



# CARDIO GOOD FITNESS PROJECT

Exploratory Data Analysis Using Python  
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## OBJECTIVES

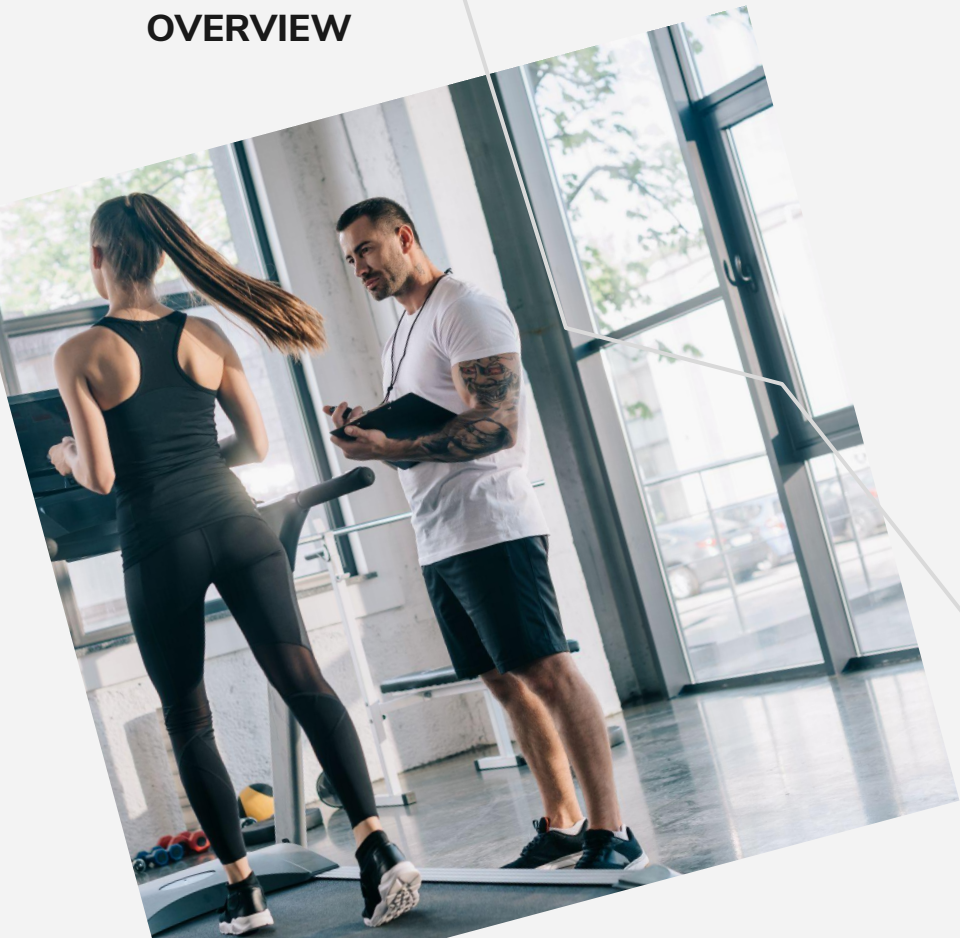


**Our objective is better understand who are customers are, what products they purchase and how they use our products. From these observations we aim to develop insights which can help us to make better decisions about our business.**

Our analysis will focus on the following areas three areas:

1. Customer Demographics
2. Product Types and how they relate to both Customer Demographics and Usage Patterns
3. Usage Patterns and how they relate to both Customer Demographics and Product Types

## DATASET OVERVIEW



The dataset contains information about the company's products, customers, and usage patterns.

Variable	Description
Product	Three model numbers
Age	Integer in years of customer
Gender	Male or Female
Education	Integer in years
MaritalStatus	Single or Partnered
Usage	Average # times used used each week
Fitness	Self-rated score (5-very fit, 1-very unfit)
Income	Annual salary in \$USD of the customer
Miles	# of miles expected to run by customer

Observations	Variables
179	9

A man and a woman are running away from the camera on a paved path. The man is wearing a grey t-shirt, dark shorts, and colorful sneakers. The woman is wearing a grey tank top, dark shorts, and black sneakers with red accents. The background shows a sunset with warm orange and yellow light, and a white fence on the right side of the path.

