

Cardio Good Fitness Case Study

Background

Cardio Good Fitness

- Cardio Good Fitness is a retail store selling three different treadmills.
- We have been provided with customer data from previous purchases of these three treadmills.
- These treadmill models are TM195, TM498 and TM798



Objective:

Explore and analyze data set, extracting basic observations about the data to:

- Create customer profiles for each product model by performing preliminary data analysis
- Generate a set of insights and recommendations to help the company target new customers.

Data Overview

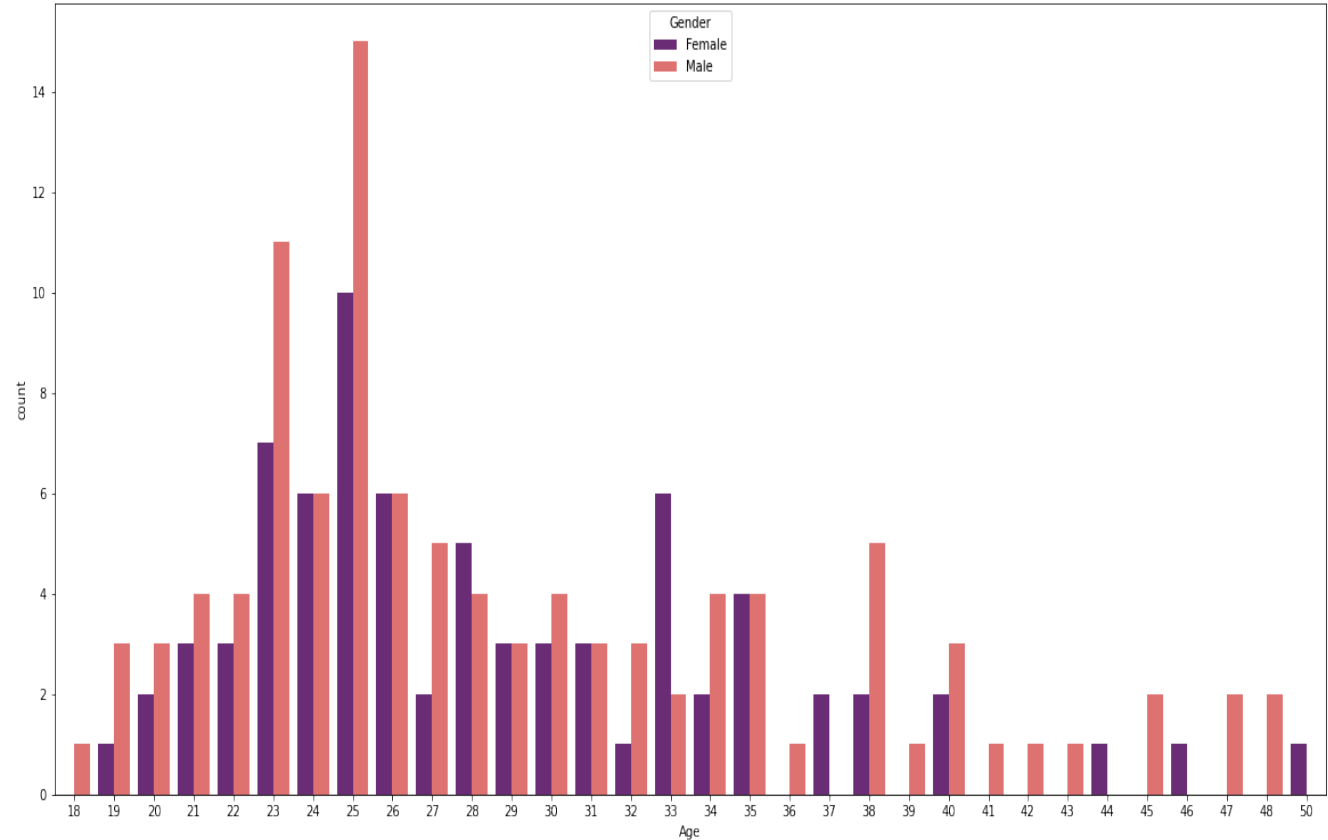
Observations	Columns
180	9

- There is no missing data
- After performing uni-variate analysis on the dataset as a whole, the data was broken down into subsets based on product model number for further analysis

