Cardio Good Fitness Project

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Content

1. Executive Summary

Background

- Cardio Good Fitness is a retail store which sells treadmill products.
- Data of customers who have purchased treadmills has been provided for analysis.

Purpose

- Perform uni-variate and multi-variate analysis of the data provided.
- Obtain profile of customers of different treadmill products.
- Provide insights and recommendations to help the company target new customers.

Recommendations Summary

Generic

- Target customers who are a) 40 years and above and b) high income customers (>90k).
- If the self rating of fitness is accurate, there should be targeted marketing for getting lesser fit (<3) and very fit (>4) customers.

Product

- TM798- Lowest sales and has a very niche customer segment. There needs to be focus on increasing this customer base by targeting new customer types to increase volume.
- TM498- Target customers who needs a reminder to start with a low usage by marketing in recreational centres, malls and super markets.
- TM195- Target getting more younger customers who wants to stay fit irrespective of the weather and busy schedules, but has a limited budget as most of them might be starting their career with a small income.

Pricing and Payment

- Check price sensitivity to amend price to increase volume by targeting average and lower income customers provided bottom line is not impacted.
- Instalment payments can be seen as a way of attracting more low to average income customers who might also use the regular payment as a motivation for regular treadmill usage.

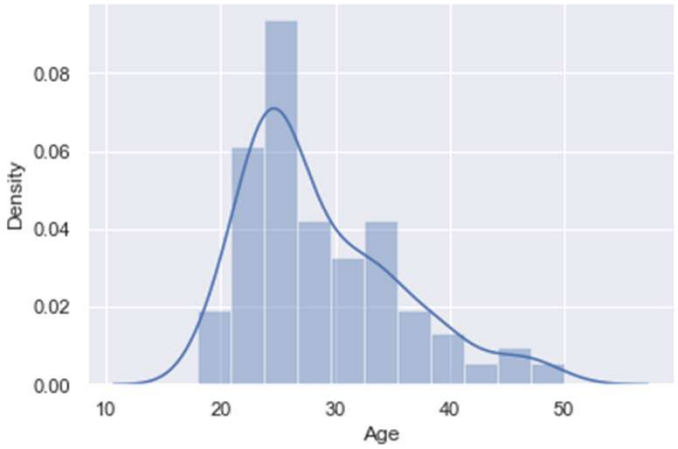
2. Dataset Information

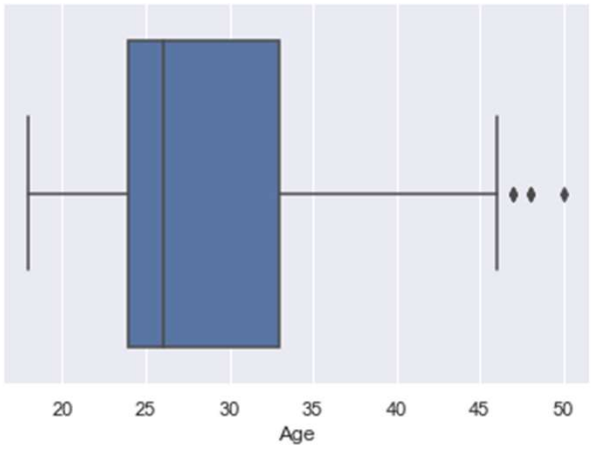
- There are 180 samples
- Each sample has 9 attributes which are given below
- There is no null value in the dataset

Attribute	Description	Type
Age	Age of the customer in years	Integer
Education	No. of years of education of customer	Integer
Usage	Avg. # times the customer wants to use the treadmill every week	Integer
Fitness	Self rated fitness score of the customer (5 - very fit, 1 - very unfit)	Integer
Income	Customer income	Integer
Miles	Distance expected to be run by customer	Integer
Product	Model no. of the treadmill	Object
Gender	Customer gender	Object
Marital Status	Customer marital status	Object

3.1 Univariate Analysis (I/IV)

AGE

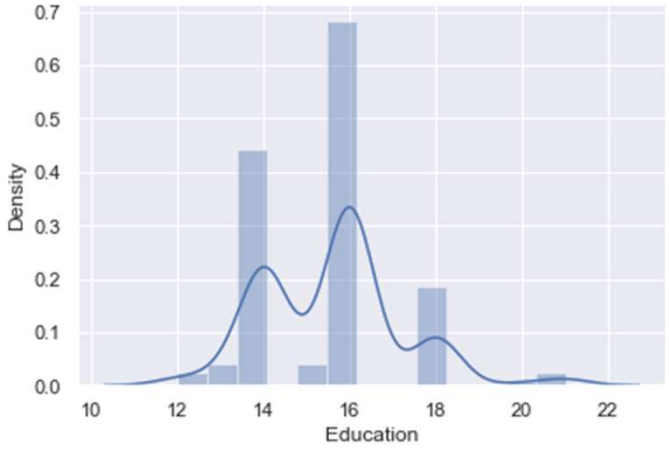


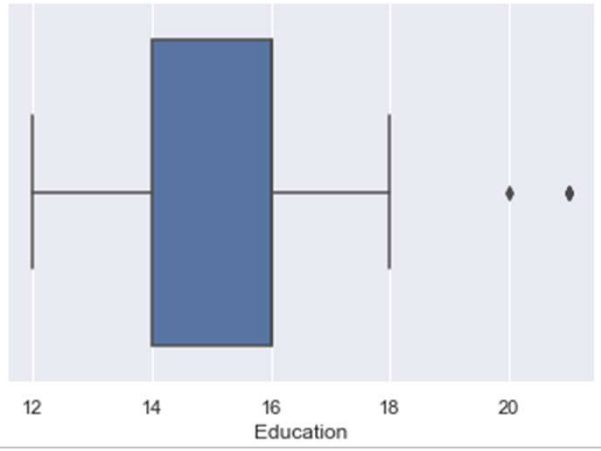


count	180.0
mean	28.8
std	6.9
min	18.0
25%	24.0
50%	26.0
75%	33.0
max	50.0
mode	25.0
IQR	9.0
range	32.0
Coeff. of variance	24%

- 75% of the customers are between 24 and 33 years old, and most bought by 25 year old.
- Right skewed data with a range of 32 years and coeff. of variation of 24%
- There are three outlier values above upper whisker of 46.5 with a max age of 50 years