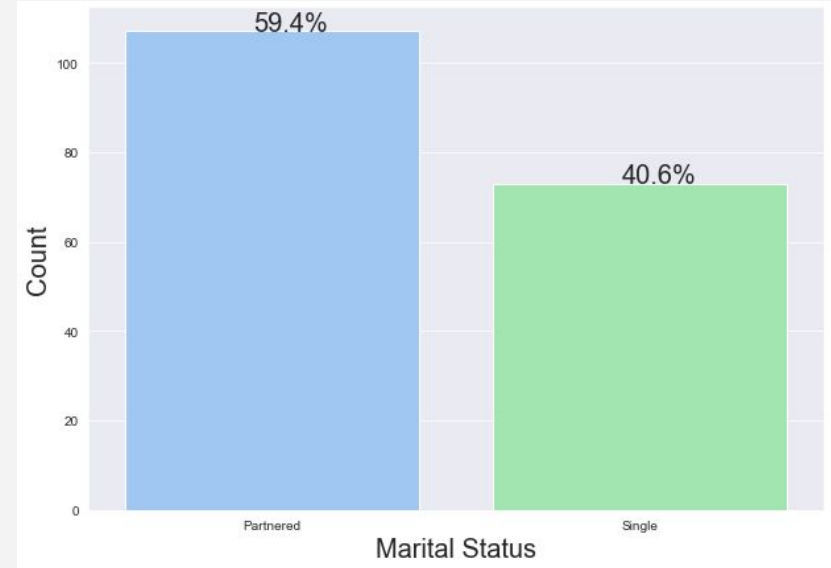
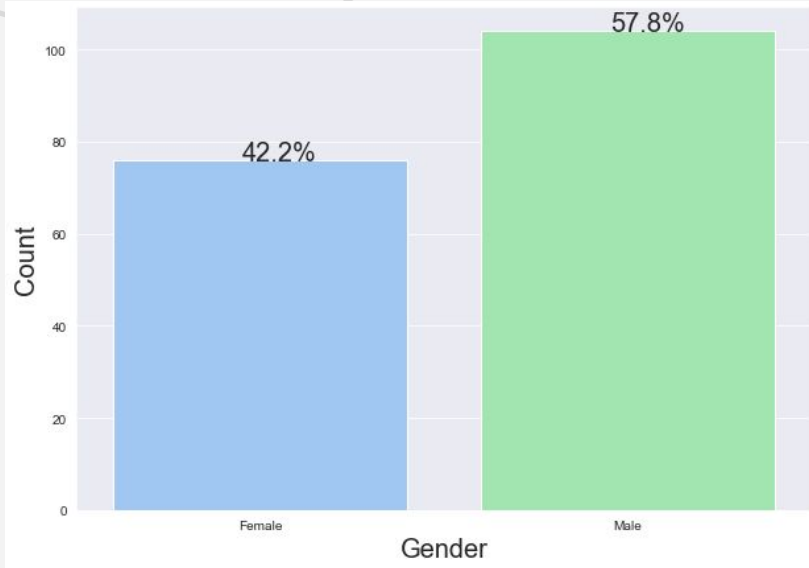
**01**