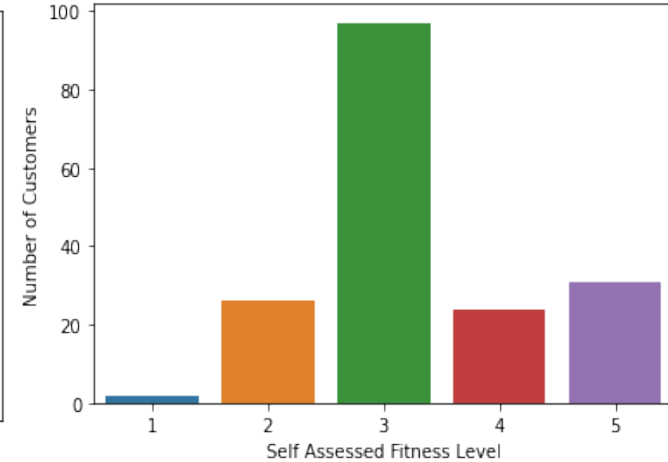
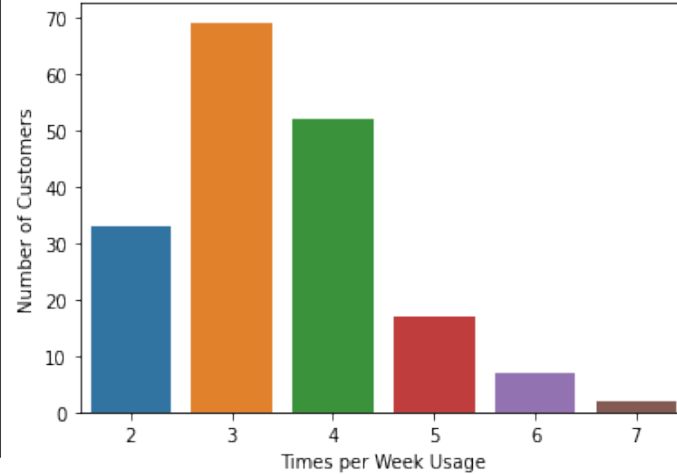
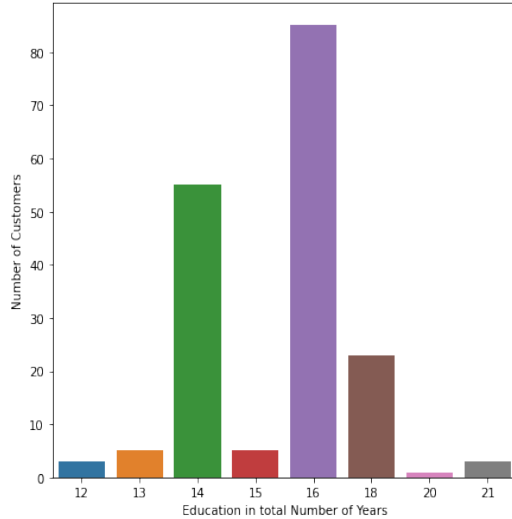
Variable	Description
Product	Model # of treadmill
Age	In # years - of customer
Gender	Of Customer
Education	In # years - of customer
Marital Status	Of customer
Usage	Intended avg # times used/week
Fitness	Self rated - 5 very fit, 1 very unfit
Income	Of customer
Miles	Expected to run

Exploratory Data Analysis - Gender for Whole Dataset

- The majority of customers range in age from 21 to 35 years old
- Customers are predominantly male
- While the most frequent age of a customer is a 25 year old male, the average is a skewed 28.7 years caused by the outliers in the 40+ age range

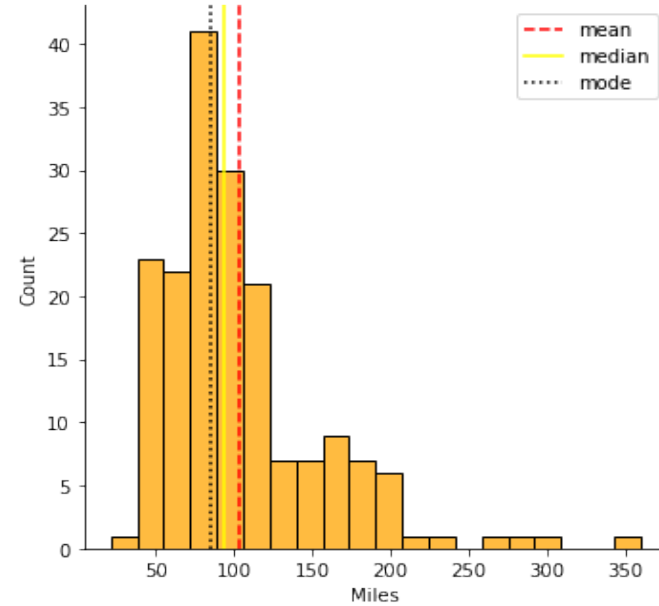
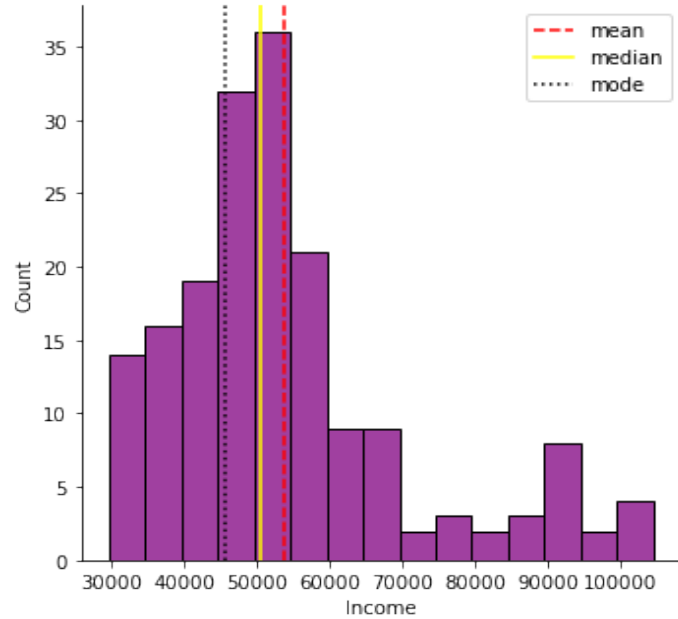


