

# Cardio Fitness Project

# Objective

To extract actionable insights from the data and identify areas of growth and improvement.

We will be majorly focusing on these problems -

- Variables that drive the sales of product
- Build customer profile (characteristics of a customer) for the different products
- Ways to capitalize based on customer characteristics

# Data Information

The data contains weather information, location and no. of pickups

| Variable       | Description   |
|----------------|---|
| Product        | The model no. of the treadmill                                      |
| Age            | In no of years, of the customer                                     |
| Gender         | Gender of the customer  |
| Education      | In no. of years, of the customer                                    |
| Marital Status | Marital Status of the customer                                      |
| Usage          | Avg. no times the customer wants to use the treadmill every week    |
| Fitness        | Self-rated fitness score of the customer (5 very fit, 1 very unfit) |
| Income         | Income of the customer  |
| Miles          | Expected miles to run   |

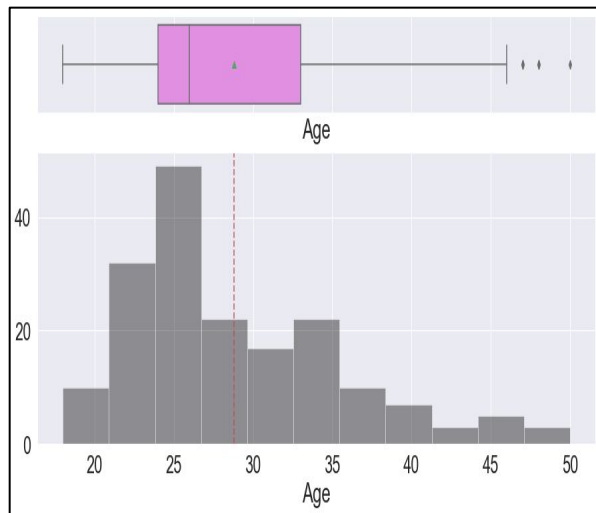
| Observations | Variables |
|--------------|-----------|
| 180          | 9         |

## Note:

- There are no missing values in the dataset
- The fitness column has been converted to category from integer type.

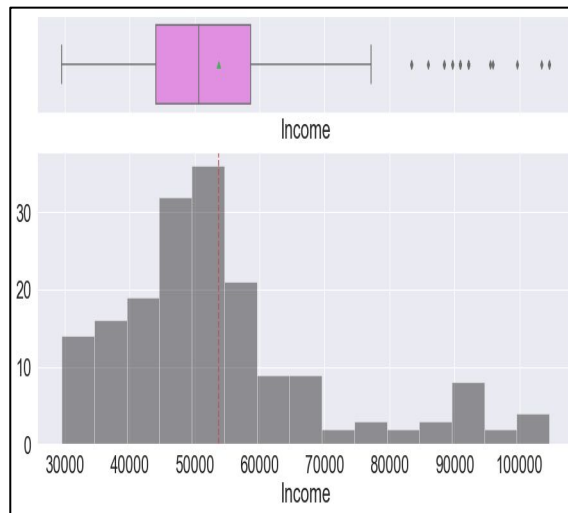
# Exploratory Data Analysis – Age, Income & Miles

Age



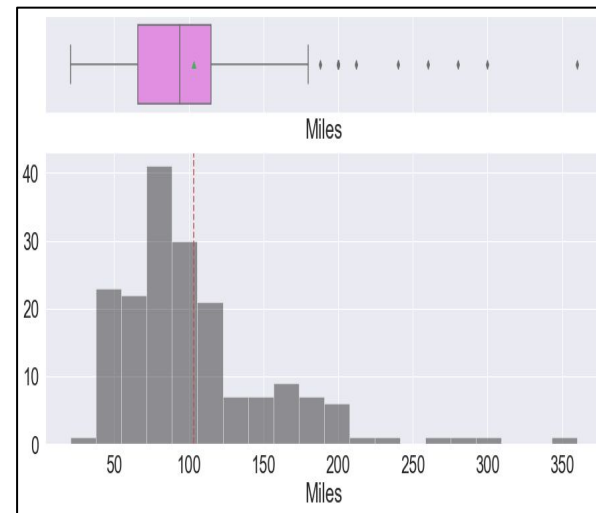
- The distribution of Age is right skewed.
- There are a outliers in this variable.
- From boxplot we can see that the third quartile(Q3) is equal to 33 which means 75% of customers are below the age of 33.

Income



- Mean income of customers who bought treadmill is around 55000.
- Income is right skewed.
- It has many outliers towards the higher end.

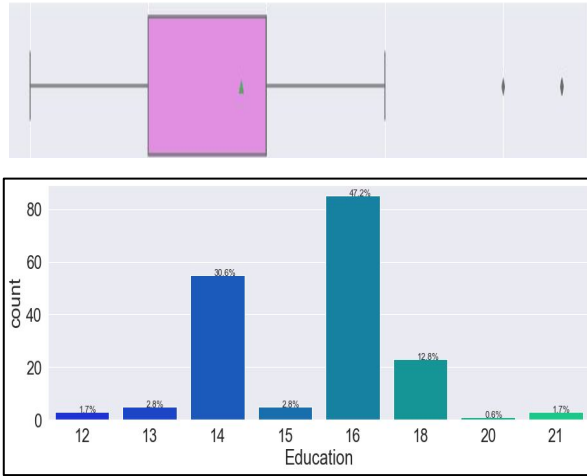
Miles



- Most customers expect to run 100 miles per week.
- Miles run is right skewed
- There are outliers present, some customers expect to run more than 200 miles per week,.