**CUSTOMER  
DEMOGRAPHICS**  
UNIVARIATE ANALYSIS



## CUSTOMER DEMOGRAPHICS

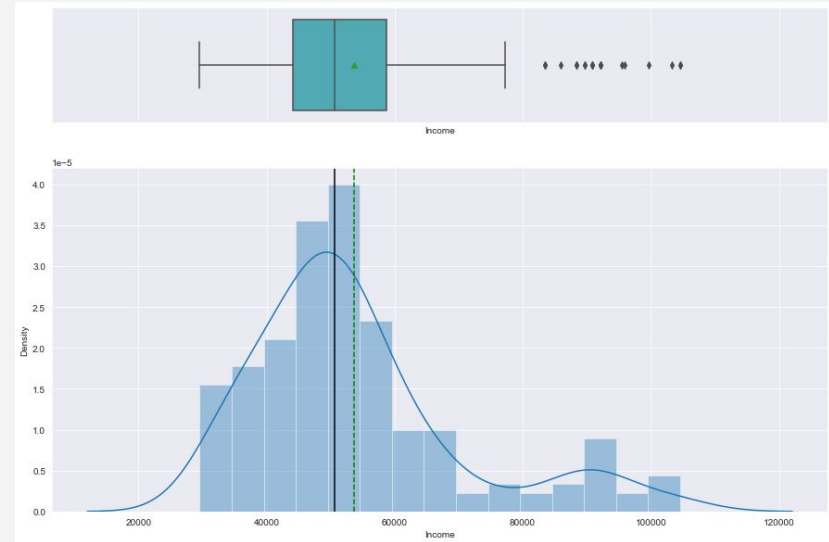
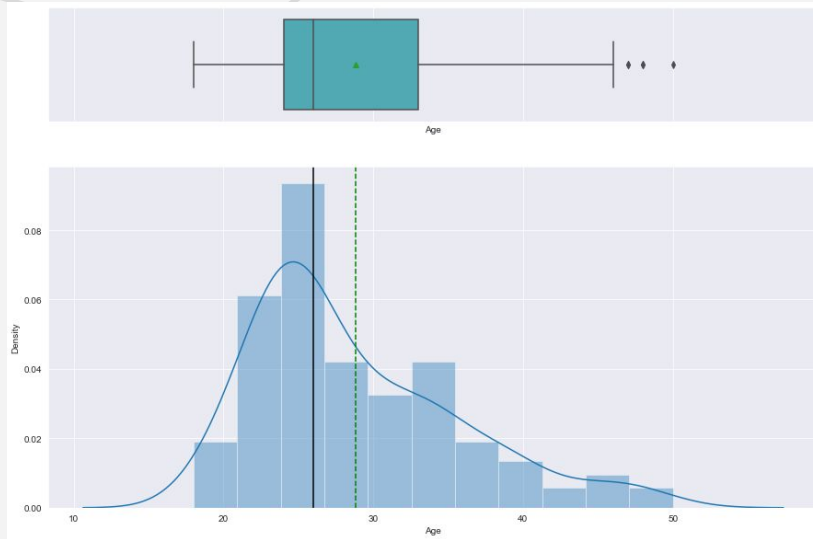
### GENDER, MARITAL STATUS



The company's customers primarily consist of married men.

