202318033

Name : Harshil shah [202318033]

1) Prior from training

$$P(C_i) = \frac{N_i}{N_{total}} \Rightarrow P(+) = 3/5$$
$$P(-) = 2/5$$

2) Likelihood from training

$$P(w_i/c) = \frac{Count(w_i, c) + 1}{\sum_{w \in V} (count(w, c)) + |V|}$$

$$P(\text{Predictable}/+) = \frac{0+1}{9+20} = 1/29$$

$$P(\text{Predictable}/-) = \frac{1+1}{14+20} = \frac{2}{34} = \frac{1}{17}$$

$$P(\text{no}/+) = 1/29$$

$$P(\text{no}/-) = 1/17$$

$$P(\text{fun}/+) = 1/29$$

$$P(\text{fun}/-) = 1/34$$

202318033

SUPER
PAGE NO:
DATE:

Name : Harshil shah [202318033]

1) Prior from training

$P(C_i) = \frac{N_{ij}}{N_{total}}$ => $P(+) = 3/5$, $P(-) = 2/5$

2) Likelihood from training

$$P(w_i/c) = \frac{Count(w_i, c)+1}{\sum_{w \in V} Count(w,c)+|V|}$$

$P(Predictable/+) = \frac{0+1}{9+20} = 1/29$

$P(Predictable/-) = \frac{1+1}{14+20} = \frac{2}{34} = \frac{1}{17}$

$P(no/+) = 1/29$

$P(no/-) = 1/17$

$P(fun/+) = 1/29$

$P(fun/-) = 1/34$

SUPER
PAGE NO.
DATE

Drop 'with' because 'with' is not present in the training set.

3) Scoring test set:

$$P(-) \cdot P(\text{Pred}/-) \cdot P(\text{NO}/-) \cdot P(\text{fun}/-)$$

$$= \frac{3}{5} \times \frac{2}{34} \times \frac{2}{34} \times \frac{1}{34}$$

$$= 6.106 \times 10^{-5}$$

$$P(+) \cdot P(\text{Pred}/+) \cdot P(\text{NO}/+) \cdot P(\text{fun}/+)$$

$$= 3.2 \times 10^{-5}$$