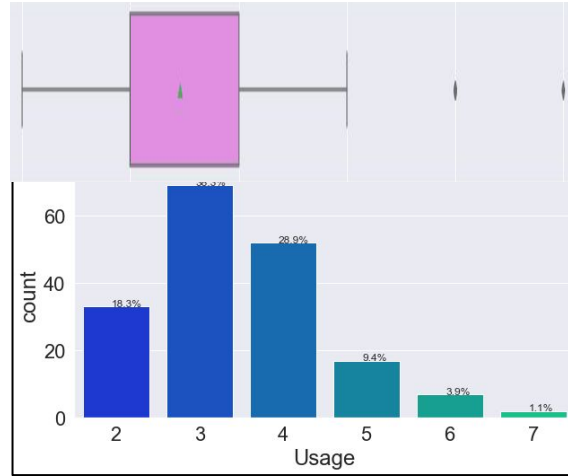
# Exploratory Data Analysis - Education, Usage & Fitness

Education



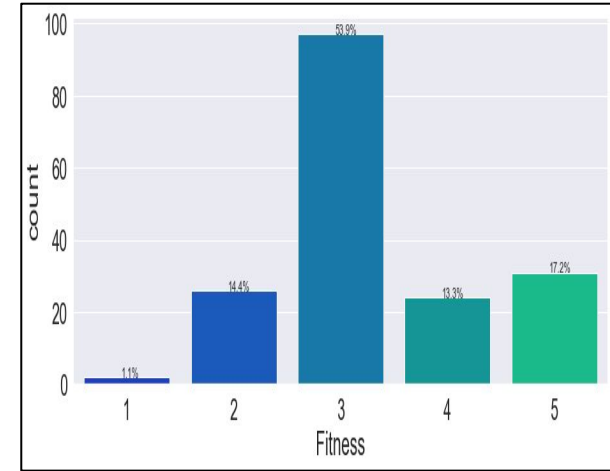
- Mean education for customers is 15.5 years
- There are a few outliers present in data (customers who have education of more than 18 years)
- 47.2% of customers have 16 years of education, followed by 14 years of education(30.6%).

Usage



- Customers want to use the treadmills 3-4 times a week on an average, with outliers who wish to use treadmills 6-7 times a week.
- 38.3% of customers wish to use the product 3 times a week followed by 28.9% customers using product 4 times a week.

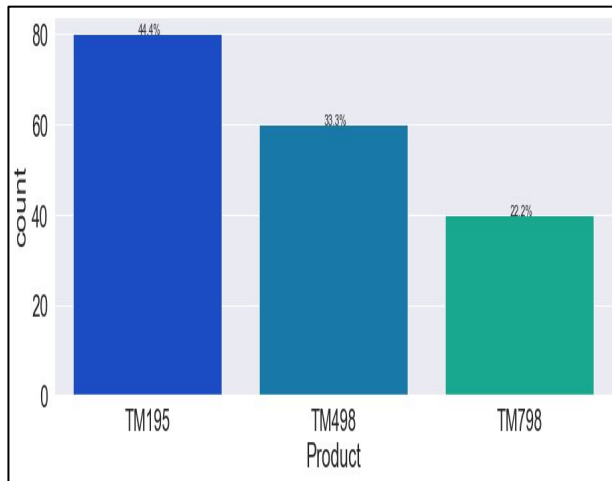
Fitness



- 53.9% of the customers have rated them at 3 on a scale of 5 (1 being the least fit and 5 being the most fit), followed by 5 rating (17.2%).

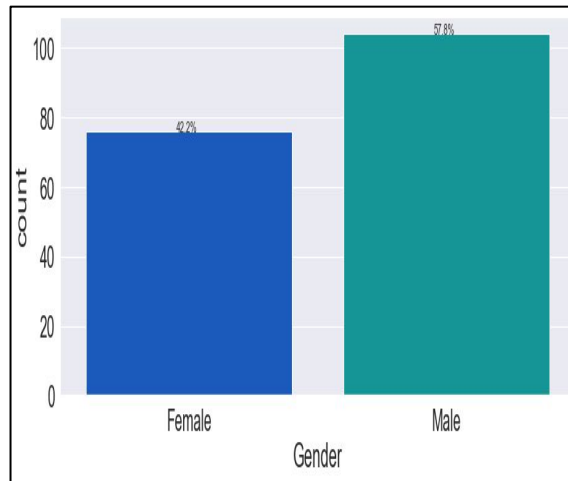
# Exploratory Data Analysis - Product, Gender & Marital Status

