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· Problem statement Write a program on conditional probability
using python.

conditional probability is the probability of an event occurring given that another event has already occured. The concept of conditional probability is primarily related to Bayes theorem, which is one of the most influential theories in statistics.

Formula:

$$P(A/B) = P(A \cap B)$$

$$P(B)$$

OR

$$P(B|A) = P(AB)$$

$$P(A)$$

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erablem statement
white a program using python for the following statement - Assume a fixed probability of flipping heads and stimulate a flipping head (H) or Tails (T) by using a choice function in the numpy module to randomly select one of these two outcomes.

Display simulated flip, accumate the number of heads and ratio of heads to total flip as a probability drives from the frequency of occurences.

Probability P (E) = No. of favourable outcomes

Total no. of outcomes

Being able to generate random no. effeciently when working with a programming language is very imp.

module. In python random module, we can use python random() function, or the python choice function

e.g. import random

mylist = ["apple" "banana", "cherry"]

print (random choice (mylist))

WONES

· Problem statement -Implement binomial distribution using python

Binomial distribution is one of the most popular distribution is statistics, along with normal distribution. Binomial distribution is a discreate probability distribution of a number of success (2) in a sequence of independent experiment (n). Fach experiment has two possible outcomes - success of failure

i.e. success probability = p = 1-P

P(x:n.p) = n (x. pt. q n-x

n = Total no. of events

r(or) z = total no. of successful events.

p = probability of success on single trial.

"(= [n] | r] (n-r)!]

q = probability of failure

| · Problem staten | nent- | | | |
|-----------------------------|---------|--------|---------|-------------|
| write a python test between | program | for | pearson | correlation |
| test between | two var | ciable | '5. | |

theoryThe pearson correlation coefficient measures the
linear association between variables its values
can be interpreted like so-

tl= complete positive correlation

-l= complete negative correlation.

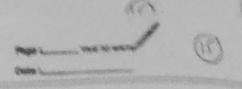
to.8 = strong positive correlation
-o.8 = strong negative correlation.

o = no correlation

to.6 = moderate positive correlation.

-o.6 = moderate negative correlation.

 $Y = N(Z_{2}y) - (Z_{x})(Z_{y})$ $[NZ_{x^{2}} - (Z_{x})^{2}][NZ_{y^{2}} - (Z_{y})^{2}]$



· Problem statementstudy of simple regression model using python.

Regression searches for relationships among variety

Y: at bx is interpreted as 'a' is the average value of Y when x is zero.

x = ct dy, value c is the average value of x, when Y is zero.

slopes of x on x is by $x = \frac{cov(x,y)}{var(x)}$ equation is $Y \cdot \bar{Y} = byx(x - \bar{x})$

slopes of x on y is bxy = $\frac{\cot(x,y)}{\cot(x)}$ equation is $x - \hat{x} = bxy(y - \hat{y})$

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. Problem statement study different types of correlation and implement
anyone using python programming

· theory -

correlation is a statistical calculation that indicates that two variables are parallely related. It is a simple and popularly used tool for defining relationship without delivering a statement concerning the cause effect.

A positive and perfect correlation indicater that the coefficient correlation is exactly one. It indicates that when one variable move upward or downward. The another variable moves in the same direction.

However, a negative and perfect correlation indicater that the variabler move in the opposite directions when there is a zero correlation. It means that there is no relationship at all.

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