Exploratory Data Analysis – Education, Usage and Fitness for Whole Dataset



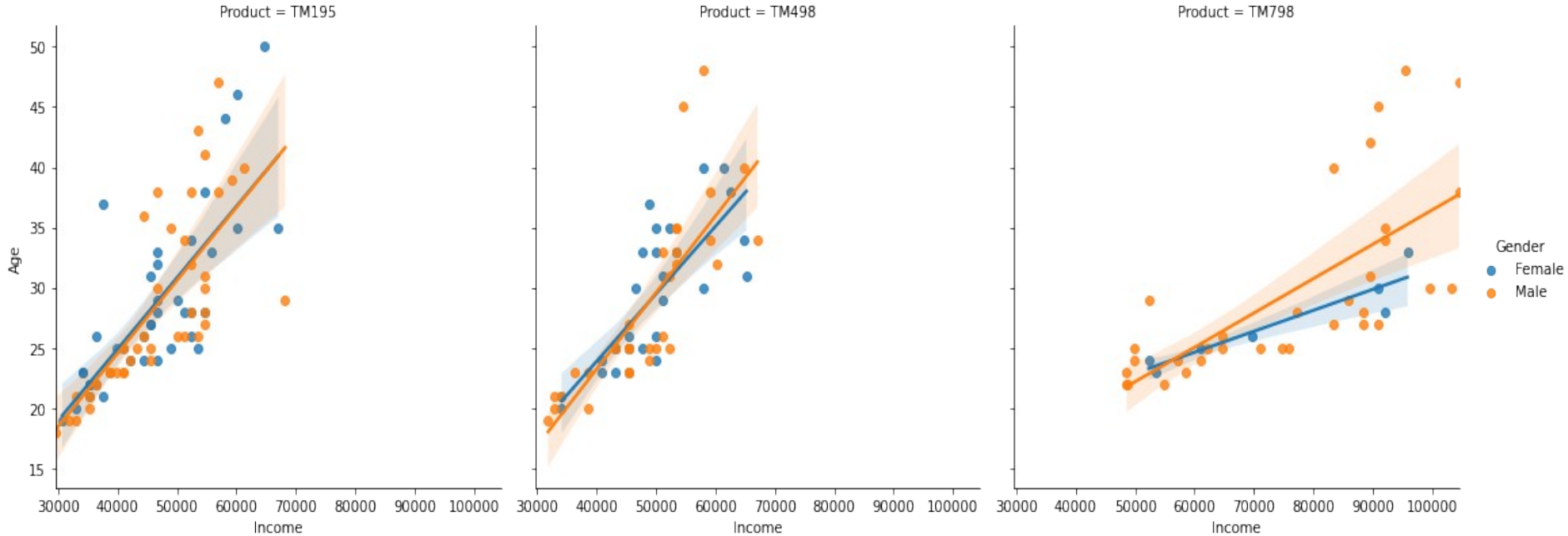
- In relation to Education, if we assume 14 years of education equates to an Associates degree and 16 years of education equates to a Bachelors degree, the majority of customers are college graduates with at least an Associates Degree.
- The majority of customers planned on using the treadmill three to four times a week at time of purchase.
- Most customers assessed their fitness level at a mid-range of three.