Product



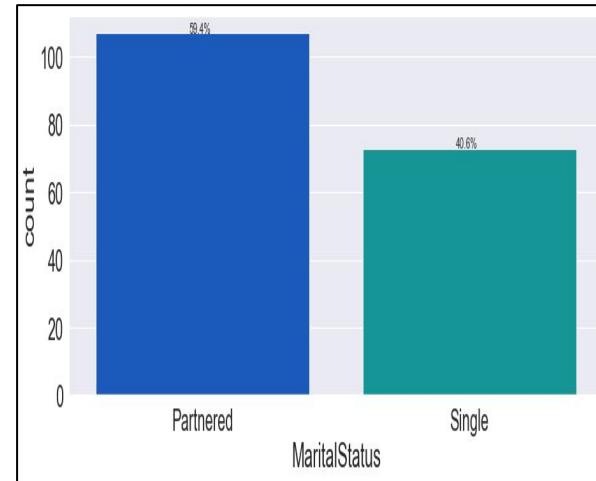
- Highest selling product is TM195 (44.4%), followed by TM498 (33.3%) and TM798 (22.2%)

Gender



- There are more males customers (57.8%) than females (42.2%)

Marital Status



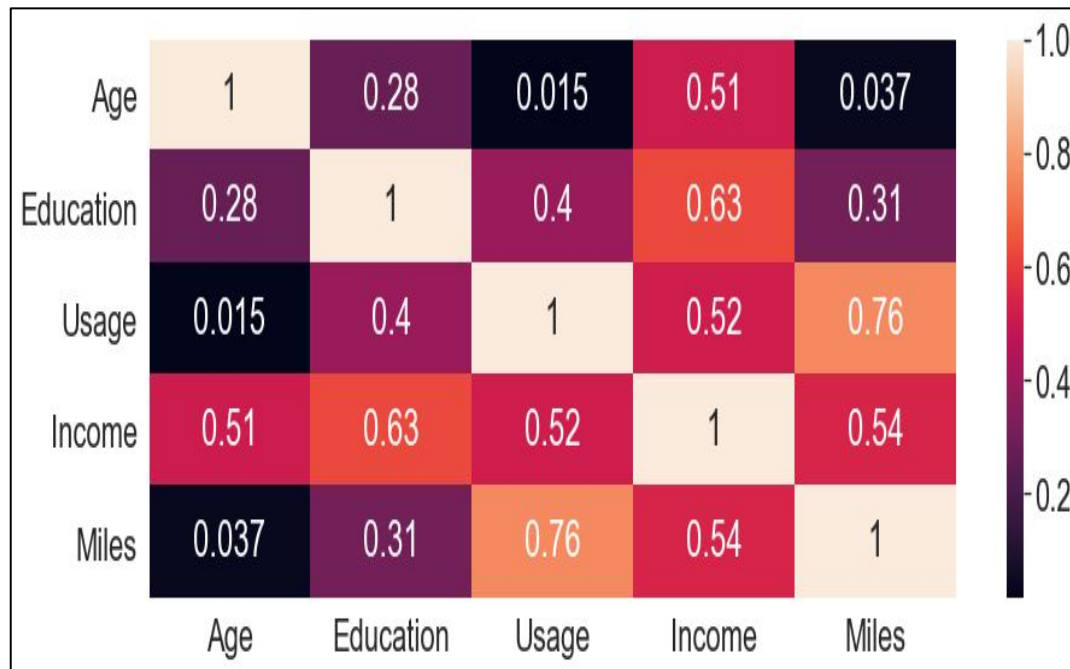
- 40.6% of customers are single while 59.4% of customers have a partner.