EDUCATION



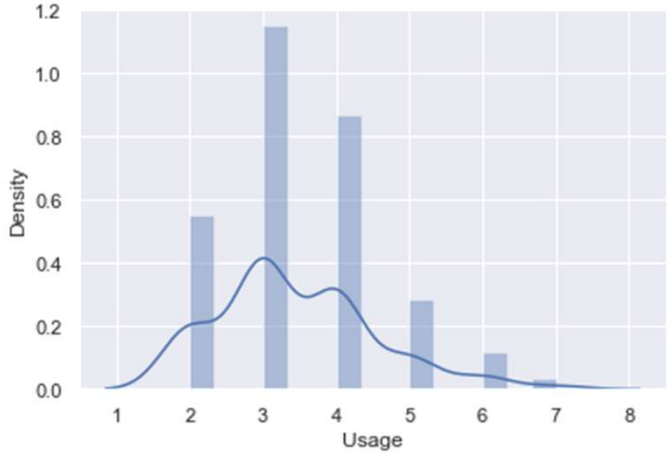


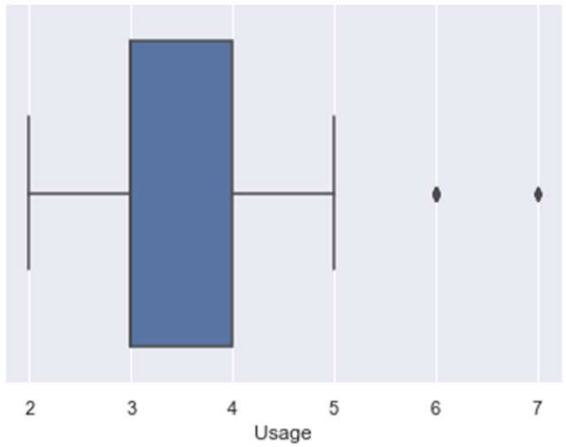
count	180.0
mean	15.6
std	1.6
min	12.0
25%	14.0
50%	16.0
75%	16.0
max	21.0
mode	16.0
IQR	2.0
range	9.0
Coeff. of variance	10%

- 75% of the customers have 14 to 16 years of education, and most customers with 16 years of education.
- No notable skewing (mean and median very close) with range of 9 years of education and coeff. of variation of 10%
- There are two outlier values above upper whisker of 18 with a max education of 21 years.

3.1 Univariate Analysis (II/IV)

USAGE

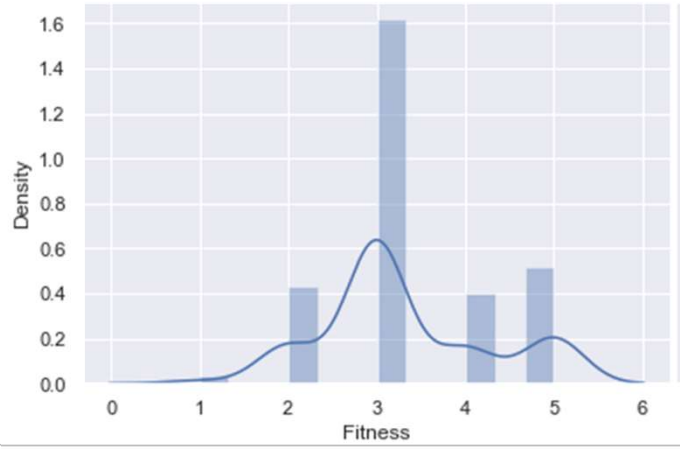


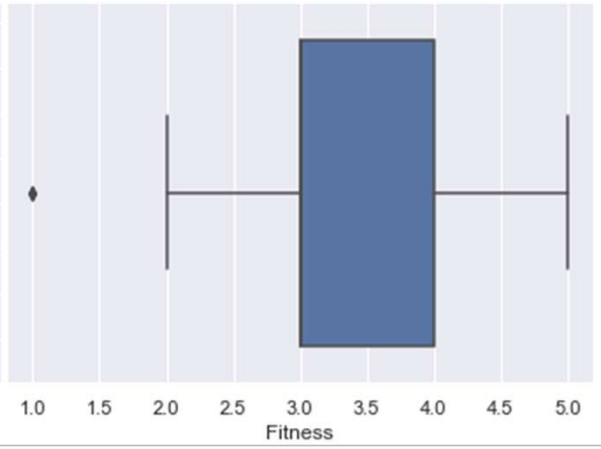


count	180.0
mean	3.5
std	1.1
min	2.0
25%	3.0
50%	3.0
75%	4.0
max	7.0
mode	3.0
IQR	1.0
range	5.0
Coeff. of variance	31%

- 75% of the customers plans to use 3 or 4 times a week, and most of them 3 times a week.
- Right skewed data. Reasonable spread with range of 5, but std. deviation and IQR of 1.
- There are two outlier values of 6 and 7 times a week.

FITNESS



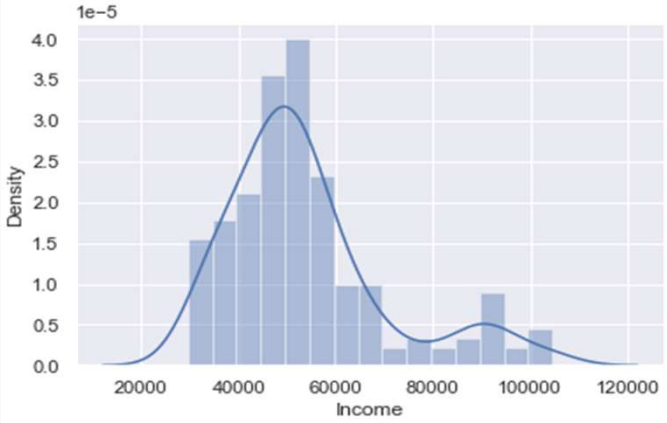


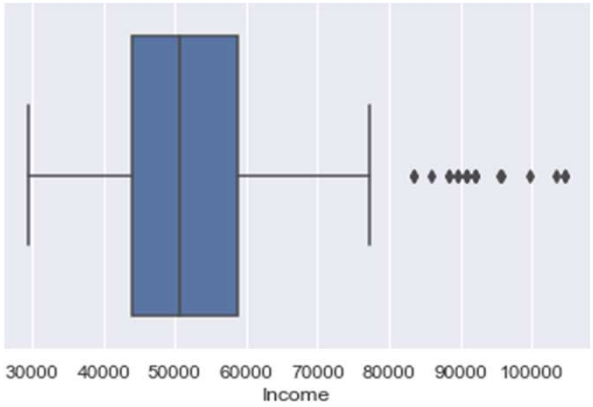
count	180.0
mean	3.3
std	1.0
min	1.0
25%	3.0
50%	3.0
75%	4.0
max	5.0
mode	3.0
IQR	1.0
range	4.0
Coeff. of variance	29%

- 75% of the customers rate their fitness between 3 and 4.
- Slightly right skewed with large spread- range of 4 and coeff. of variation of 29%
- There is one outlier with rating as 1.