## CUSTOMER DEMOGRAPHICS

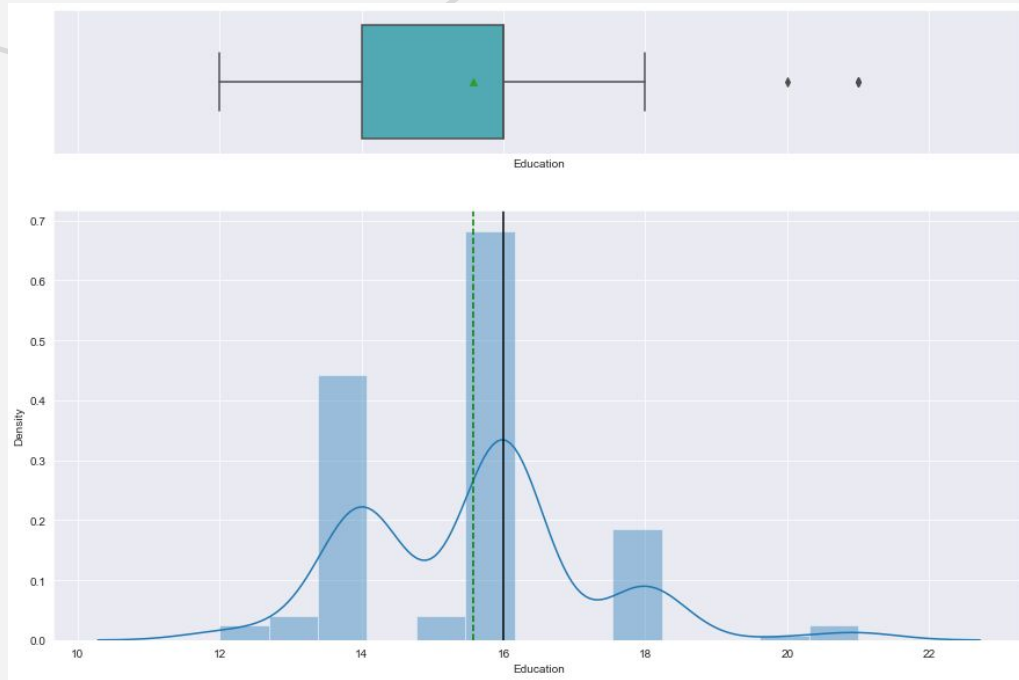
### AGE AND INCOME



Average customer age is 28.8 years  
Average customer income \$53,720 (min \$29,562, max \$104,581)

## CUSTOMER DEMOGRAPHICS

### EDUCATION

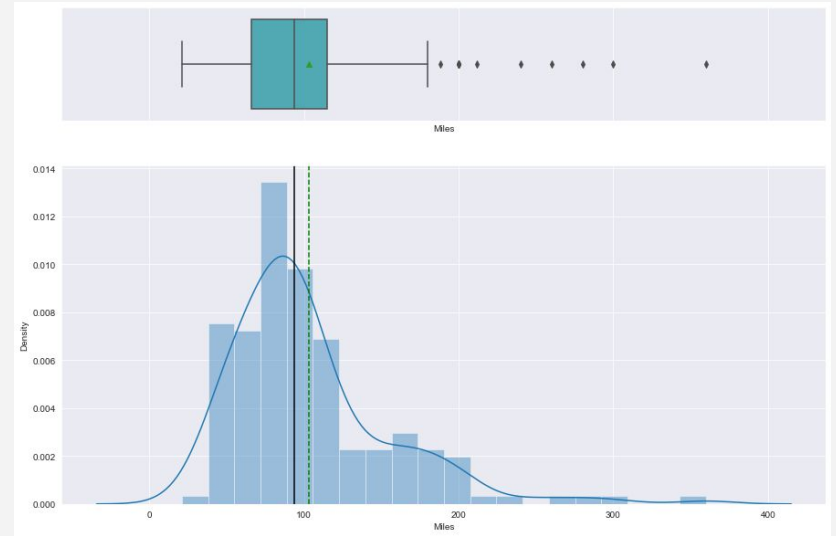
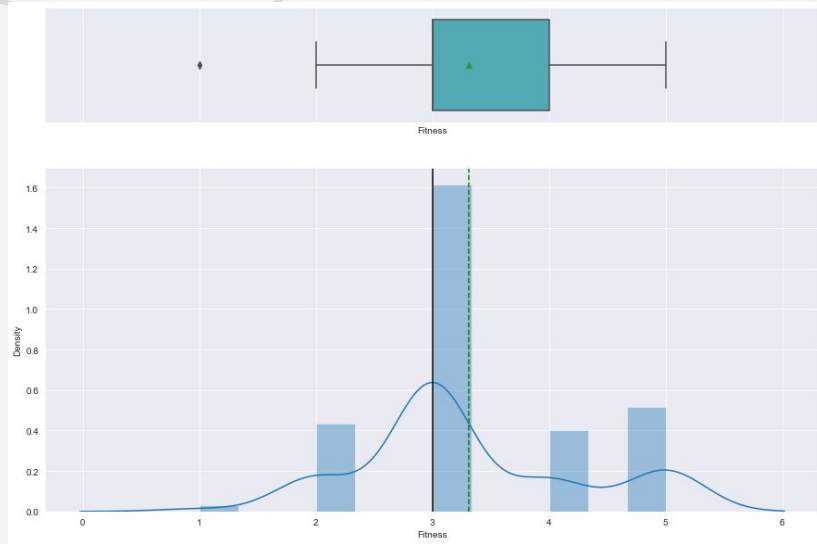


Customers tend to be fairly educated with all reporting a high school diploma and most having attended at least some college.