Exploratory Data Analysis – Income and Miles for Whole Dataset



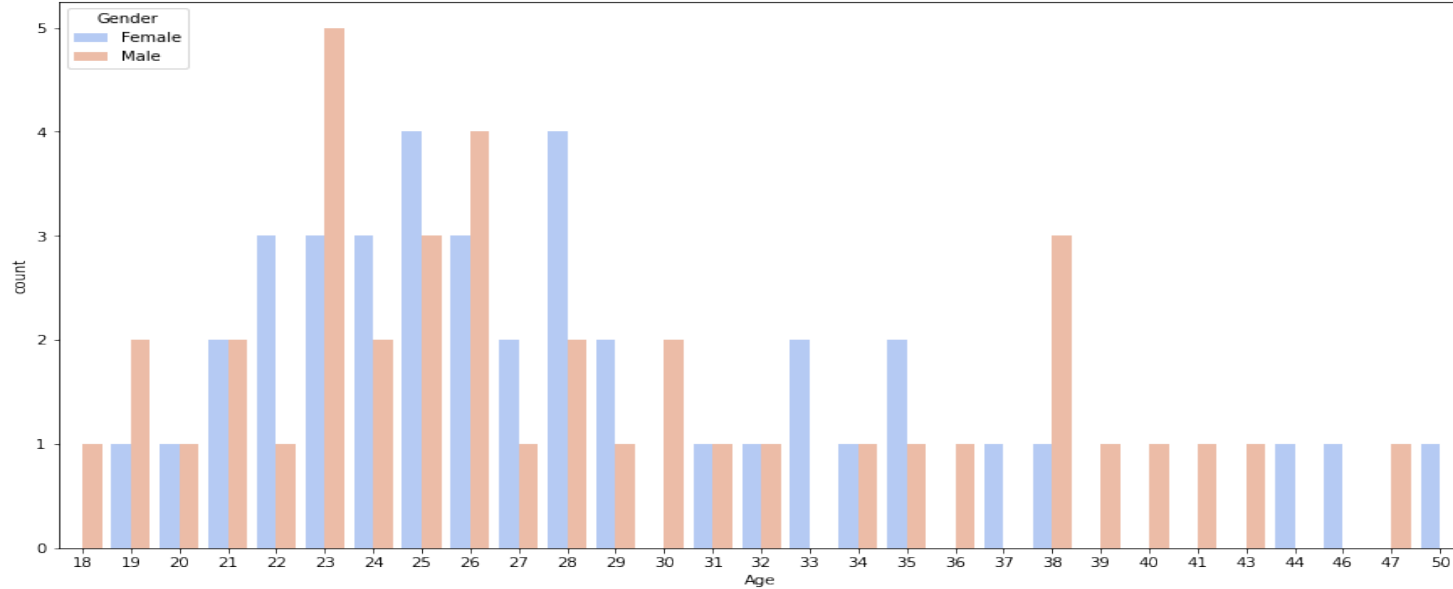
- Income and Miles are both skewed to the left because of some upper outliers, causing higher medians and means but lower mode.
- Miles has a frequency of 85 but a mean of 103 – almost a 20 mile discrepancy, this suggest outliers in the upper region of the scale
- Income has a mean of \$54k but a mode of \$45.5k, again, a large discrepancy suggesting outliers in the upper region of the scale
- Question: Can these discrepancies be tied to any particular model or are they random?

Individual Product Analysis



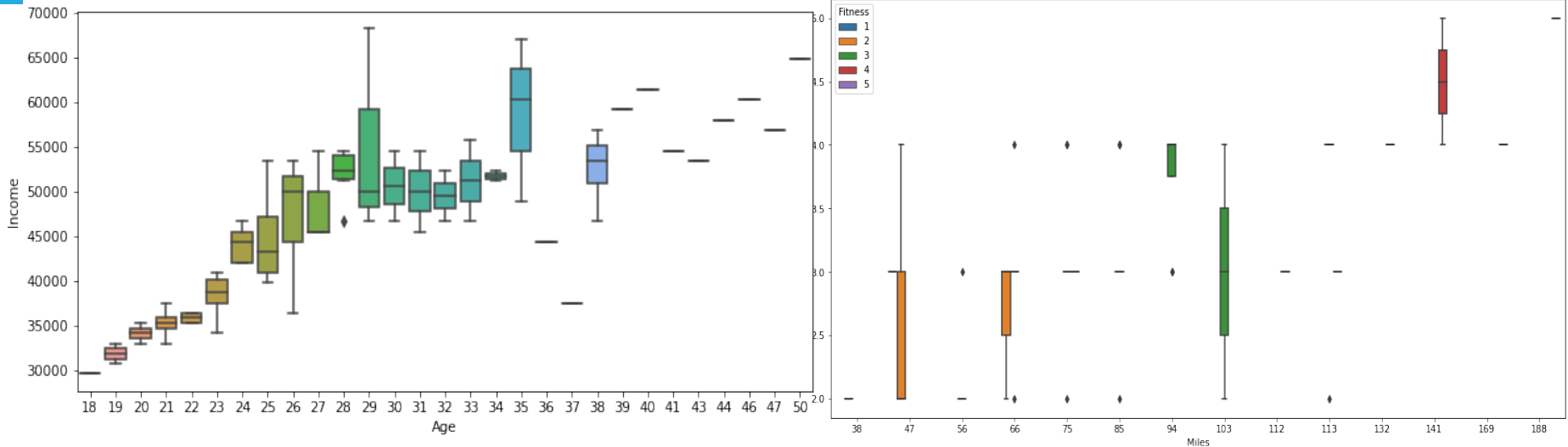
Let's begin by breaking down income and age by product and then gender. It would appear from this analysis there are some discrepancies with products based on age and income as well as to a lesser degree, gender.