3.1 Univariate Analysis (III/IV)

INCOME

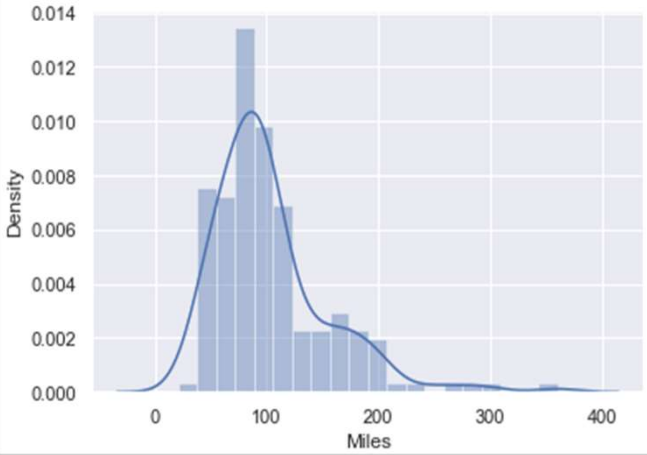


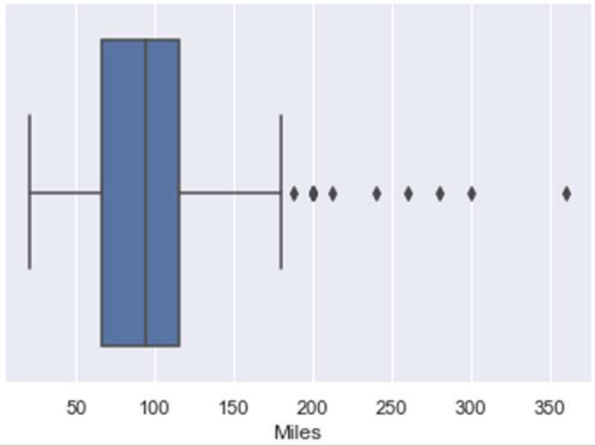


count	180.0
mean	53,719.6
std	16,506.7
min	29,562.0
25%	44,058.8
50%	50,596.5
75%	58,668.0
max	104,581.0
mode	45,480.0
IQR	14,609.3
range	75,019.0
Coeff. of variance	31%

- 50% of the people has income less than 50k and 75% between $44k and 58k.
- Right skewed data. Large spread of 75k, with IQR of $14k.
- 10 outliers with income above 80k.

MILES



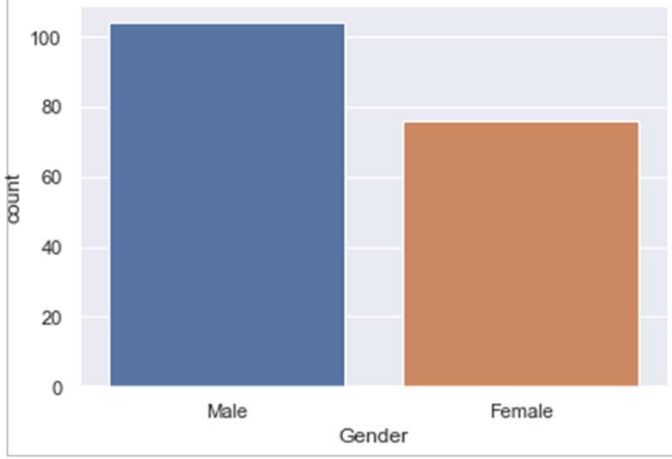


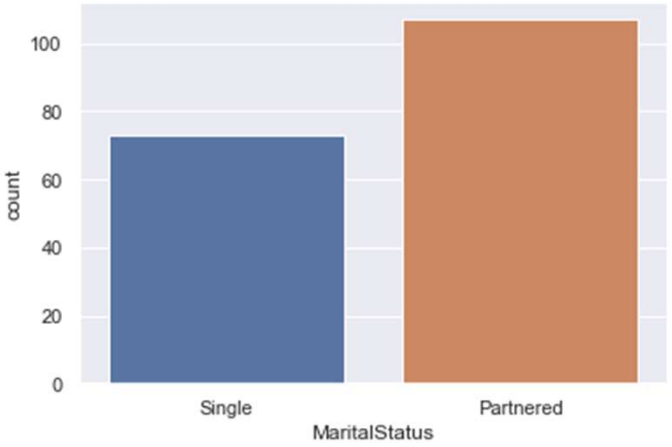
count	180.0
mean	103.2
std	51.9
min	21.0
25%	66.0
50%	94.0
75%	114.8
max	360.0
mode	85.0
IQR	48.8
range	339.0
Coeff. of variance	50%

- 75% of the customers expect to run between 66 and 115 miles.
- Right skewed with large spread-range of 339 and coeff. of variation of 50%
- There are eight outliers above upper whisker.

3.1 Univariate Analysis (IV/IV)

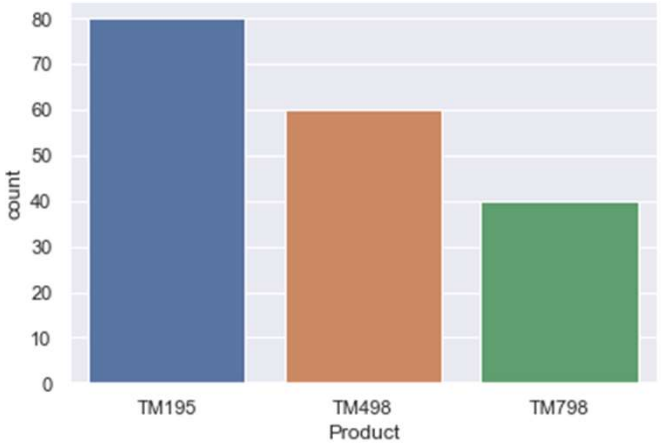
GENDER & Marital Status





- More men buy the treadmill than women.
- More married customers buy than single.