# Exploratory Data Analysis - Correlation matrix

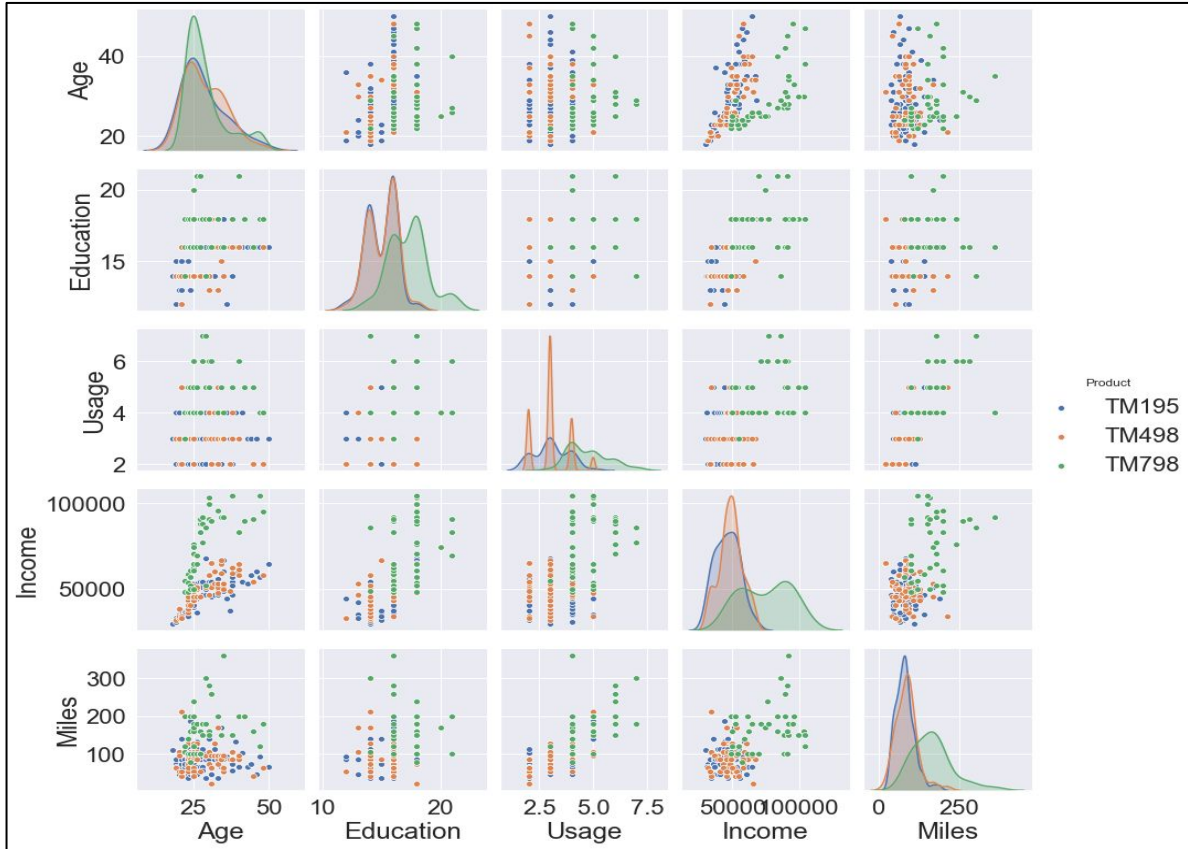
## Observations:

- Miles is highly correlated with usage, a customer running more miles would mean he is also using the treadmill more.
- Education and Income has a positive correlation, indicating higher the education higher would be the income.
- Income shows a positive correlation with Age , Usage, and Miles.
- A positive correlation between age and income is expected but a high positive correlation of income with usage and miles should be investigated further.

Correlation matrix



# Exploratory Data Analysis – Pairplot



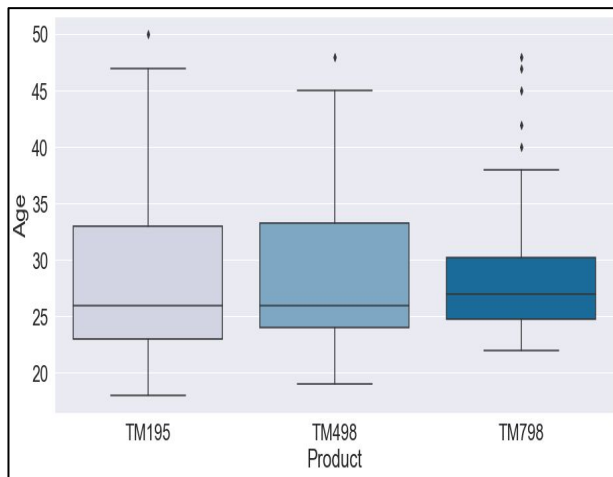
## Observations:

- We can see varying distributions in variables for different products, we should investigate it further.



# Exploratory Data Analysis – Products with Age, Income & Miles

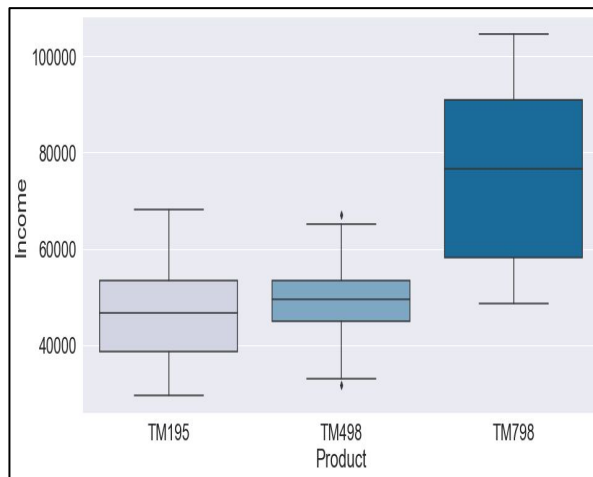
Products vs Age



## Observations:

- TM195 and TM498 are preferred by customers of all ages but for TM798 customers are in the range of above 22 and below 38 (but there are some outliers)

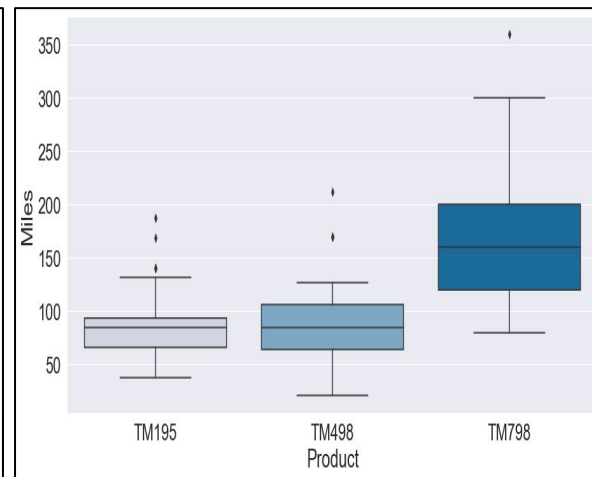
Products vs Income



## Observations:

- Customers with higher income prefer TM798, whereas TM195 and TM498 are preferred by middle income customers.

