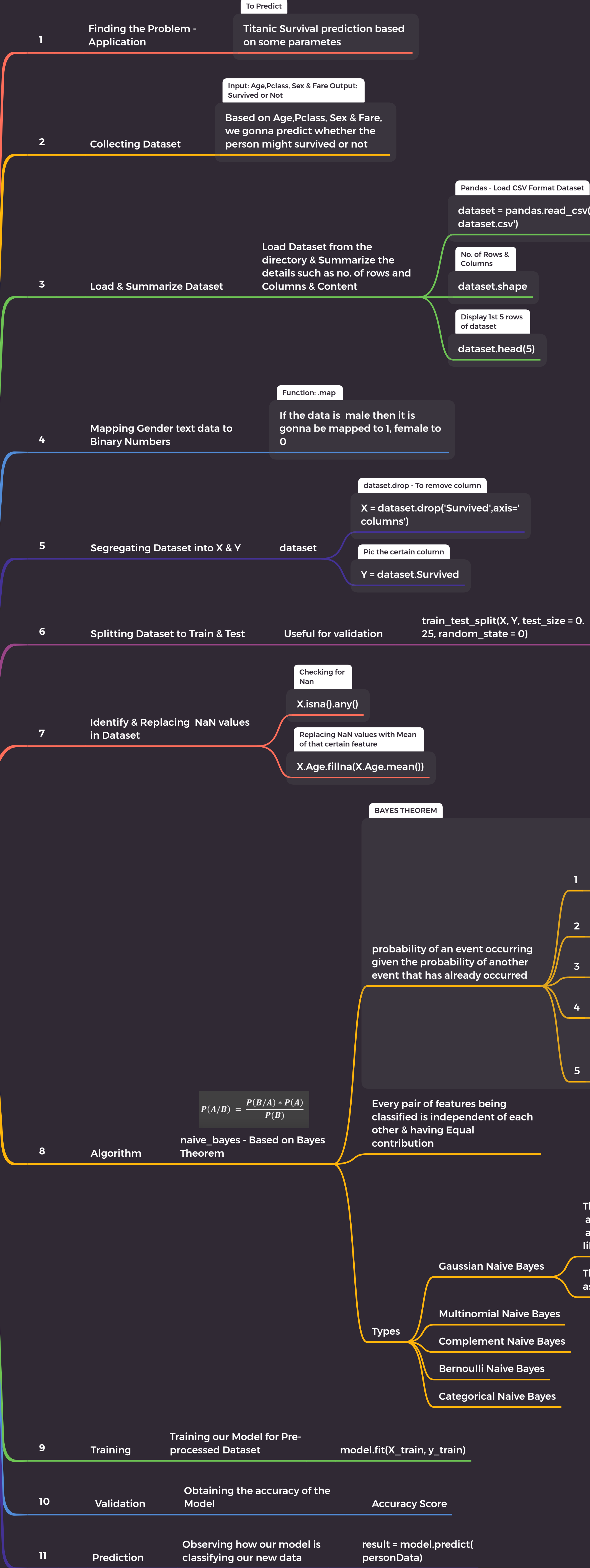


Titanic Survival Prediction using NAIVE BAYES



BAYES THEOREM

probability of an event occurring given the probability of another event that has already occurred

Every pair of features being classified is independent of each other & having Equal contribution

To Find

- I pick Diamond Card, Need to Find probability of that card is Queen
- Probability of finding Queen in total cards
 $P(\text{Queen})=4/52=1/13$
- Probability of finding Diamonds from Total cards
 $P(\text{Diamonds})=13/52=1/4$
- Probability of finding Diamond in the Queen
 $P(\text{Diamond}/\text{Queen}) = 1/4$
- Solution
$$P(\text{Queen}/\text{Diamond}) = \frac{P(\text{Diamond}/\text{Queen}) * P(\text{queen})}{P(\text{Diamond})}$$

 $(1/4 * 1/13) / (1/4) = 1/13$

Types

- Gaussian Naive Bayes
The parameters and are estimated using maximum likelihood
The likelihood of the features is assumed to be Gaussian
- Multinomial Naive Bayes
- Complement Naive Bayes
- Bernoulli Naive Bayes
- Categorical Naive Bayes

$$P(x_i | y) = \frac{1}{\sqrt{2\pi\sigma_y^2}} \exp\left(-\frac{(x_i - \mu_y)^2}{2\sigma_y^2}\right)$$