Business Insights based on Non-Graphical and Visual Analysis:

There are 180 records with 9 columns

There are no values present in the dataset and contains 3 categorical and 6 numeric datatypes

From the statistical and categorical summary, we can observe that

* The Median Age of Customer is 26 years.
* Maximum users of treadmill based on the gender are males with 104 purchases
* Most frequently bought Product is KP281 treadmill.
* Most of the customers have rated their fitness at level 3
* Customers have walked or ran on an average about 103 Miles
* Customers use the treadmill on an average for 3 times a week and have a median salary of 50596.5 US dollars
* The Average Customer education is 15 to 16 years:

From the pie charts and bar plots/count plots we could identify how the distribution is across different categorical data

* we see that based on the product offered, with 44.44% (i.e 80) KP281 takes the top spot followed by KP481 at 60 sold and KP781 at 40 sold.
* Based on the gender we see that 57.78% (i.e. 104) Users are males and 42.22% (i.e. 76) are Females
* On the basis of marital status, we see 59.44% (i.e 107) users are partners while 40.56% (i.e. 73) are single.
* 59% users’ annual income is between 41k-60k USD and 10.56% users draw an annual salary over 81k USD

From the histogram charts we see that the distribution is a right skewed distribution where the majority of the data is concentrated on the left side of the distribution and the tail extends to the right. In this distribution, we see the mean is greater than the median. if we look at the statistical summary, we see that all the columns’ data have mean greater than the median except education.

From the boxplots we see that Age, Education, Usage and Fitness have very few outliers but Income and miles have more outliers.

* In Income category there are 19 outliers which means the customers are high earners and draw an annual salary of more than 80k USD
* In Miles category there are 13 outliers which means the customers walk or run for more than 185 km per week

If we look at product against fitness and usage metrics

* There are 54 instances where users have rated themselves as 3 (on a scale of 1 to5 )while using KP281 and 39 while using KP481 , whereas using KP781 users have rated 5 29 times, which is the maximum rating . So KP781 is helping them to be in excellent shape.
* Many users prefer using the product KP281 for 3 days/week, KP481 for 3 days/week and KP781 for 4 days/week.

When we look at product against Gender and Marital Status

* Males and females have purchased KP281 treadmill in equal numbers i.e 40 while KP781 treadmill is majorly used by males while female use of KP781 is very low.
* Partners count of all three types of treadmill is high compared to single users for the same type of treadmill.

How products are distributed at different income levels

* When the annual income of users is between 40k-60k USD users tend to purchase KP281 and KP481. Since KP281 costs 1500$ which is an entry level treadmill and KP481 costs 1750$ which is a mid-level running treadmill.
* When the annual income of users is between 60k-80k USD users are not much interested in buying any of the 3 products compared to medium income level.
* When the annual income of users is more than 80k USD users bought KP781 treadmill which is the most expensive of the lot coming at 2500$ which has advance features.

When we look at the age, users aged 25 tend to buy the KP481 treadmill and then equal number of KP281 and KP781 treadmill

From the Boxplots for different numerical data

* Users purchasing products KP281 & KP481 have similar median Age.
* Users whose age lies between 25-30, are more likely to buy KP281 & KP481.
* Users whose age lies between 30-50 tend to buy the KP781 treadmill as their income level is high and have the spending capacity.
* If the user to walk/run at more than 120 Miles per week, the user will choose to buy KP781 treadmill.
* Users with Education is greater than 16 years, are more probable to buy KP781 and Users with less than 16 years of education have same odds of buying other two.
* Users who use the treadmill 4-5 times a week, are more likely to purchase the KP781 treadmill.
* The mean and median fitness values are almost the same for KP281 and KP481, while fitness level greater than 3 signifies user prefer using KP781

From pairplot plot we can correlate many metrics through scatter plots and histplots in one big chart and this summarizes all the previous insights mentioned above.

From marginal and conditional probability for Gender and Marital Status we see that

* Probability of Female customer buying KP281(52.63%) is more than male (38.46%).
* Probability of Male customer buying Product KP781(31.73%) is way more than female(9.21%).
* Probability of Female customer buying Product KP481(38.16%) is higher than male (29.81%. )
* Probability of Partnered User buying any product is 59.44 % as compared to

Single user is 40.55 %

* Probability of Fitness levels for KP281 as compared to KP481, for level 1 both have same buying probability at 50% and from level 2 to level 5, KB281 has more probability of buying.
* When the usage increase from 4days/week to 7 days/week the probability of buying

KP781 increases from 34.62% to 100%.

* Probability of buying any of the three product is 58.89% for medium income level(41k-60k).
* Probability of buying KP281 is 71.88% for low-income level(25k-40k) and for buying KP781 is zero.

**Customer Profiling** - Categorization of users

### KP281:

* Most affordable and entry level treadmill and most sold product at 1500$.
* Male and female users are in equal numbers.
* This model is most popular among medium-income level(41k-60k).
* Users walk/run average 70 to 90 miles on this product.
* Users use 3 to 4 times a week.
* Fitness Level of this product users is 3 which is very average.

### KP481:

* It’s a mid-Level running treadmill which costs 1750$.
* Fitness Level of this product users varies from 2 (Bad Shape) to 4 (Good Shape) depending on their usage.
* Users walk/run an average 70 to 110 or more miles per week on his product.
* This model is second most popular among medium-income level(41k-60k).
* Probability of male user buying KP481 is slightly higher than female.

### KP781:

* It is the least sold product as its is expensive at 2000$
* High price and preferred by Users who does fitness on a daily basis and run more miles.
* Users walk/run average 120 to 200 or more miles per week on his product.
* Users use the equipment 4 to 5 times a week at least. If the user uses for more than 5days a week then probability that he is using becomes 100%.
* Users whose age lies between 30-50 tend to buy the KP781 treadmill as their income level is high and have the spending capacity.
* If person is in Excellent Shape i.e level-5 fitness, the probability that he is using KP781 is more than 93%.
* Probability of Male user buying Product KP781(31.73%) is way more than female (9.21%).
* Probability of a single person buying KP781(23.29%) is higher than Partner users

# Recommendations:

* Recommend KP281 treadmill to users who fall into low-income level between 25k-40k USD. Those who are interested in starting their fitness journey this will fit well as it is relatively inexpensive compared to KP481 and KP781. since it is most popular among the masses as both male and female are equally interested It is important keep the quality checks in place and keep bringing the updated models once every 2years at discounted price than the current price of 1500$ so that more users will come aboard.
* In order to Recommend KP481 the Statistical Summary about fitness level and miles for KP481 is not good as KP281 which is 250$ cheaper. users prefer to purchase KP281. It is recommended to make some necessary changes to product K481 to increase customer experience by giving some value added services.
* Recommend KP781 to users who walk/run more frequently and run more miles, and have a very high income. Since KP781 is the least selling product, recommend this product only to select customers who are into fitness for a long time, but the female adoption rate for KP781 is very low if that increases then the market share can increase from its current share of 22.22%