PRODUCT



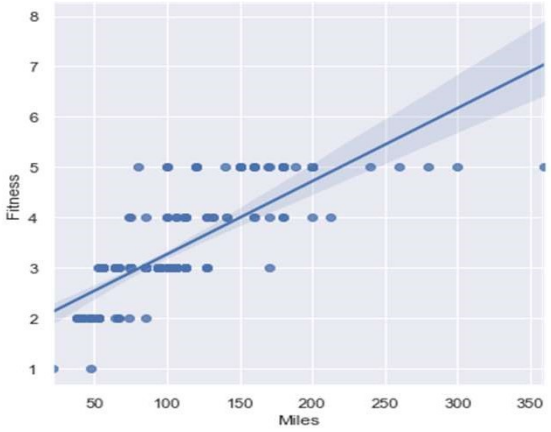
- There are three products- TM195, TM498, TM798
- TM195 is the most popular followed by TM498 and TM798
- TM195 sells around double that of TM798

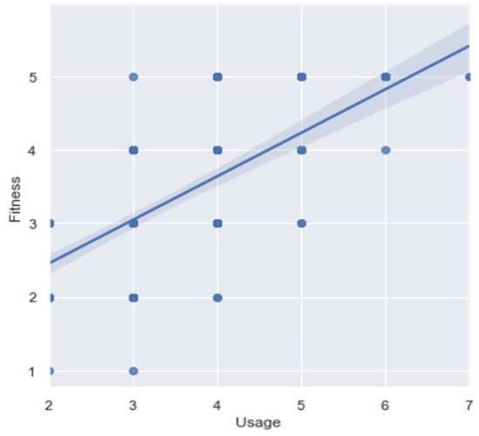
3.2 Multivariate Analysis (I/II)

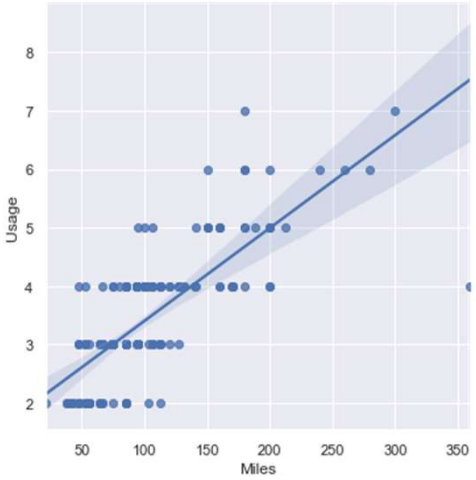
HEATMAP

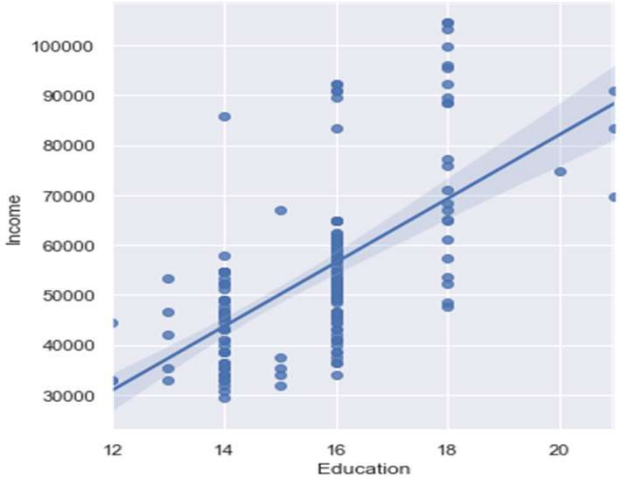
- Age is not highly corelated to any other variable
- As self rated fitness of customer increases, the expected usage and miles goes up
- Miles goes up as usage goes up
- Income goes up as education goes up.

