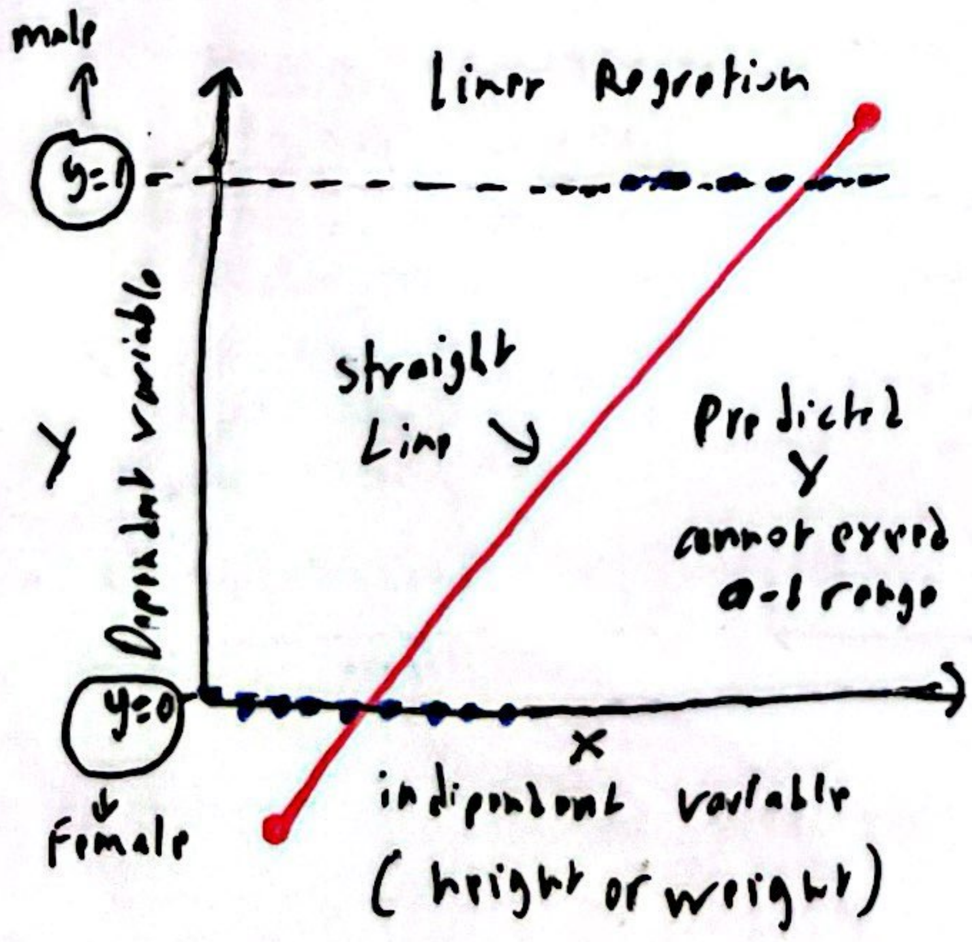
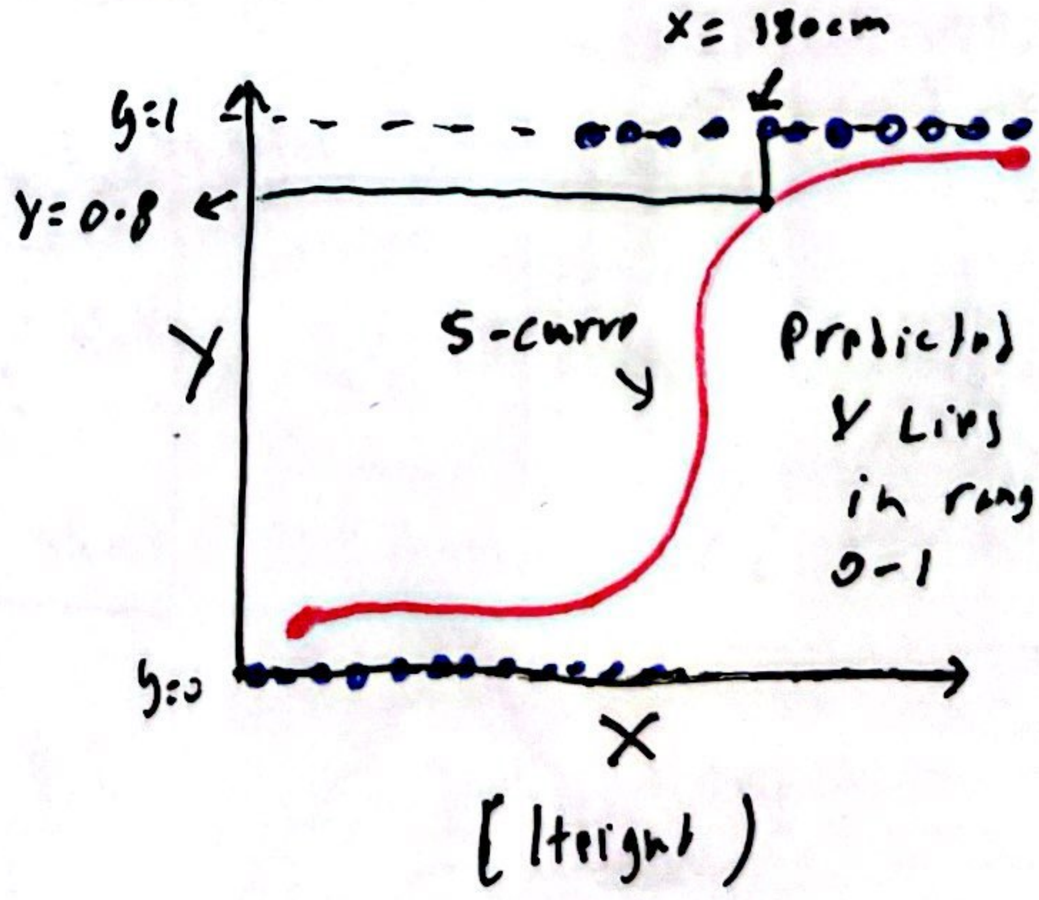
Logistic Regression (- supervised learning, - Classification)

1 - is a varient of linear regretion and is a Classification algorithm. instd of fitting a linr to 2 vars, with a linear relationship, we now predict a catigorical output variable using catigorical or numerical input variables.

2 ✱ Ex lets say we want to predict one of 2 classes for Ex the gender of a person based on height or weight for ex a liner regretion dose not make sense as this is classification problem ∴ now instd of a line we fit a sigmoid curve to the data

The equation will not tell us about a liner relationship between 2 vars but will tell us the probability of a data point falling into a certain class given value of input variable.





5 ✱ sigmoid function

$$S(x) = \frac{1}{1 + e^{-x}}$$

6 ✱ Ex the Liklyhood of a person with height 180cm being a man is 80%

7 ✱ this task is impossible with a strait line (linear) as the probability distrobution would require the line to bend and curve to match the probality distrobution otherwise X is not accurate