## CUSTOMER DEMOGRAPHICS

### FITNESS AND MILES

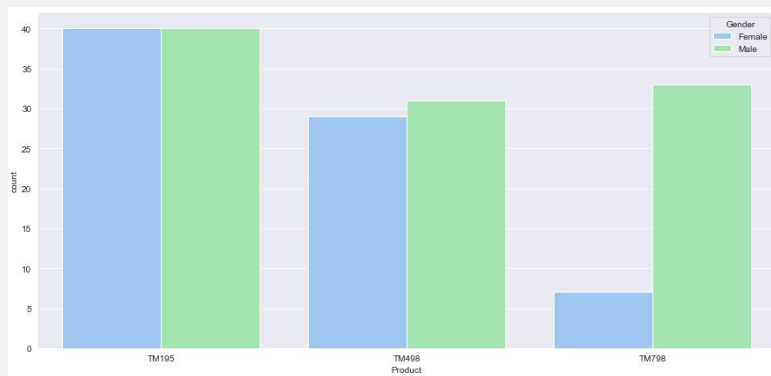
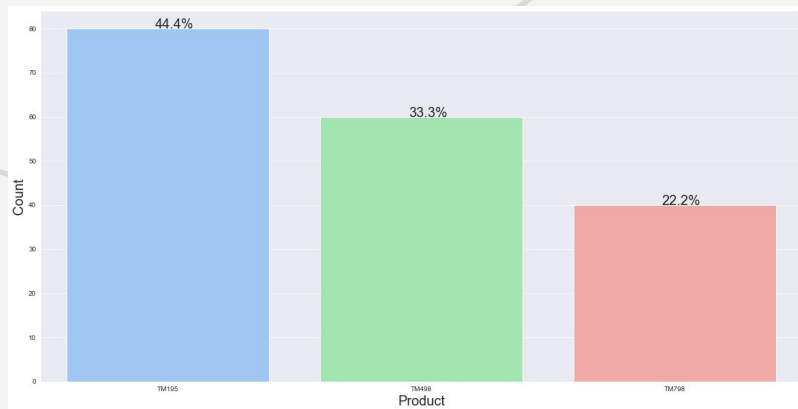


Self reported customer fitness levels (1-very unfit, 5-very fit) average about 3.3  
Most customers report running on average 103 miles if several outliers running considerably more



# 02

**PRODUCT TYPES**  
BIVARIATE ANALYSIS



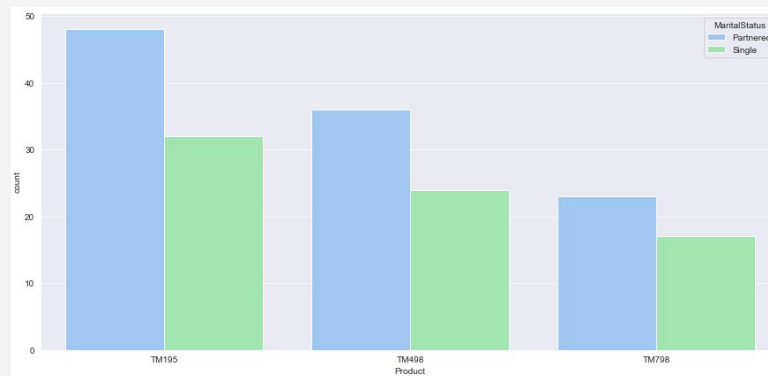
## PRODUCT TYPES

### MODEL #, GENDER, AND MARITAL STATUS

There are three products types:  
1. TM195, 2. TM495 and, 3. TM796.

