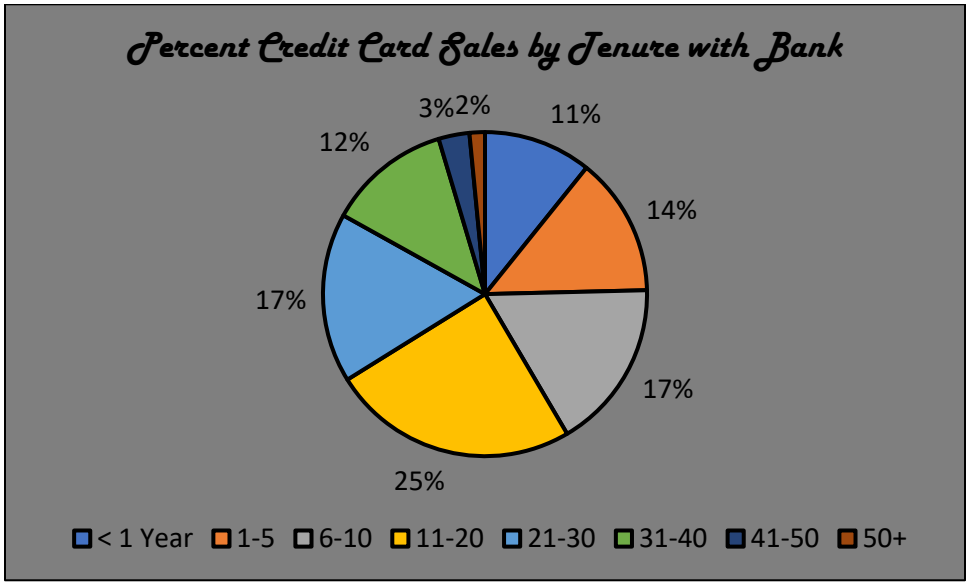
Tenure with Bank

We will now look at the tenure of customers with the bank. Tenure is defined as the fractional number of years between when the customer established their relationship with the bank and when they applied for their credit card. This is calculated by subtracting their application date from their establishment date. Unlike the distribution of ages, the distribution of years is moderately right skewed. From looking at the graph, you can see that the majority of customers are concentrated in mid to lower year groups. A skewness of 0.66 supports this claim. However, similar to the distribution of ages, when calculating our upper outlier fence (60.37) we once again see that there are no true outliers. Instead, the data is just distributed in such a way that there is a higher concentration of applicants in the lower bins.



However, seeing as you would be hard pressed to find anyone who classifies being with the bank for 12 years as a "new" customer we have decided to further subdivide our bins to include smaller groupings, particularly on the lower end of our spectrum. In the pie chart below you will see a more detailed breakdown of credit card sales by tenure.

Additionally, when looking at the tenure of customers (# of years with bank) we see that they have been with the bank for an average of 13 to 20 years. The largest such group being the 11-to-20-year group with 25% of total sales.



This implies that the customers that are applying are not new customers but rather current customers who have been with the bank for several years prior to applying. Seeing as age and tenure with the bank are likely correlated this is not surprising. Looking at the graph below we see that there is a positive correlation between age and tenure. When calculating for the correlation coefficient we get positive 0.47 relationship. This means that as age increases, years with the bank also increases.