LINEAR REGRESSION

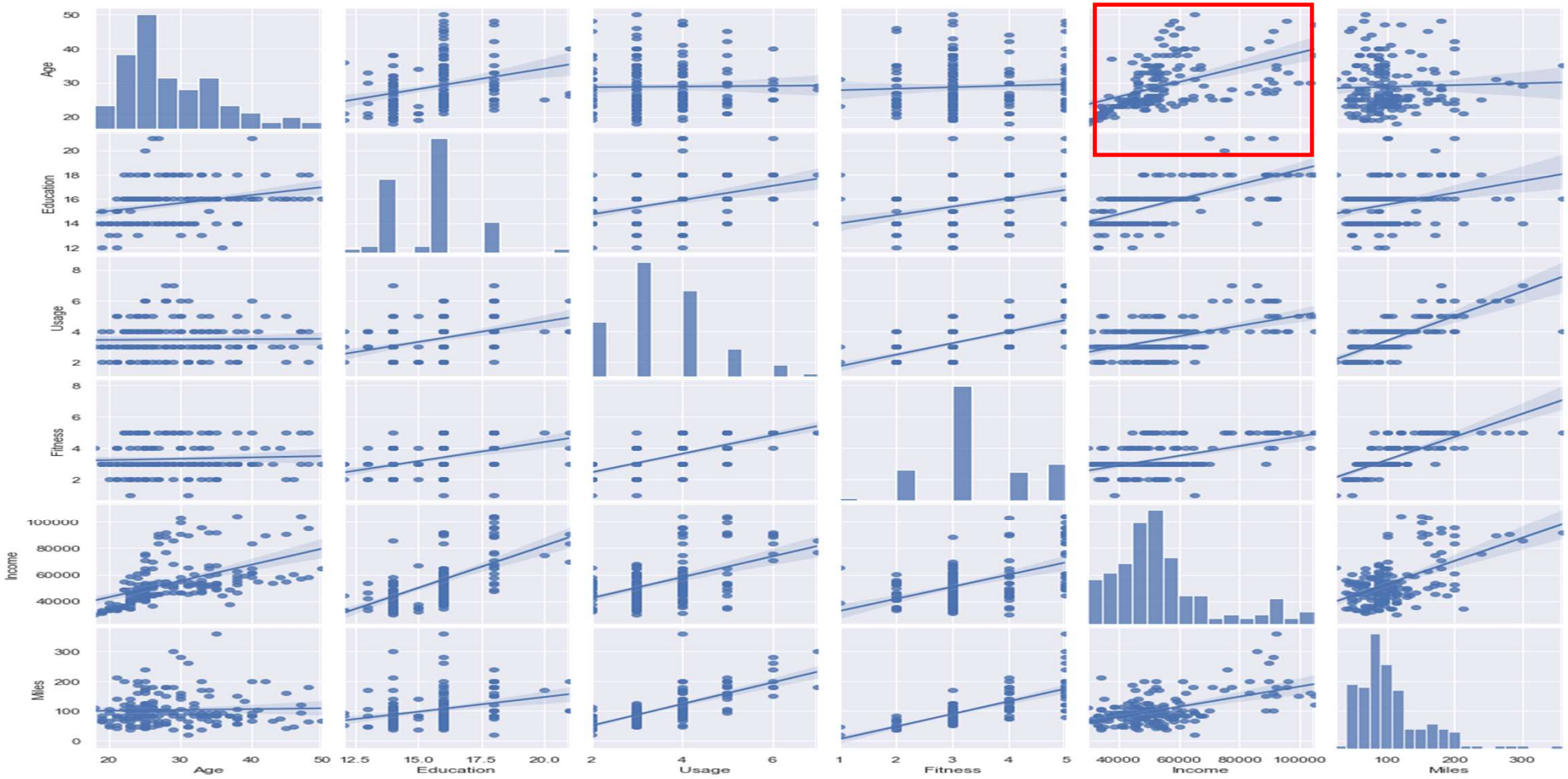






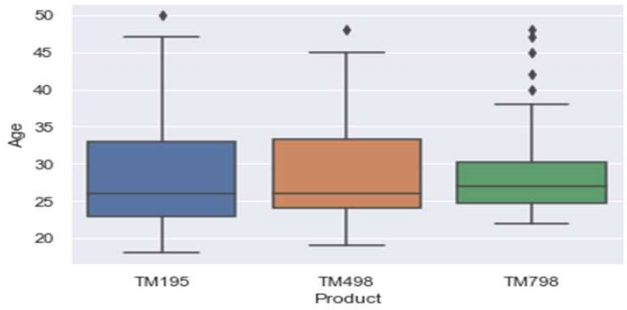


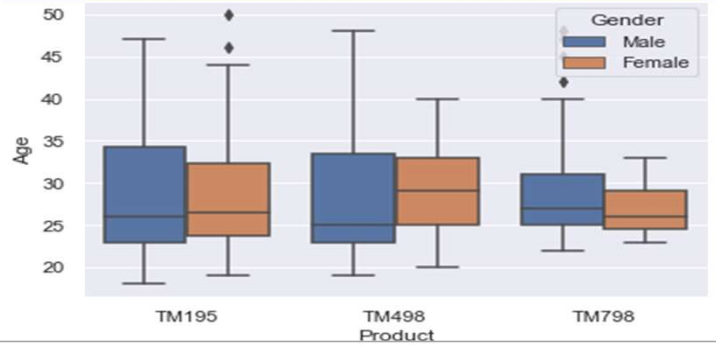
3.2 Multivariate Analysis (II/II)

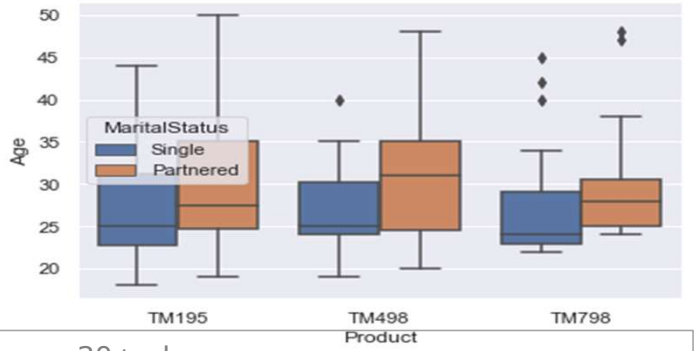


- There are young customers with high income

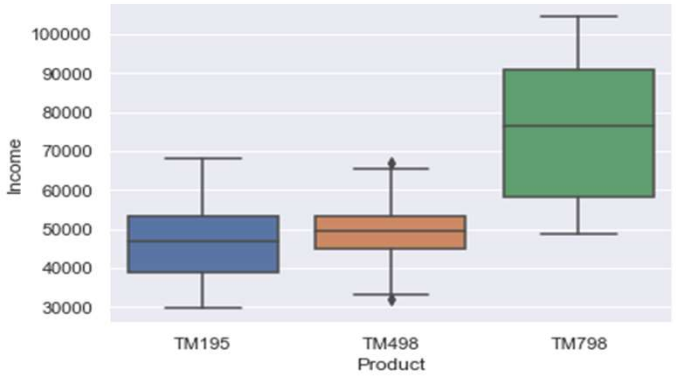
3.3 Product Analysis against variables (Age and Income)

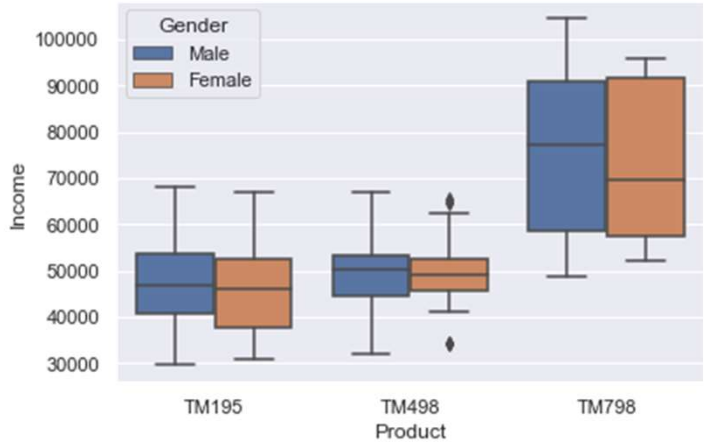


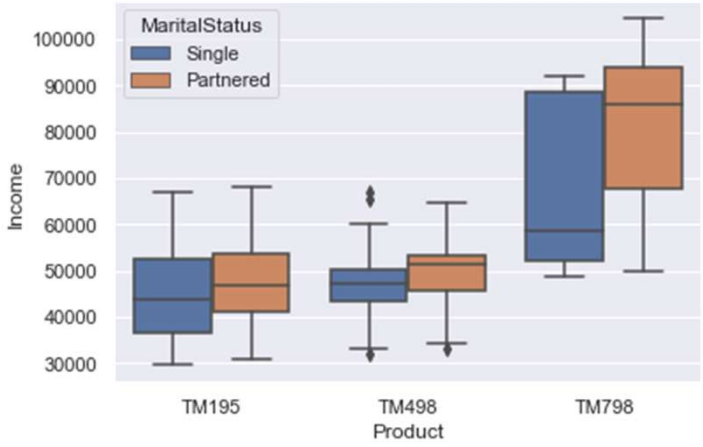




- TM798 used mostly by younger customers within 25 and 30 years. Other products used by many 30+ also.
- TM195 used by slightly younger people (less than 25) also
- TM 498 preferred by older married females compared to TM195.
- For all products, married customers are older than single customers.