Product Model TM195



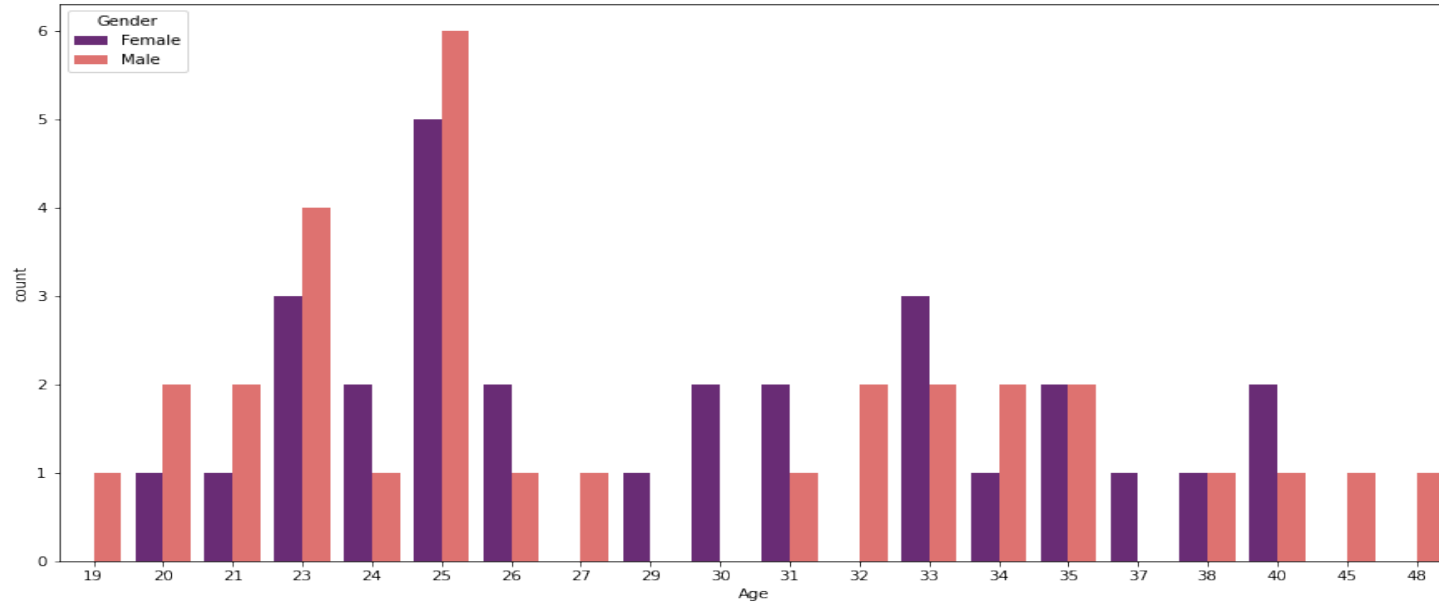
The distribution between gender is equal for this sample, with 40 each male and female. Median age of customers that purchased TM195 is 26 years, but the most common age is 23 years and the average age is 28.5. These discrepancies could be due to some random outliers, for example there seems to be a spike for male aged 38. Suggest target potential customers both men and women between ages 23 and 29, plus men approaching 40.