Products vs Miles

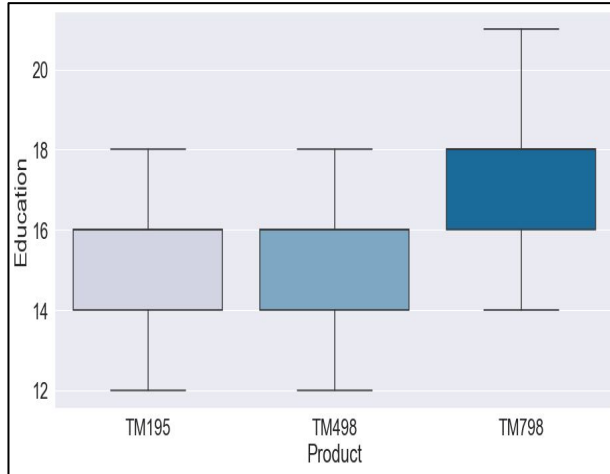


## Observations:

- Customers who expect to run higher miles go for TM798.

# Exploratory Data Analysis – Products with Education, Usage & Fitness

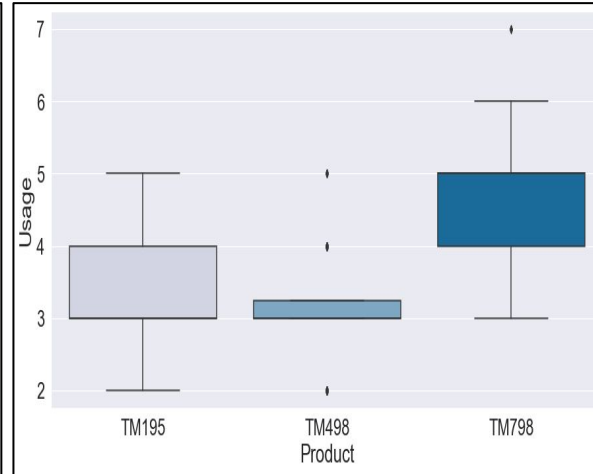
Products vs Education



## Observations:

Customers buying TM798 have higher education as compared to the customers buying the other two other products

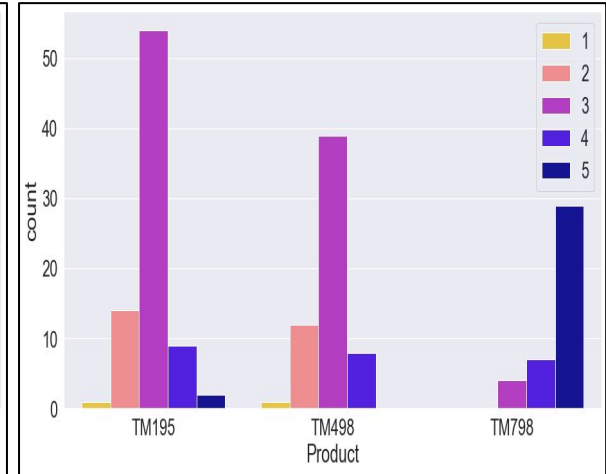
Products vs Usage



## Observations:

Customers who have higher expected treadmill usage(greater than 3 days) prefer the TM798 product, Customers with very light(2-3 days) usage prefer TM498, customers who have moderate usage (greater than 2 days but less than or equal to 5 days) prefer TM195.

Products vs Fitness

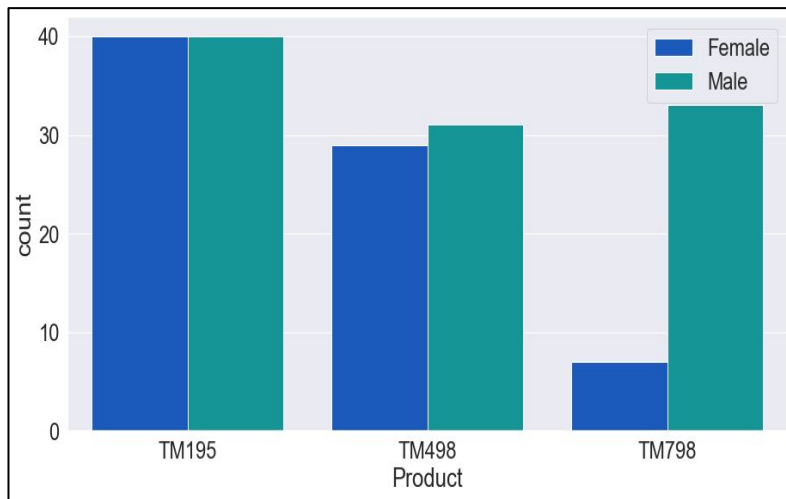


## Observations:

Customers who purchased TM195 and TM498 gave themselves a balanced fitness rating of 3 (on a scale of 5, 1 being the least fit and 5 being the most fit), but for TM798 most of customers have rated themselves higher in fitness that is 5.

