AI1103:Assignment 1

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Download all python codes from

https://github.com/gowrigovindaraj/AI/Assignment1/codes

and latex-tikz codes from

https://github.com/gowrigovindaraj/AI/Assignment1.tex

Question 5.19

A carton consists of 100 shirts of which 88 are good, 8 have minor defects and 4 have major defects.Jimmy, a trader, will only accept the shirts which are good, but Sujatha, another trader, will only reject the shirts which have major defects.One shirt is drawn at random from the carton. What is the probability that

1) it is acceptable to Jimmy?
2) it is acceptable to Sujatha?

Solution

Let $X \in \{0, 1, 2\}$ represent the random variable; where X=1 represents a good shirt; X=1 represents a shirt with a minor defect and X=2 represents a shirt with a major defect. From the given information,

TABLE 2: Values of X and probability

Type	X	n(X)	$\Pr(X)$
Good	0	88	$\frac{88}{100}$
Minor Defect	1	8	$\frac{8}{100}$
Major Defect	2	4	$\frac{4}{100}$

1) According to the question,
Probability that Jimmy accepts the shirt

$$= \Pr(X = 0) \tag{0.0.1}$$
$$= \frac{88}{100} \tag{0.0.2}$$
$$= 0.88 \tag{0.0.3}$$

2) According to the question,
Probability that Sujatha accepts the shirt

$$= \Pr(X = 0) + \Pr(X = 1) \tag{0.0.4}$$
$$= \frac{88}{100} + \frac{8}{100} \tag{0.0.5}$$
$$= 0.96 \tag{0.0.6}$$