Product Model TM195



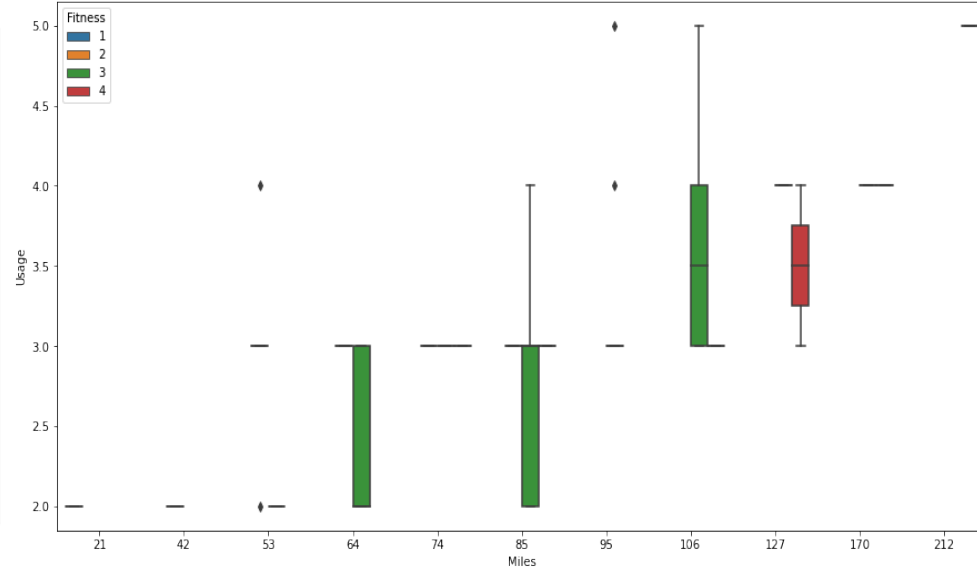
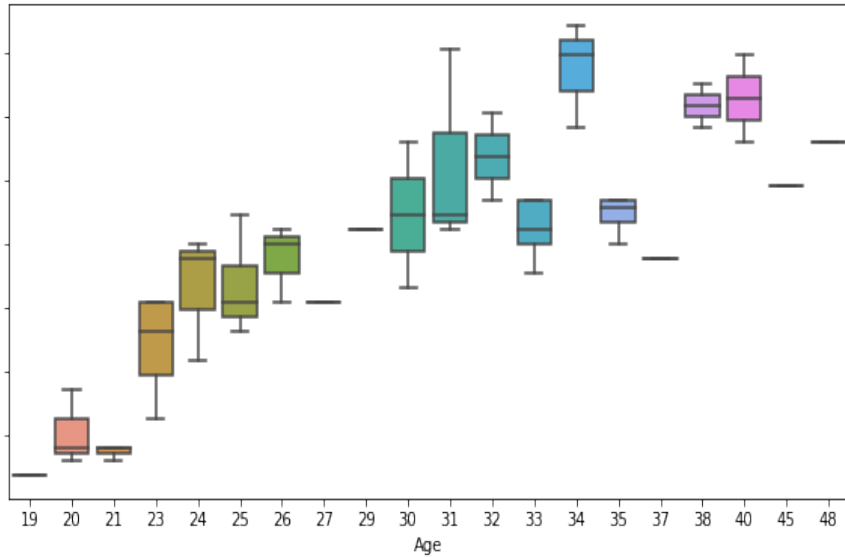
- Income appears to cluster in the range between \$40,000 and \$55,000, and peaks around \$65,000, excluding outliers
- Those customers stating fitness levels between 2 and 3 appear to be most frequent, also only planning on using the machine two to three times a week for an estimated range of 40 to 103 miles
- Those few customers who state their fitness level at 4 plan to use the treadmill more often and also run more miles