# Exploratory Data Analysis – Products with Gender & Marital Status

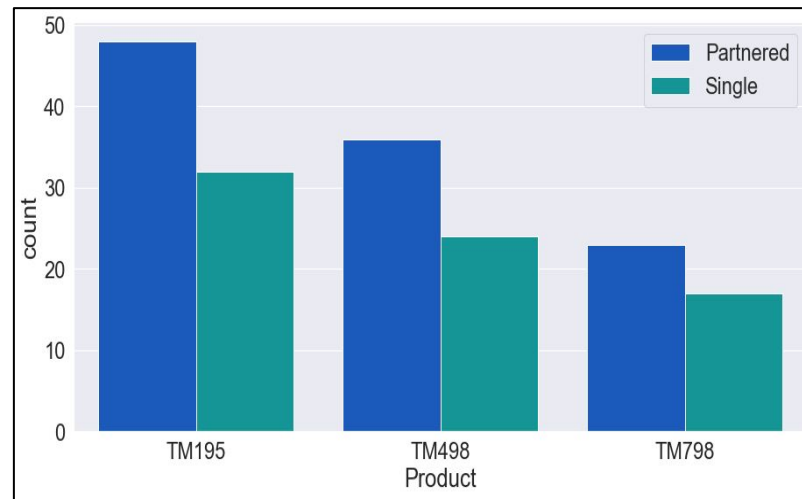
Products vs Gender



## Observations:

- TM798 has been bought more by the male customers as compared to the female customers, for TM195 and TM498 there is equal distribution among genders

Products vs Marital Status



## Observations:

- All the products are couple/partner friendly.
- Couples/partnered customers have a higher chance of buying a product when compared to single customers

# Customer Profiles

## TM195 Customer:

- The TM195 customer is our regular customer (since this product is sold more than others).
- Early 20's to early 30's.
- 12-18 years of education
- Income between 40K and 50K
- Plans to use treadmill three to four times per week for light usage.
- Has an average fitness level (rated 3)

## TM498 customer:

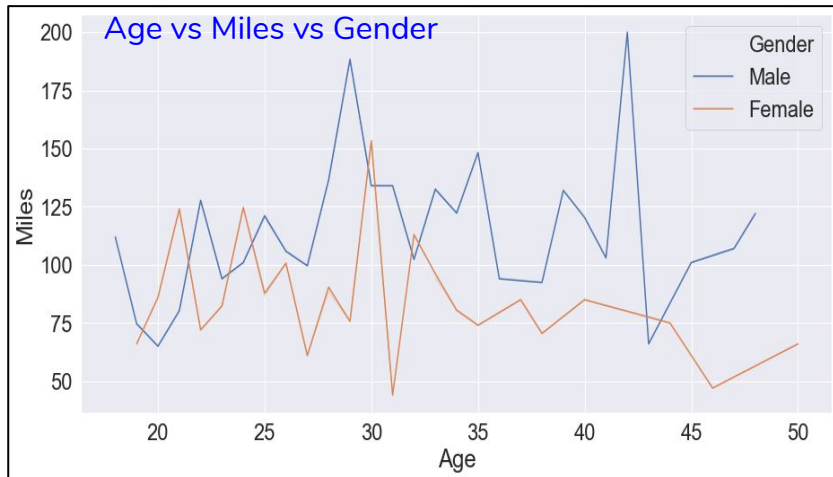
- The TM498 customers is similar to the TM195 customer in most aspects. The differences are that these customers have a slightly higher annual income, a narrower usage, and a broader expectation of Miles to run each week.
- With such a specific usage anticipation it is likely the TM498 customer is a working adult with a fixed or busy schedule (since these customers only tend to use the treadmill 3 times a week)
- Adult in their mid 20's to early 30's
- 12-18 years of education.
- Income around 50K.
- Plans to use treadmill three days a week for a light to moderate amount.
- Has an average fitness level.

## TM798 Customer:

- The TM798 model attracts a specific customer. In stark contrast to models T498 and T195, the T798 customer is predominantly male, highly educated and has higher salary
- Generally preferred by Males in late 20's.
- Highly Educated.
- High income earner.
- Plans to use treadmill 4-5 days a week, running 160 miles on an average..
- Considers themselves very fit.