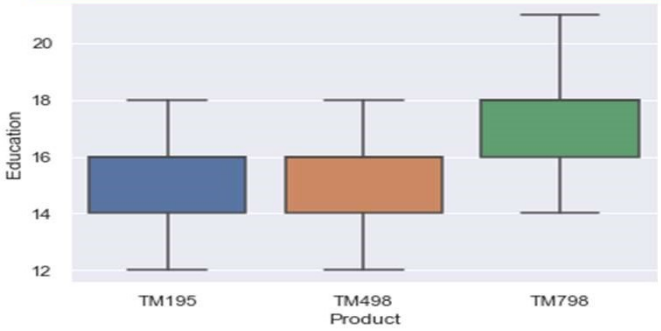


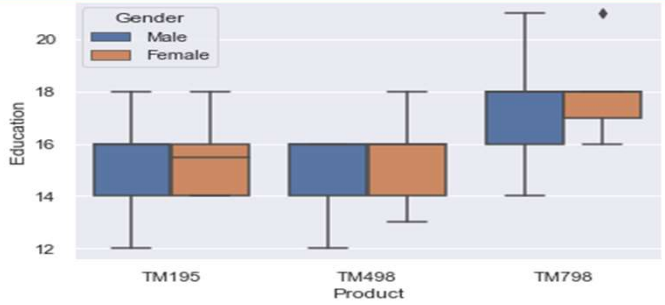


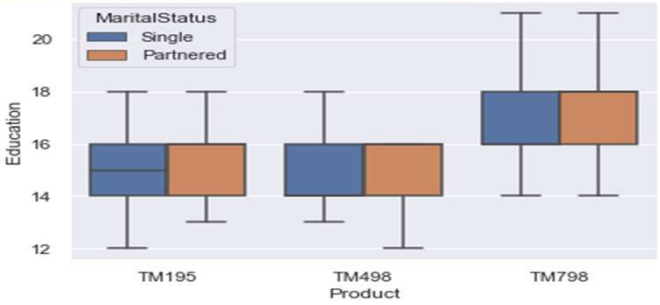


- TM798 used by higher income (>60k), and other two products by <55k. TM198 used by lower income
- Female customer of all products earn less than males.
- For all products, avg. incomes of married customers higher than singles.

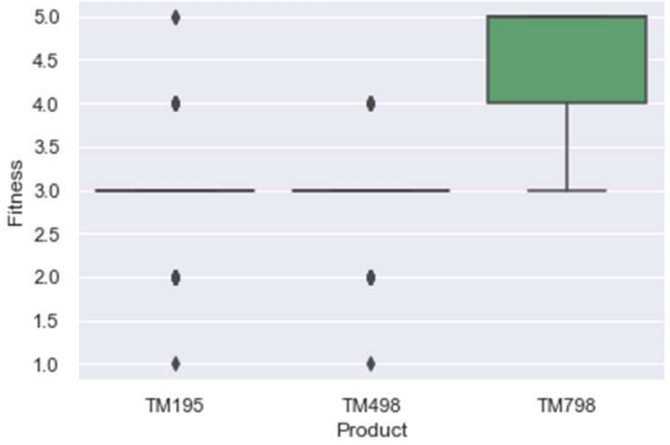
3.3 Product Analysis against variables (Education and Fitness)

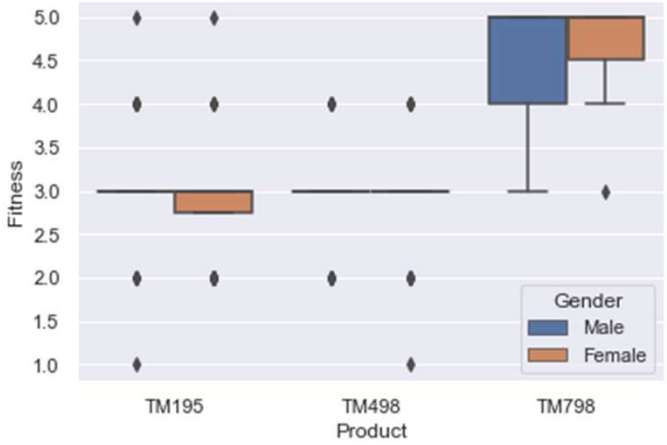


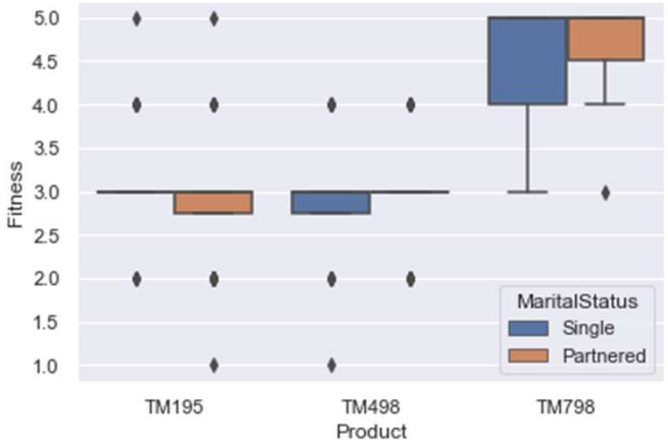




- Most educated (16 years+) use TM798 which might be the reflection of higher income.
- Other two products bought by customers with 14-16 years of education.

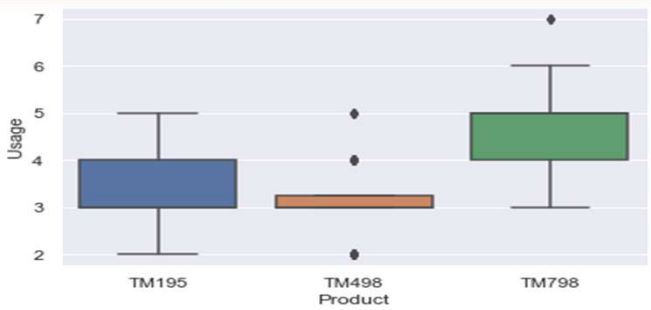


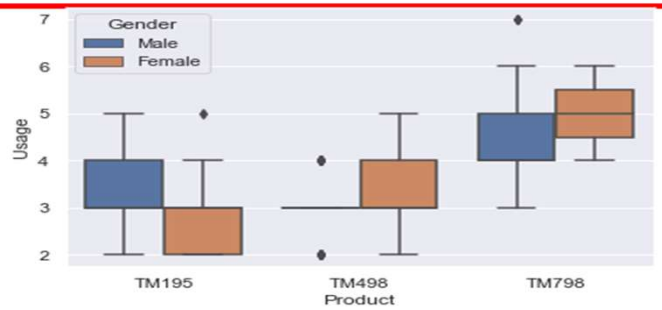


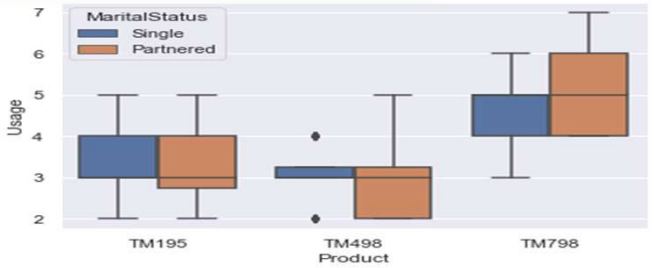


- People who rate themselves as fittest, use TM798 and might be because it is mostly used by younger customers
- Married customers, especially women customers of TM798 rate them fitter than singles/males.
- Customers of TM195 and TM498 consider them to be average fit.

