Project Setup:

Estimation_Horsekicks Jupyter notebook is attached and hence it must be downloaded by the user to run the project.

Problem Statement:

Deaths by horse kicks for each corps has to be modeled using the Poisson distribution .

Description:

Modeled the horse kick deaths using the Poisson distribution . Poisson distribution parameters for each of the corps were learned using Maximum likelihood estimation and Maximum aposteriori estimation using first 13 years of data and predictions were made on remaining 7 years .

In question deaths from horse kicks followed a random pattern. The Maximum Likelihood Estimate of Poisson was calculated using **mean of observations.** The results for the same is shown in table .

In MAP calculation Since the number of deaths are positive and have skewed distributions, the **gamma** distribution was used as a prior. Values of alpha and beta were determined based on data analysis.

Prior, likelihood and posterior graphs were plotted and observations in terms of mode of the distributions for corps 2, 4 and 6 were carried out.

Coding Language:

Python is used as a programming language.

Libraries used:

Pandas, Numpy ,Seaborn ,Matplotlib , scipy are used.

Live code, visualizations and narrative text:

Jupyter notebook is used for live coding and for proper visualizations with the help of graphs.