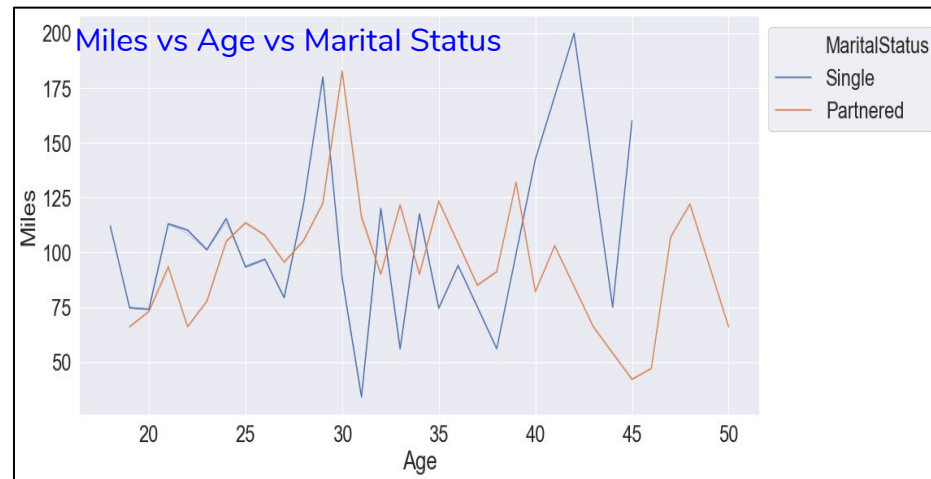
# Customer Segmentation

This will help us to understand and cater needs of customers better based on their gender, marital status, Age etc.



## Observations:

- With the increase in age the average expected miles to run decreases in females, whereas for males it shows an increasing and decreasing trend.
- As the age increases above 25, males expect to run more miles than females
- After 30 there is a sharp decrease in the Average miles a female expects to run.

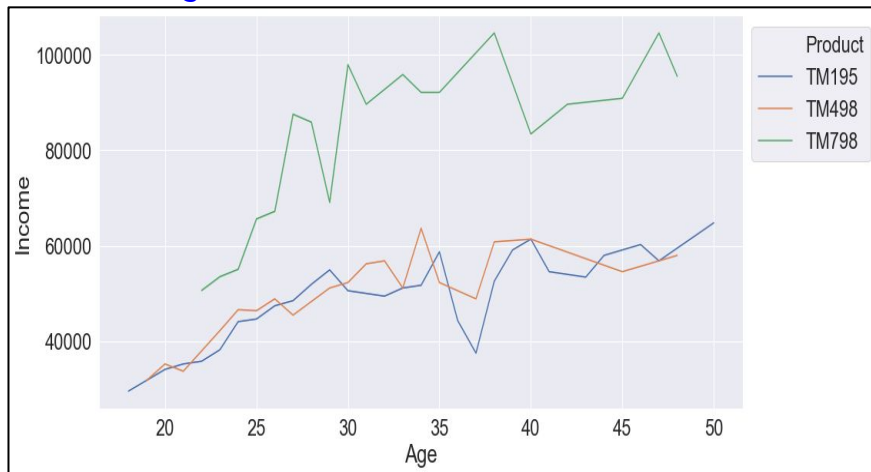


## Observations:

- The trend is mostly similar across younger years for a single or a customer with a partner, however after 40 years singles tend to work more on their fitness.

# Customer Segmentation

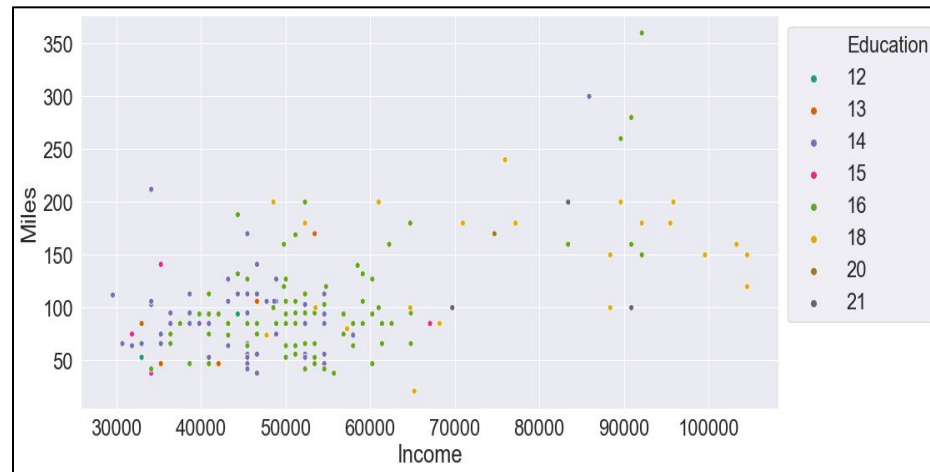
Age vs Income Vs Product



## Observations:

- TM195 and TM498 have similar income group customers [30k-60k] for all age groups but TM798 is purchased by higher income [greater than 60k] customers only for all age groups.