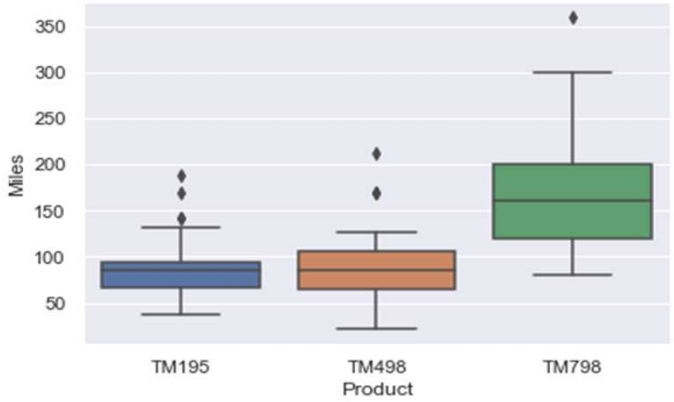
3.3 Product Analysis against variables (Usage and Miles)

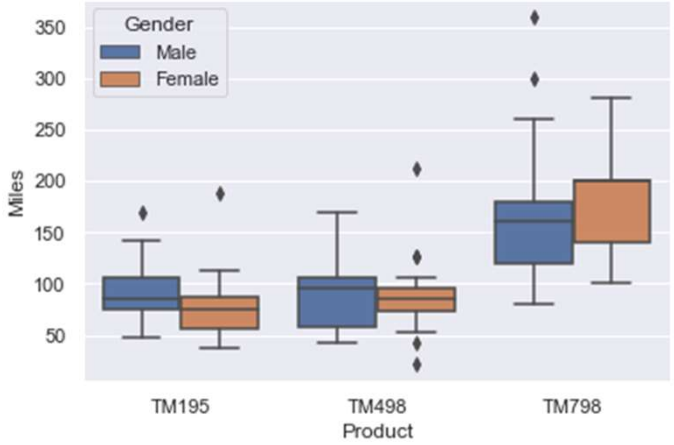


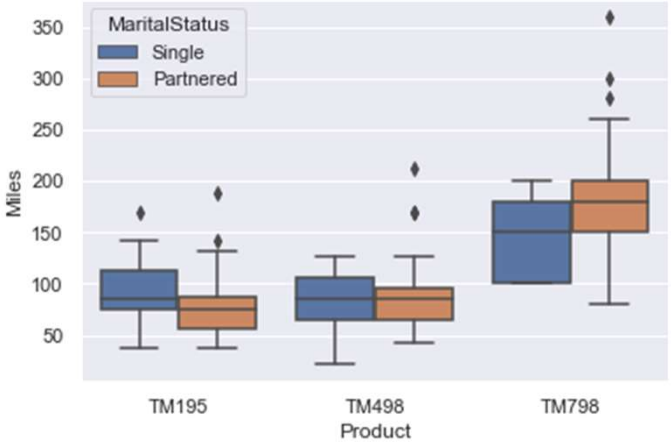




- Highest usage by TM798 users followed by TM195. TM498 has least usage.
- Females expect to use more than male customers of TM798 and TM498. It is the other way round for TM195
- Married customers of TM798 expected to use more than singles. Married customers use same or below singles for other two products.

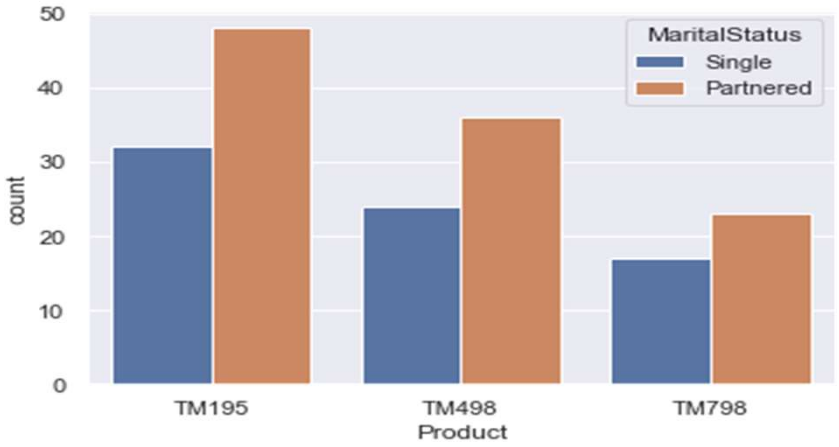




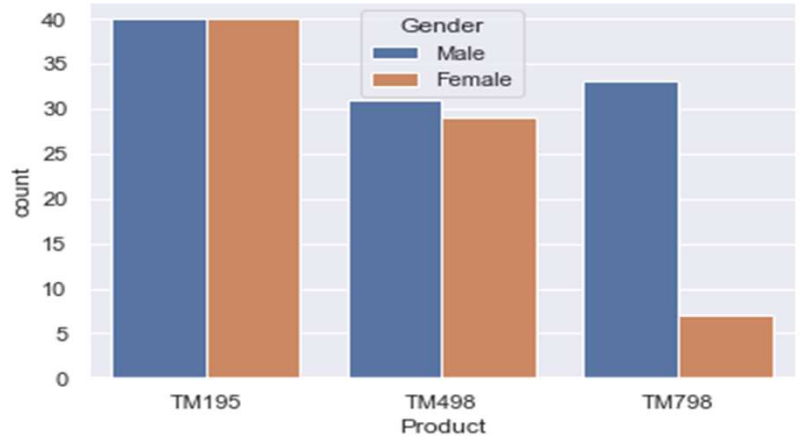


- TM798 users expected to do 100 miles+ which is much higher than customers of other two
- Females expect to do more miles than male customers of TM798. It is the other way round for TM195 and TM498.
- Married customers of TM798 expected to use more than singles. Married customers use same or below singles for other two products.