Product Model TM498



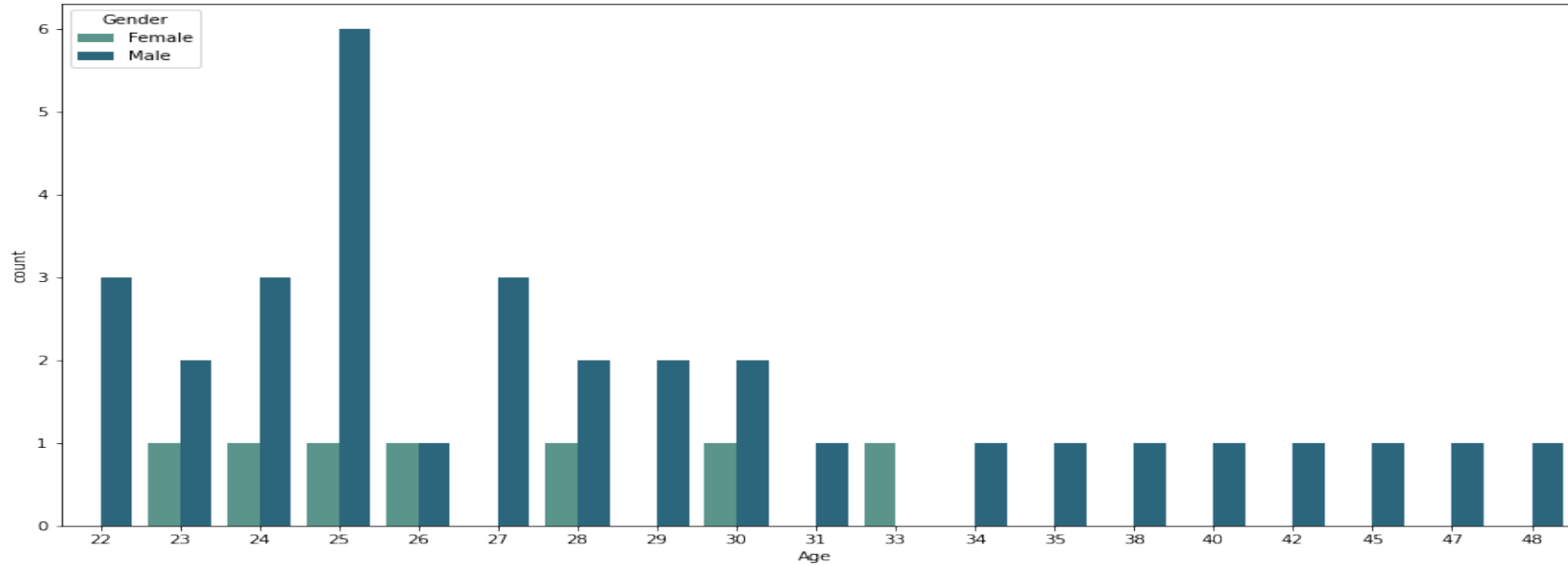
The gender distribution for this model is also fairly equal with 31 customers being male and 29 are female. The median age for the purchase of model TM498 is 26 years, with the most frequent age being 25 years old. The mean is slightly higher at 28.9 years suggesting a slight skew to the right, possibly contributed to by a modest spike in female customers at age 33. Suggested target market both male and female between ages 23 and 25 as well as women in the thirties.

Product Model TM498



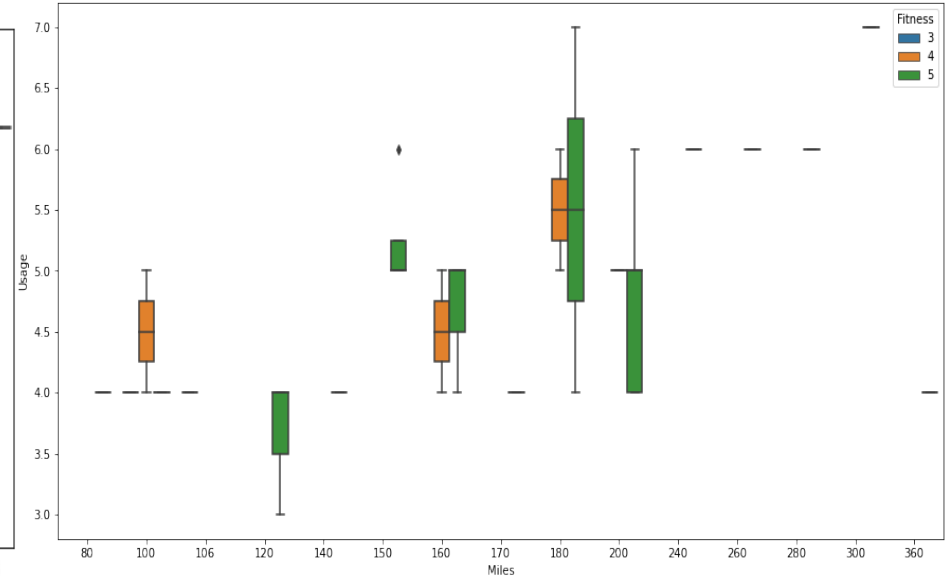
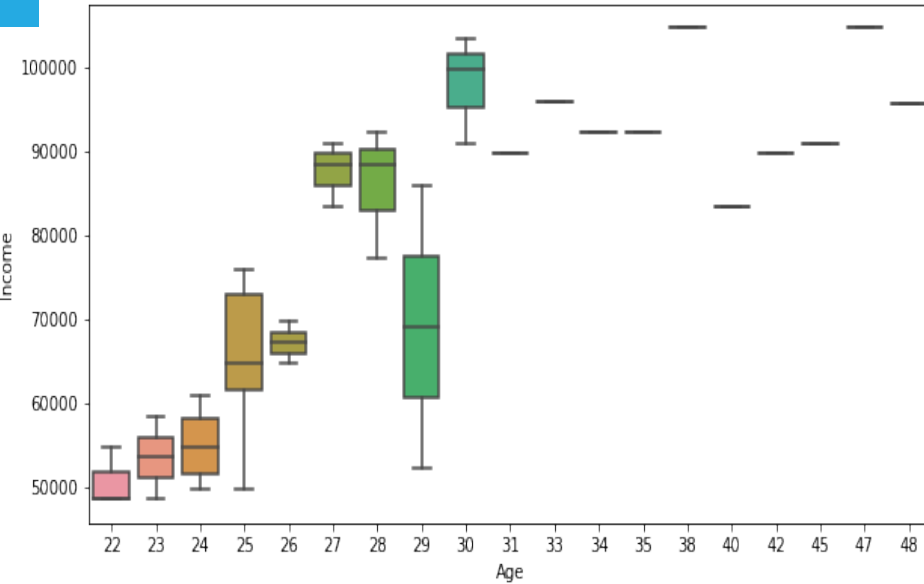
- Income is more spread out with TM498 than TM195, however still topping off around \$65,000
- Unlike TM195 there appear to be no customers assessing their fitness level at 2, primarily all customers state a level of 3, with their intent to use the treadmill two to four times a week and run for a range of approximately 64 to 106 miles, also slightly higher than those customers purchasing TM195
- As with TM195 there are a small number of customers who assess themselves at a level 4 fitness, running more miles, but still only planning on using the treadmill three to four times a week

