FORUM 1

CCS226-18

MARASIGAN, VEM AIENSI A.

2BSCS-1

-UNIFORM DISTRIBUTION-

A PROGRAMMER CREATED A PROGRAM FOR A COMPANY THAT SEARCHES THE USER NAME PROVIDED BY USER INPUT FROM A GIVEN DATABASE. THE PROGRAM FINISHES SEARCHING FOR ABOUT 10 - 40 SECONDS. HOWEVER, THE COMPANY WANTS THE PROGRAM TO FINISH SEARCHING FOR ONLY 20 SECONDS OR LESS TO MEET THEIR STANDARDS. WHAT IS THE AVERAGE SEARCH SPEED OF THE PROGRAM? WHAT IS THE STANDARD DEVIATION? HOW POSSIBLE WILL THE PROGRAM SATISFY THE COMPANY NEEDS?

Formula:

$\mu = (a + b) / 2$

$\sigma = \sqrt{}((b - a)^2 / 12)$

$P(c \leqslant X \leqslant d) = \frac{d - c}{b - a}$

Given:

a = 10 secs

b = 40 secs

$x \leqslant$ 20 secs

Solution:

$\mu = (10 + 40) / 2$

$= 50 / 2$

$\mu = 25$ secs

$\sigma = \sqrt{}((40 - 10)^2 / 12)$

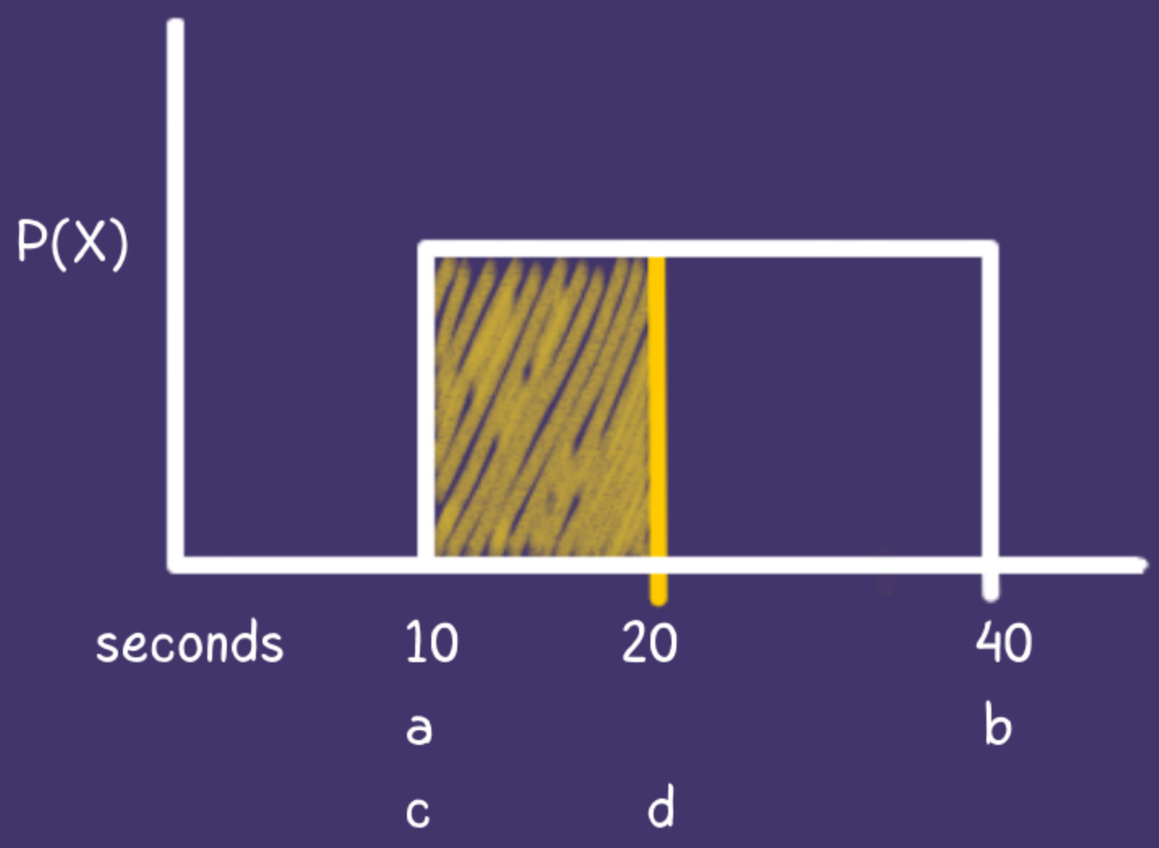
$= \sqrt{}(900 / 12)$

$\sigma = 8.6603$ secs

$P(c \leqslant X \leqslant d) = \frac{20 - 10}{40 - 10}$

$= \frac{10}{30}$

$P(c \leqslant X \leqslant d) = 0.3333$ or 33.33%



- The program has an average search speed of 25 seconds
- It differs from about 9 secs
- There is a 33.33% probability that it will be approved by the company