3.3 Product Analysis (Gender and Marital Status)

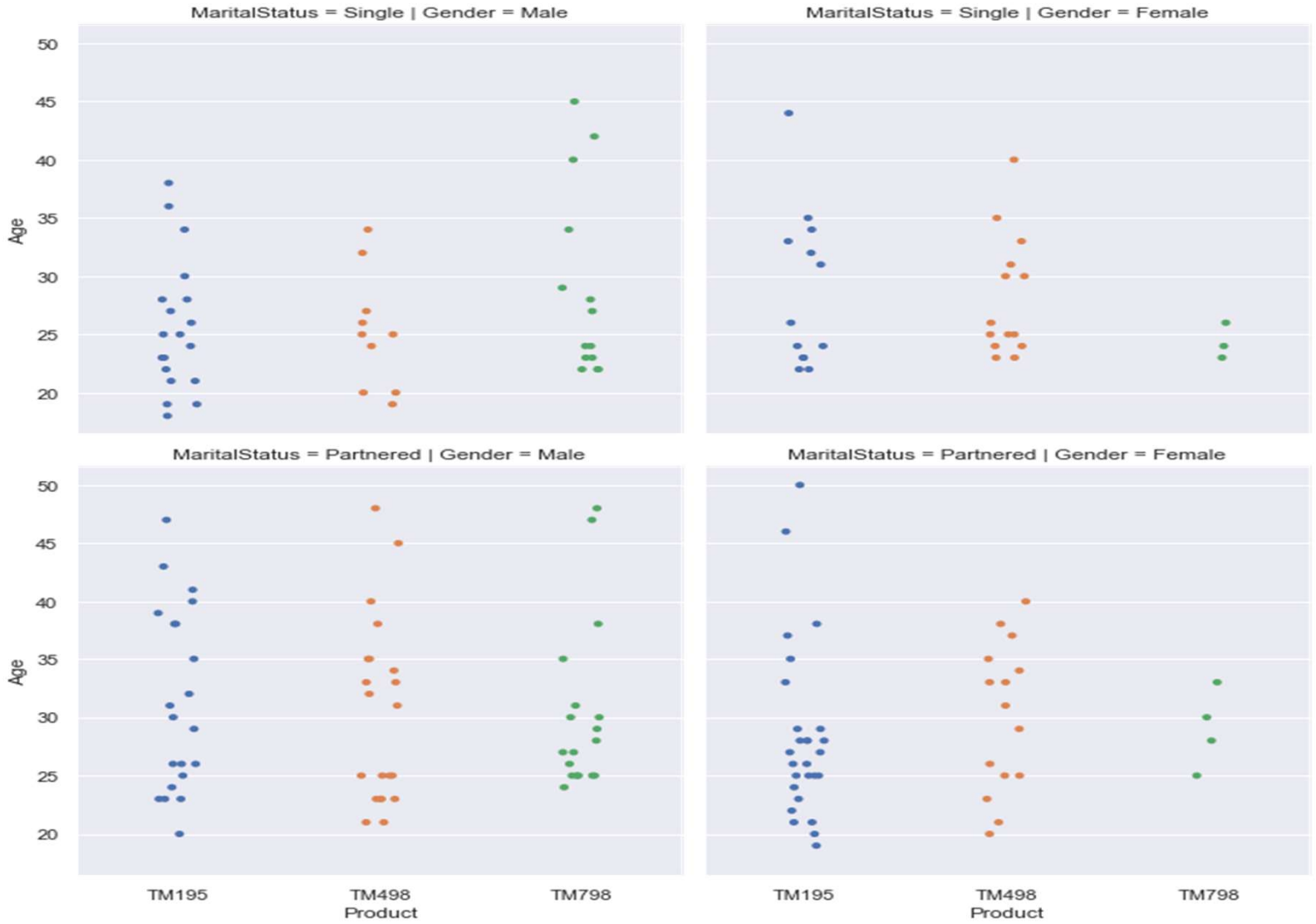


- Every product is used more by married individuals



- TM195 and TM498 bought almost equally by men and women, but TM798 mostly bought by men

3.3 Product Analysis (differentiated by marital status and gender)



- TM195 and TM498- Married customers are older than singles for both males and females. Hence, it might be useful to separate customers by marital status than gender for these products.

4. Customer Profiles

Product		Customer Profile	Key customer feature
TM798	1	- 26 to 30 year old male - High income of 60k+ and highly educated (16 years or above) - Assess themselves as highly fit (4 and above) - High usage (4 or more per week) leading to high miles (125 miles and above)	Highest income male customers who are fit and wants to use the most.
TM498	2	- Avg. age of 30 who are married (males and females) - Has income above $46k which is just below average - Low usage (2-3 times a week) leading to below average miles of around 80 miles	Mid-income category who has relatively older customer base , and wants to use the least.
	3	- Avg. age of 25 single (males and females) - Has income above $44k - Only average usage (3 times a week) leading to below average miles of around 80 miles	
TM195	4	- Avg. age of 27 who are married (males and females) - Has income above $40k - Above average usage (3 to 4 times a week) leading to average miles of around 90 miles	Lowest earning customers, and slightly younger customer base compared to TM498. They want to use more compared to TM498.
	5	- Avg. age of 25 who are single (males and females) - Has income above $37k - Above average usage (3 to 4 times a week) leading to above average miles of around 100 miles.	

5. Key Insights

Generic	- Customer base is mainly between 24 and 33 years, with customers above 40 years forming only 7% of the sample. - There is low customer base (7% of sample) with income more than 90k. - Less number of people who buy a treadmill with low fitness (<3)-15%, and with high fitness (>4)- 17%. - More males buy than females. - There are 50% more married customers than single. - Age doesn't seem to have a correlation with other parameters. - As self rated fitness increases, expected usage and miles increases.

Product	Insight
TM798	- Bought by least number of customers - Low female user base (20%) - Not used by 30+ old and seems to be associated with younger customers who are fit and is looking for high usage - Only bought by high income customers (60k+).
TM498	- Seems to be associated with people who doesn't plan to use it much and has an average income. - More popular with married customers than singles
TM195	- Most popular product - More popular with married customers than singles - Popular with the lower income customers. - They are younger than the customer base than of TM498, which might be the reason that they earn less, but would want to use the treadmill more than the customers of TM498.

6. Recommendations

Generic	- As people become health conscious at around 40, there should be targeted marketing to **get customers of 40 years and above**. This might also result in getting high income customers of income more than 90k. - Need to **check** whether the **lack of very low fitness and high fitness customers** is due to incorrect self rating of customers. If not, very low fitness and high fitness customers should be targeted. - Need to **check price sensitivity** info of the customers as a) highest demand product is bought by lower income customers and b) lowest demand product bought by highest income. Price change might increase volume. Running a limited discount sale might help prove this.

Product	Recommendation
TM798	- Target **young male professionals** in the city through ads in pubs etc. as high income young males are the main customers. - Target **female customers** who are fit and have high income (ads in niche beauty salons/spas). - Check whether this is **perceived as exclusively** for **fit people.** Change this if perception deterrent for less fitter customers. - Target **high income customers above 30** by targeting professionals. - Get more **average income customers** to buy this by **offering instalment payment** acting as a motivator for regular treadmill use.
TM498	- Target **less fit** customers with **low expected usage** by advertising in in restaurants, cinemas, malls and recreational centres, and opening outlets in super markets. This might act as a reminder for customers. - Get more **lower income customers** to buy this by **offering instalment payment** acting as a motivator for regular treadmill use.
TM195	- Target **young customers participating in outdoor physical activities** such bowling, hiking, sports who wants to be fit even indoor during bad weather, winter or a busy work schedule. Advertise through sports and adventure clubs. - Check **decreasing price** to see whether **more lower income customers or students** buy the product to get higher volume.