fitness products/equipments

Aerofit Business case study

Aerofit is a leading brand in the field of fitness equipment. Aerofit provides a product range including machines such as treadmills, exercise bikes, gym equipment, and fitness accessories to cater to the needs of all categories of people.

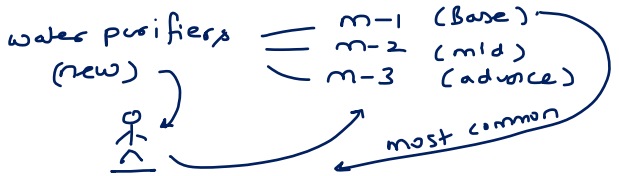
find the customer profiles that are most likely to purchase a product given the features of the customer

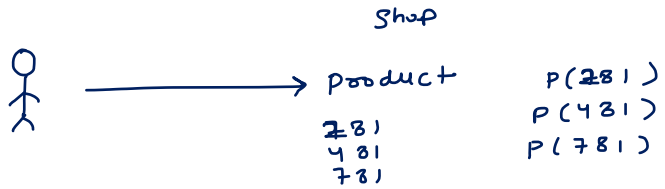
- Product: Product Purchased KP281, KP481, or KP781
- Age: In years
- Gender: Male/Female
- Education: in years
- MaritalStatus: single or partnered
- Usage: average number of times the customer plans to use the treadmill each week
- Income: annual income (in $)
- Fitness: self-rated fitness on a 1-to-5 scale, where 1 is poor shape and 5 is the excellent shape.
- Miles: average number of miles the customer expects to walk/run each week

customer details

Product Portfolio:

- The KP281 is an entry-level treadmill that sells for $1,500.
- The KP481 is for mid-level runners that sell for $1,750.
- The KP781 treadmill has advanced features that sell for $2,500.





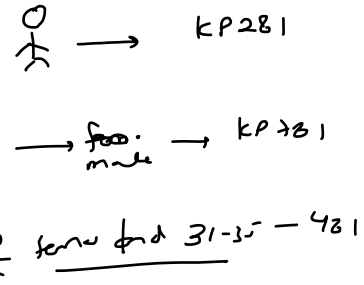
which product to recommend
given the profile / feature
of the customer
→ customer persona

EDA | Bivariate Analysis | Probability

① check if feature of the customer is impacting the purchase prob.
② Recommend.

P(product | feature)

P(product | 10th class marks) = independent



Probability Recap:

- Marginal Probability
- Joint Probability
- Conditional Probability

x = # of sandwiches
y = # of drinks

Crosstab

		X = 1 sandwich	X = 2 sandwiches	
Y	1 drink	0.40	0.20	0.6
	2 drinks	0.10	0.25	0.35
	3 drinks	0	0.05	0.05
		0.5	0.5	

$P(x=1) = 0.5$
$P(x=2) = 0.5$
$P(y=1) = 0.6$
$P(y=2) = 0.35$
$P(y=3) = 0.05$

Marginal prob.

$P(x=1 \cap y=1) = 0.40$
$P(x=1 \cap y=2) = 0.10$
$P(x=1 \cap y=3) = 0$
$P(x=2 \cap y=1) = 0.20$
$P(x=2 \cap y=2) = 0.25$
$P(x=2 \cap y=3) = 0.05$

Joint prob.

y = index

$P(X|y) \rightarrow$ crosstab, normalise = index $= \frac{P(X \cap y)}{P(y)}$

	$x=1$	$x=2$
$y=1$	0.4/0.6	0.2/0.6
$y=2$	0.1/0.35	0.25/0.35
$y=3$	0/0.05	0.05/0.05

x = column

$P(y|x) \rightarrow$ crosstab, normalise = columns $= \frac{P(x \cap y)}{P(x)}$

	$x=1$	$x=2$
$y=1$	0.4/0.5	0.2/0.5
$y=2$	0.10/0.5	0.25/0.5
$y=3$	0/0.5	0.05/0.5

Quiz Question

Consider the deck of 52 cards.

Event A: Drawing a red card.
Event B: Drawing a face card (Jack, Queen, King).

Create a table for the random variables (red and black) and (face and non-face card) and answer the following questions.

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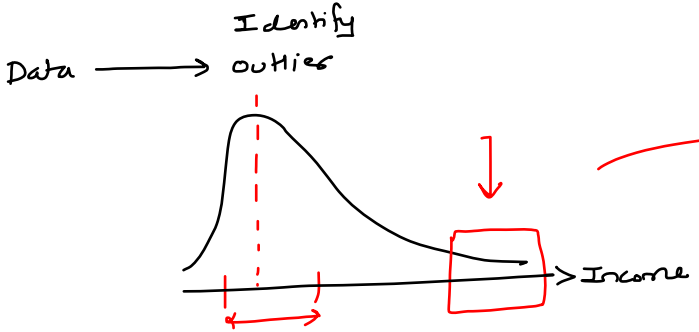
EDA (Learn the pattern from the data)



identify outlier → analyze them seperately to find better pattern