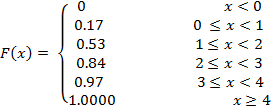
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SRN: PES2UG19CS296 Date: 05.09.2020

STATISTICS FOR DATA SCIENCE

ASSIGNMENT 14

1. Microbiologists want to estimate the concentration of a certain type of bacteria with a chemical process. They want to ensure that the concentration of that process should be within the limits. If it drifts beyond then, it should be stopped and recalibrated. Let X denotes the number of time in a week the process is recalibrated.  The following table presents the values of cumulative distribution function F(x) of X:



1. Find out the probability that the process is recalibrated less than 2 times during a week?
2. Find out the probability that the process is recalibrated more than three times during a week?
3. What is the probability mass function (PMF) for X?
4. What is the probability that no recalibration is needed?
5. What is the most probable number of recalibrations in a week?

Answer.

a. P(x<2)= 0 + 0.17 + 0.53 = **0.7**

b. P(x>3)= **0.97**

c. P(X=0) = **0.17**

P(X=1) = **0.53**

P(X=2) = **0.84**

P(X=3) = **1.00**

d. P(x=0) = **0.97**

e. The most probable number of recalibrations is **more than or equal to four** times in a week