Income vs Miles vs Education

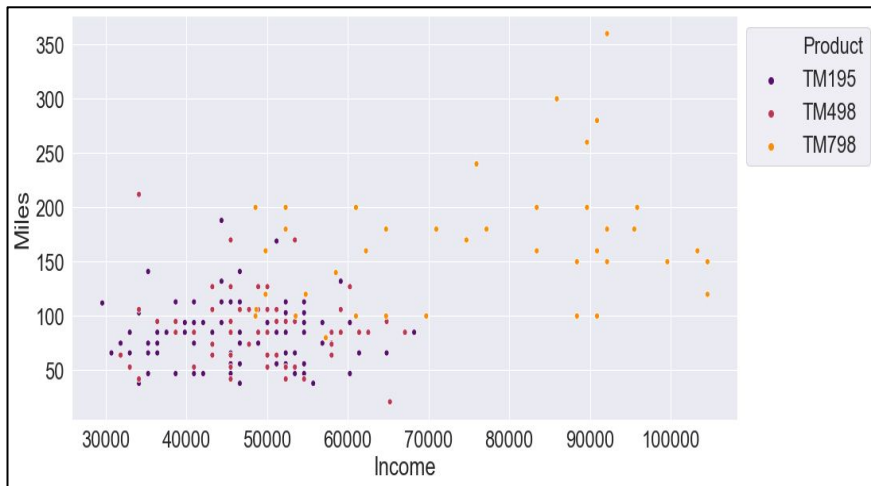


## Observations:

- Customers having an income of more than 70k have 18-21 years of education and expect to run 100-200 miles a week.

# Customer Segmentation

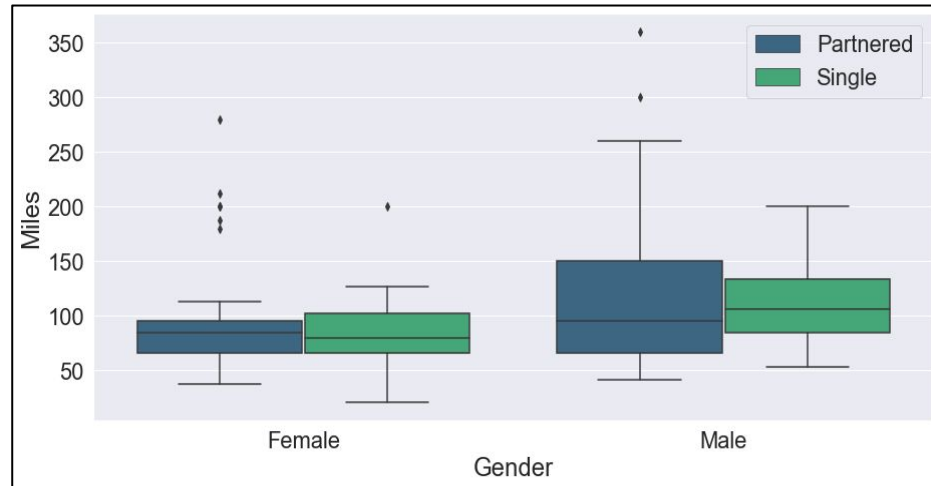
Income vs Miles vs Product



## Observations:

- Customers having an income of more than 70k tend to buy TM798 and run more miles.

Gender vs Miles vs Marital Status



## Observations:

- Single and Partnered male expect to run more miles, while not much difference can be noticed between Single or Partnered females.

# Conclusion

After all the analysis, we have been able to can conclude that

## TM195:

- An affordable and general-purpose treadmill that can be used for a wide range of users.
- It can be considered as an entry-level product generally targeted for first-time fitness enthusiasts or college-going population.
- Customers with light to moderate usage 3 to 4 times a week go for this product.

## TM495:

- An affordable product like the TM195 with more features and probably has a high price than TM195.
- The product also generally targets the same age group as the TM195 but has users of slightly higher income.
- The product is used generally 3 times per week.

## TM798:

- A top of the range treadmill with plenty of features that excite the fitness enthusiasts.
- It has a higher price point and probably the flagship product of the company.
- The buyers of the product are core users that rate themselves very highly on the fitness score as evident from the usage and expected miles to run.
- The buyers in this segment are more educated, have an income(greater than 60k) more than the other two treadmill users, and take their fitness very seriously.
- Male customers prefer this product more than females.



# Recommendations

Based on the analysis, there are following recommendations that can help the business grow:

- The company has an affordable product in its portfolio that brings in the bulk of the volume of its sales, which is the TM195. The TM798 is their flagship product that brings in the profits for the company.
- The company needs to engage in more marketing to convey that product TM798 is suitable for both the genders and try to lure the younger age group into buying their flagship product. Currently, it seems TM798 is marketed as an exclusive product for the males making more money as there is a large disparity in income for both genders.
- Years of education are proportionate to income, and so customers with higher education can be recommended an expensive model(TM798).
- Females above 30 years can be recommended the lower end products(TM195 and TM498) since they wish to run a fewer number of miles and therefore the usage of the product won't be higher.
- Partnered Females can be recommended all types of products (low end to high end) since their usage varies from 2 days per week to 6 days per week.
- Singles above 40 years can be recommended the higher end product(TM798) since they wish to run more miles and therefore the usage would be higher.
- Partnered males have a higher income and also expect to run more miles hence the higher end product TM798 would be a good recommendation for them.

**greatlearning**  
*Power Ahead*