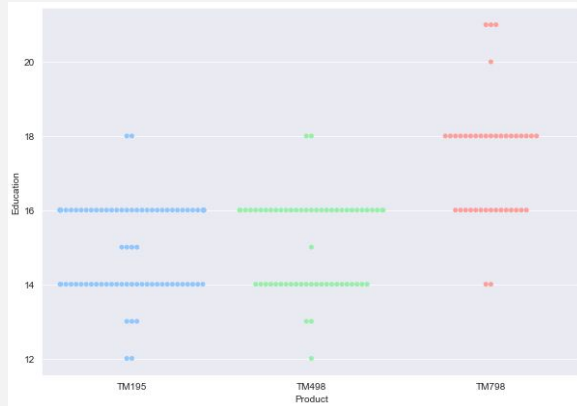
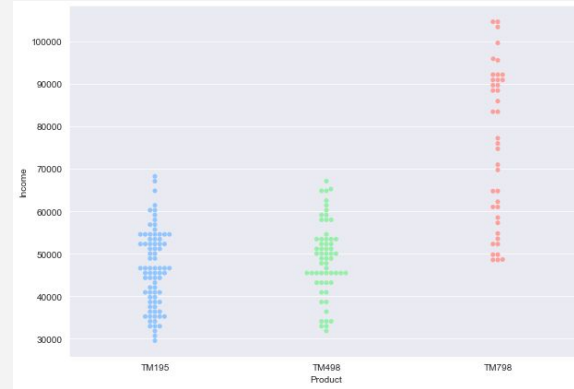
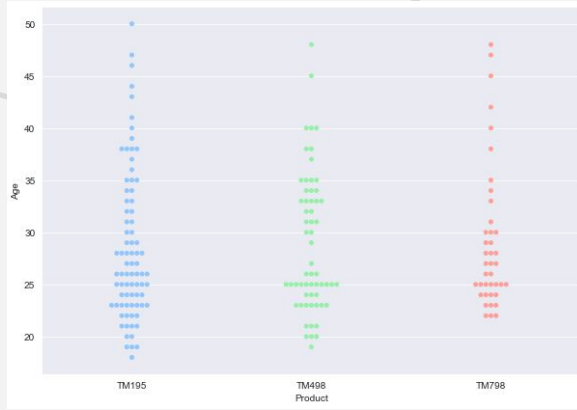
The TM195 is the most popular model and favored by women while male customers seem to purchase all models in fairly equal numbers.

A customer's marital status does not seem to impact which model they purchase.



## PRODUCT TYPES

### AGE, EDUCATION, AND INCOME



Product Type does not seem to be impacted by customer age.

More affluent and higher educated customers seem to favor the TM798 model.

This could be influenced by price point and feature set but this data was not included in our dataset.

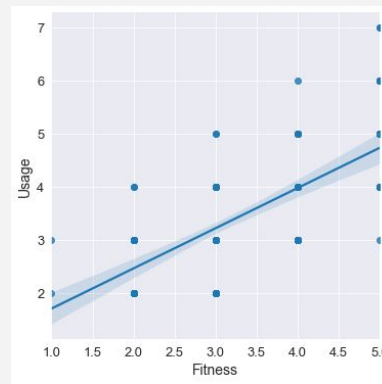
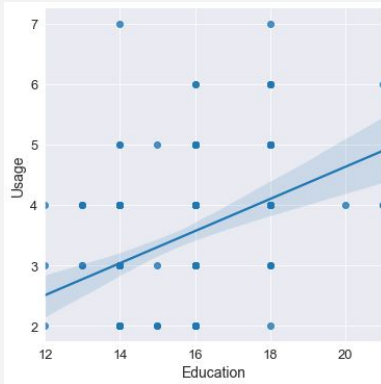
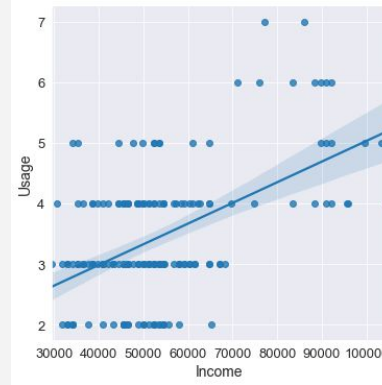
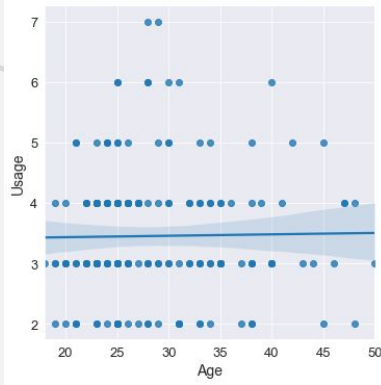
# 03