Product Model TM798



For this customer sample there are only 7 female members whereas there are 33 male members, suggesting this product is more appealing to men than women. The median age for this group is 27 years, while the most frequent purchasers are 25 years old. The average age is 29.1, due to the the range of older customers. Also of note, the youngest customer for this model is 22 years old, as opposed to 18 years old for TM195 and 19 years old for TM498. Suggested target market males between the ages of 22 and 30.

Product Model TM798



- Income for TM798 has a minimum of approximately \$50,000 whereas TM195 and TM498 both have minimums of approximately \$32,000 with a maximum of approximately \$65,000. TM798 income extends to above \$100,000. While the average income is \$75,000, the most frequent is closer to \$90,000 suggesting a skew in the data.
- Fitness levels for this customer group are all minimally a 3 with the majority being between 4 and 5
- Most customers plan to use their treadmill between four and six times a week with a few outliers planning on seven
- Expected miles to run have also increased considerably with the most customers starting around 120 extending up to approximately 220, with some outliers anticipating more than 360 miles

Conclusion

From all the previous analysis we are able to conclude overall:

- Customers who have purchased a treadmill from Cardio Good Fitness are more often male and range in age from 21 to 35 years old
- They are educated and tend to have at least a two year college degree with many also have a four year degree
- Most customers assess themselves as averagely fit
- Customers plan to use their new treadmill on the average of three to four times a week and most often run 8.5 miles
HOWEVER, what is the time frame for running expressed miles? Is that also within one week?

For the individual models we can conclude:

- Customers for model TM195 are most frequently 23 years old with a median income of \$46,000. Their self assessed fitness level is between 2 and 3, plan to use their new treadmill two to three times a week and run an average of 8.3 miles
- The most frequent age for customers of model TM498 is 25 years old with a median income of \$49,000. They assess their fitness level to be mostly 3 and plan to use their new treadmill three to four times a week, running an average of 8.8 miles.
- For model TM798, the most frequent customer was also 25 years old with a median income of \$77,000. These customers primarily assessed their fitness level between 4 and 5 and plan to use their treadmill between four and six times a week and run an average of 16.7 miles

Recommendations

While these three different models tend to appeal to younger or more youthful individuals who consider themselves an average fitness but are are educated with a minimum income of \$30,000, the three models attract somewhat different customers.

- Model TM195 should target both men and women between the ages 23 and 29 who are either just beginning their usage of a treadmills and perhaps fitness in general. Perhaps they are recent college graduates with an average income of \$46,000. Further research and consideration should also be given to men approaching 40 years old – the beginning of a mid life crisis?
- Model TM498 should also target both men and women between the ages of 23 and 25 who already have a fitness regime but are looking to add something for a home workout rather than going to the gym. Again, it is plausible to assume from the age group they are recent college graduates with a slightly higher average income of \$49,000. With the moderate spike in female customers at age 33, further research should be performed – women wanting to get back into shape after bearing children perhaps with more disposable income?
- Model TM978 should target primarily men between ages 22 and 30 who are experienced runners. They consider themselves above average with their level of fitness as evident by their intent to use the treadmill more frequently and run more miles. Without information regarding features and quality, from the income information it can be assumed this is a more expensive model and should focus on potential customers with a minimum income of \$75,000.

Happy Learning !