AI1103-Assignment 3

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Python codes :

https://github.com/cs20btech11007/assignment3/blob/main/assignment3.py

Latex codes :

https://github.com/cs20btech11007/assignment3/blob/main/assignment3.tex

Question 29

Seven (distinct) car accidents occurred in a week. What is the probability that they all occurred on the same day?

Solution

Number of days to choose a accident be 'k'=7
Total number of ways in which accidents can be assigned be "X".

$$X = 7^7 \tag{0.0.1}$$

$\Pr(X)$=probability of having accidents on a particular day.

$$\Pr(X) = \frac{1}{X} = \frac{1}{7^7} \tag{0.0.2}$$

$\Pr(C)$=probability of having accidents of distinct cars on the same day.
We can choose a day in a week in 7 ways.
hence the probability ,

$$\Pr(C) = 7 \times \Pr(X) \tag{0.0.3}$$

$$\Pr(C) = 7 \times \left(\frac{1}{7^7}\right) \tag{0.0.4}$$

$$\Pr(C) = \frac{1}{7^6} \tag{0.0.5}$$