## USAGE PATTERNS BIVARIATE & MULTIVARIATE ANALYSIS



## USAGE PATTERNS

### AGE, EDUCATION, INCOME, FITNESS



Equipment usage patterns do not seem to be impacted by customer age.

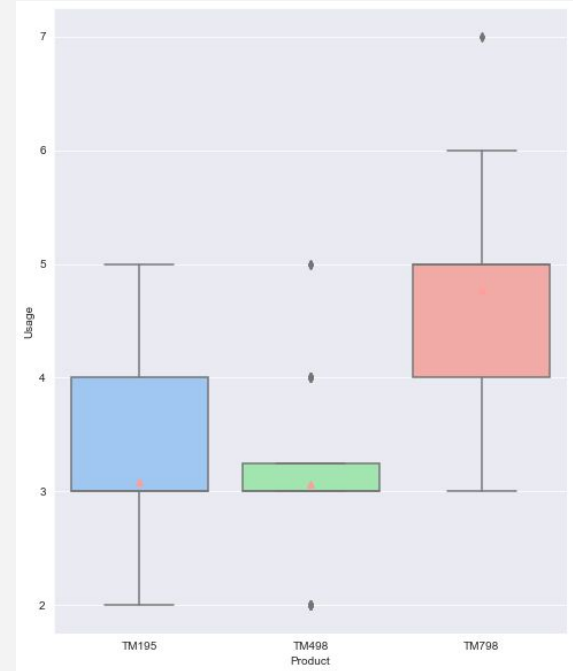
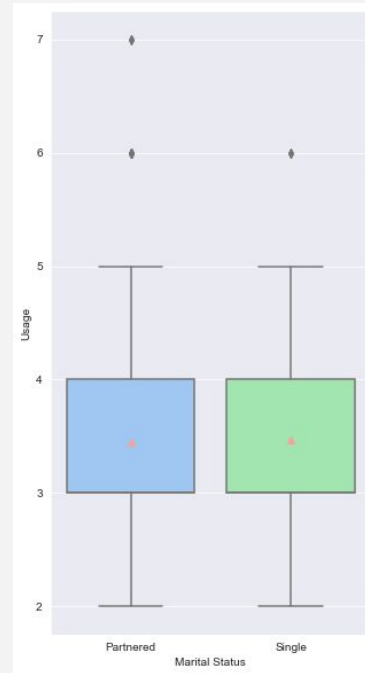
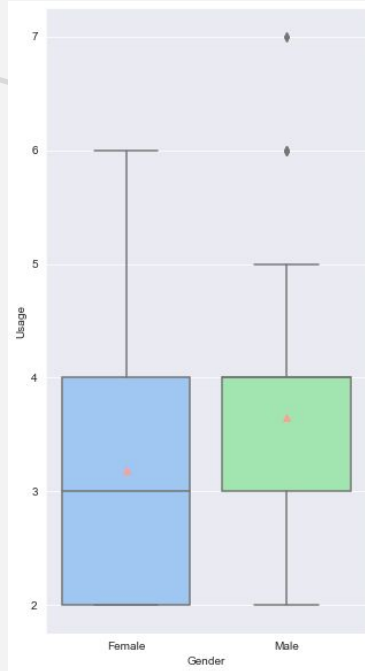
Customer income as well as their amount of education have a positive impact on usage levels.

As expected, usage and fitness level are connected.

