Project-1 Report

Text Statistical Analyzer

CIE-327

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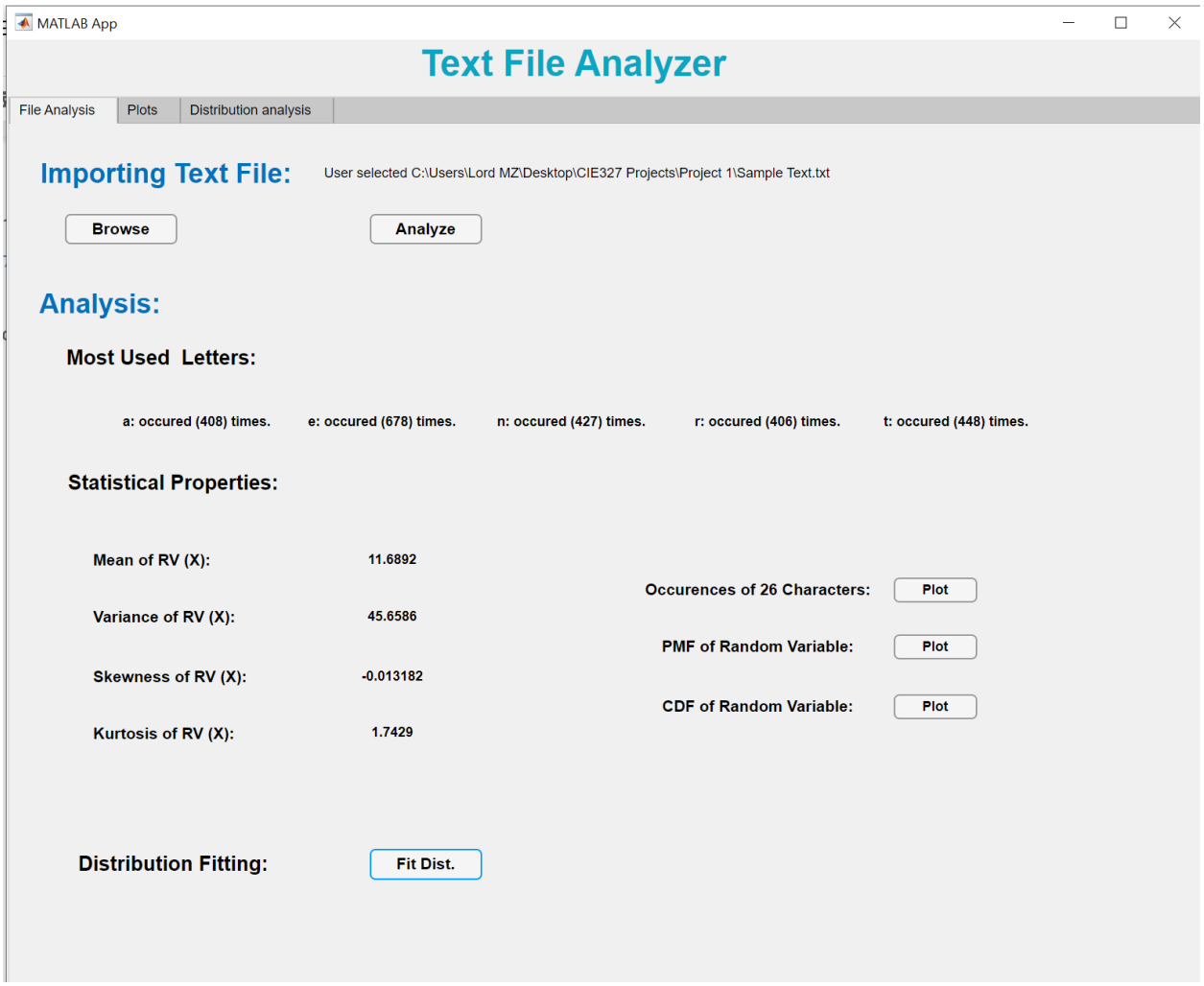
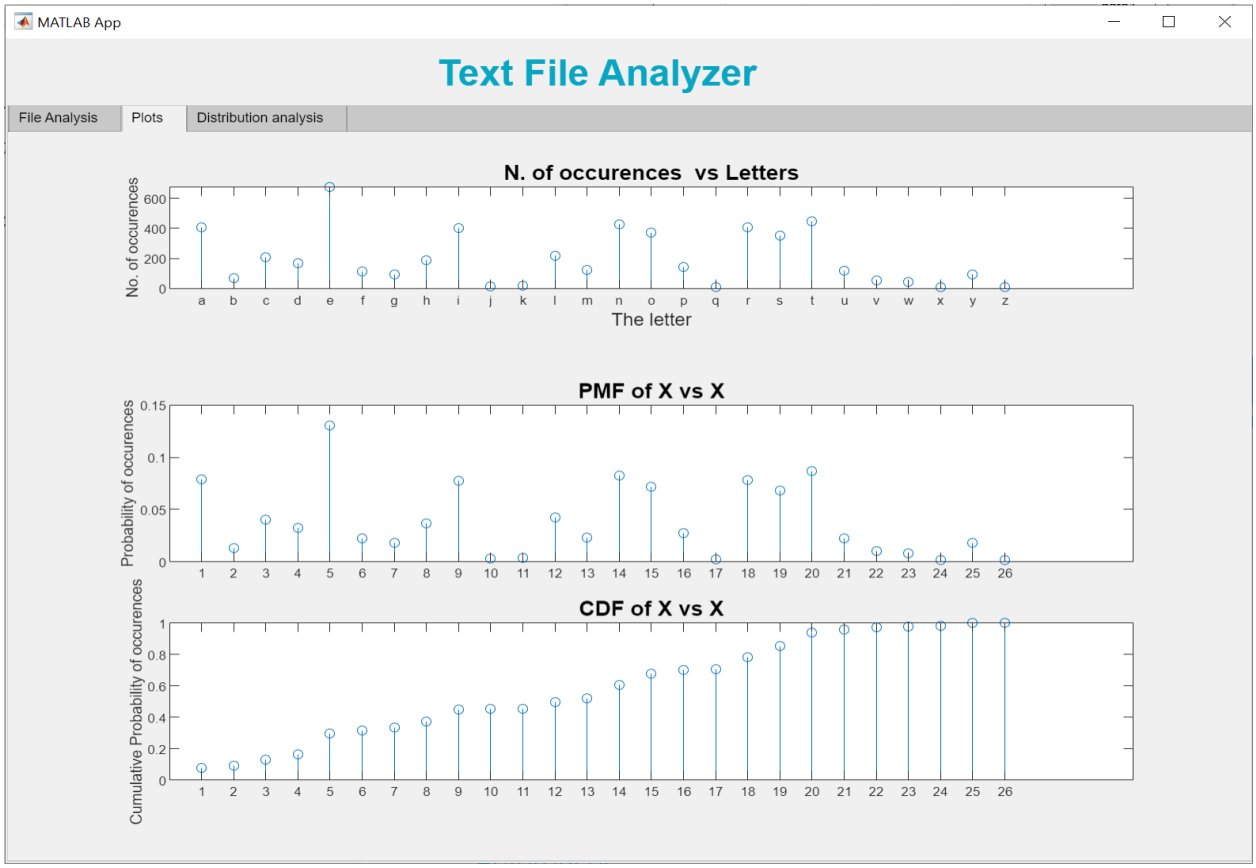
The GUI Outputs:




MATLAB App
Text File Analyzer
File Analysis
Plots
Distribution analysis
N. of occurences vs Letters
No. of occurences
The letter
PMF of X vs X
Probability of occurences
CDF of X vs X
Cumulative Probability of occurences

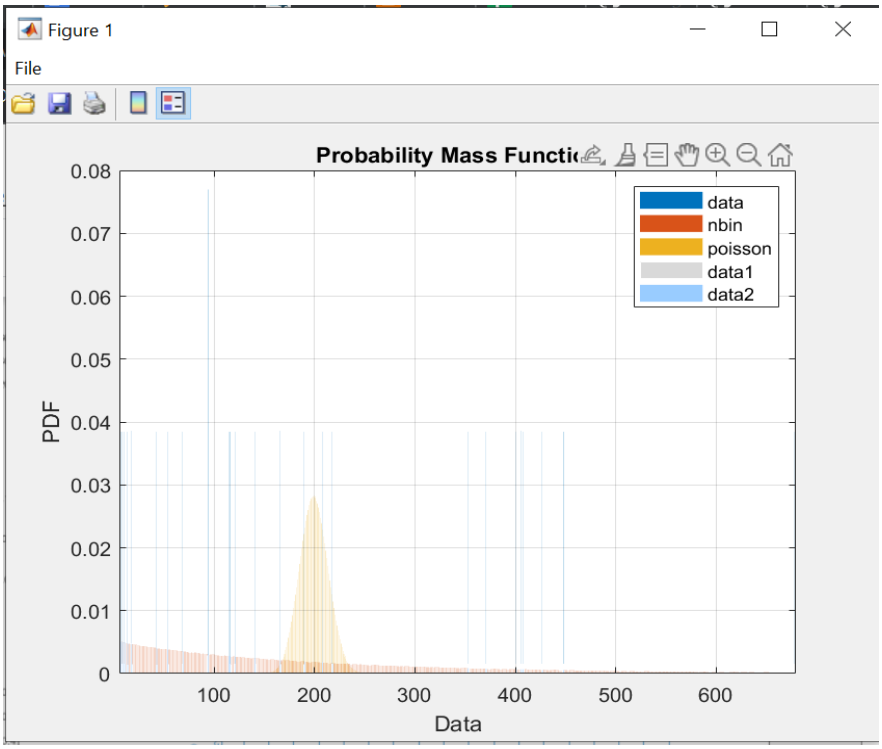


Figure 1
File
Probability Mass Functi
data
nbin
poisson
data1
data2
PDF
Data

The Equations:

Mean:

$$\mu_1 = \mu_x = \mathbb{E}[X] = \int_{-\infty}^{\infty} x f(x) \mathrm{d}x.$$

Variance:

$$m_2 = \mathbb{V}[X] = \int_{-\infty}^{\infty} (x - \mu_x)^2 f(x) \mathrm{d}x.$$

Skewness:

$$\bar{m}_3 = \mathbb{S}[X] = \mathbb{E}[Z^3] = \mathbb{E}\left[\left(\frac{X - \mu_x}{\sigma_x}\right)^3\right], \tag{15}$$

where Z is the *standard score* or z*-score*:

$$Z = \frac{X - \mu_x}{\sigma_x}. \tag{16}$$

Kurtosis:

$$\bar{m}_4 = \mathbb{K}[X] = \frac{\mu_4}{\sigma_4} = \mathbb{E}\left[\left(\frac{X - \mu}{\sigma}\right)^4\right].$$

References:

1- https://gregorygundersen.com/blog/2020/04/11/moments/

2-https://blogs.mathworks.com/pick/2012/02/10/finding-the-best/#respond

3-https://www.mathworks.com/matlabcentral/fileexchange/40167-fitmethis