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-GEOMETRIC DISTRIBUTION-

A TEAM OF DEVELOPERS CONTRUCTED A SIGN LANGUAGE-TO-TEXT PROGRAM HOWEVER, IT ONLY DETECTS MOVEMENT PROPERLY FOR A PROBABILITY OF 32%. WHAT IS THE PROBABILITY THAT IT WILL DETECT AND TRANSLATE THE GIVEN SIGN LANGUAGE AFTER PERFORMING THE SAME SIGN 6 TIMES? HOW ABOUT 10 TIMES?

Formula:

q = 1 - p

P(X = x) = q^(x-1) p

Given:

p = 0.32

a = 6

b = 10

Solution:

q = 1 - 0.32

= 0.68

P(X = 6) = 0.68^(6-1) (0.32)

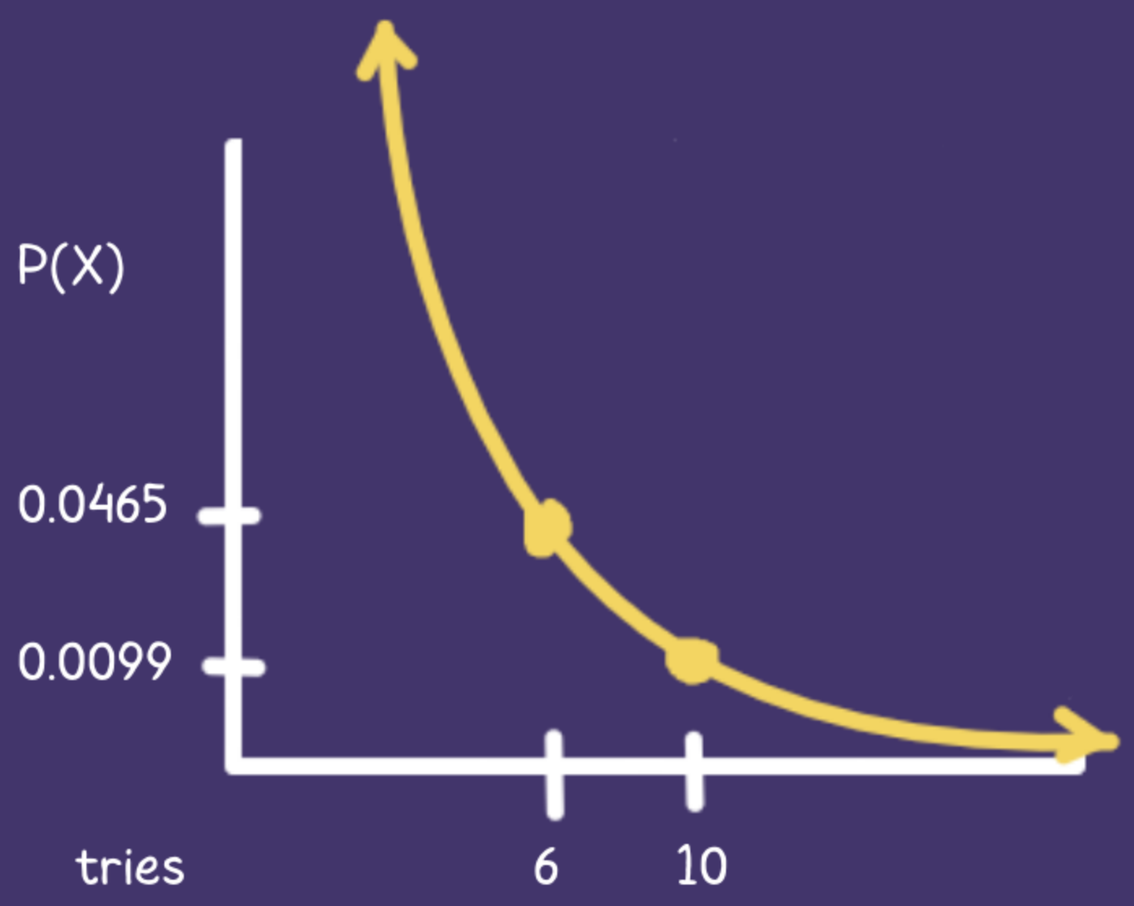
= 0.68^5 (0.32)

= 0.0465

P(X = 10) = 0.68^(10-1) (0.32)

= 0.68^9 (0.32)

= 0.0099



- There is a 4.65% chance that the program will properly translate the given sign language after performing it for 6 times.
- There is approximately 1% chance that the program will correctly detect the sign and translate it after 10 tries.