Correlation Matrix	
	Usage
Age	0.015
Education	0.40
Income	0.52
Fitness	0.67

## USAGE PATTERNS

### GENDER, MARITAL STATUS, MODEL #



Female usage tends to vary a bit more than males who average between 3 to 4 times per week with a few outliers pushing up the average. Surprisingly, marital status does not appear to affect usage levels at all. Model TM798 gets the most usage and is correlated with higher incomes and education levels.

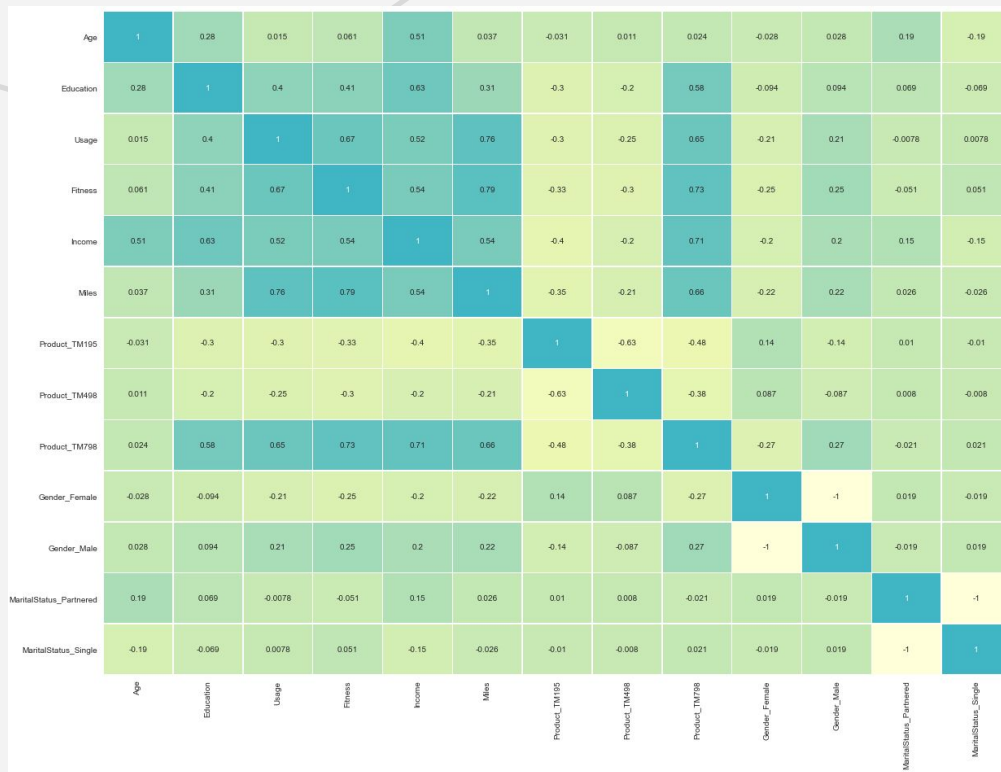


## MULTIVARIATE ANALYSIS

### HEATMAP CORRELATION MATRIX

Income is correlated with increases in age and education as one would expect but, it is also correlated with usage, fitness, and number of miles.

Model # TM798 is correlated with  
education, usage, fitness, and miles.



# 05

## CONCLUSION

FINDINGS AND RECOMMENDATIONS



# CONCLUSION

## FINDINGS

- Average customer is a 24-33 year male, college educated, married, with annual income of \$53,720
- Best selling product by total is the TM195 but the TM798 is more strongly correlated with desirable traits like income and education and outcomes such as usage, fitness-level, and miles run.

## RECOMMENDATIONS

- The TM798 seems to have the most customer engagement (usage, miles, fitness). Make the TM798 the focus of the company's investment dollars including marketing and R&D
- Position the TM798 as a high-end model geared towards fitness enthusiasts and affluent consumers
  - Recruit influencers which fit a similar customer profile to promote the TM798
  - Explore increasing the price on the TM798 (run pricing A/B tests)
- Position the TM195 towards women or as an entry-level model
- Possibly consider discontinuing the TM498 and increase the price of the TM195