

Data Analytics Lab 9

27/11/2018

A large manufacturing plant wishes to investigate the rate at which machines break down each day. We assume that these number of machine breakdowns each day follows a Poisson distribution. The parameter λ of this Poisson distribution assumed a random variable with exponential distribution and we are 80% sure that it is less than 5. This is the basis of the prior for λ .

The following table displays the number of breakdowns over 50 days. However, the precise number of breakdowns was not recorded for either 0 or 1 breakdowns on a given day.

| Number of Breakdowns/Day | 0-1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------------------|-----|----|---|---|---|---|---|
| Frequency | 19 | 12 | 8 | 4 | 3 | 3 | 1 |

You are required to estimate the frequency of the number of days in which there were no breakdowns, i.e. f_0 .