Poisson Calculator

Objective:

Poisson distributions are essential distributions in the world of statistical analysis/calculation. Create algorithms that can calculate the poisson probability.

Complexity level:

* Easy/Medium

Business Scenario:

* John Doe is a worker for a consulting firm as a statistician.
* He is given various companies and scenarios to analyze the growth of.

Problem statement

1. Company X weekly sells 300 bags of rice. What is the probability that exactly 320 bags of rice will be sold next week.
2. Company A sells 4000 pencils daily, what is the probability that it sells either exactly 4010 pencils tomorrow, or exactly 3090 pencils tomorrow.
3. Write an algorithm calculating the probability that company x will sell exactly 40,000 computers next month if yearly, it sells 600,000.
4. Write an algorithm that calculates the probability that Bobby will grow exactly 3 inches in 3 years if daily, he grows .00279 inches (calculation done using 3 significant figures).

Expectation outcomes:

Practice Poisson distribution probability, an essential tool in data analysis/ data extrapolation/statistics.

Reference URL:

1. Joachim H. Ahrens; Ulrich Dieter (1974). "Computer Methods for Sampling from Gamma, Beta, Poisson and Binomial Distributions". Computing 12 (3): 223–246. [doi](https://en.wikipedia.org/wiki/Digital_object_identifier):[10.1007/BF02293108](https://dx.doi.org/10.1007%2FBF02293108).
2. Joachim H. Ahrens; Ulrich Dieter (1982). "Computer Generation of Poisson Deviates". ACM Transactions on Mathematical Software 8 (2): 163–179. [doi](https://en.wikipedia.org/wiki/Digital_object_identifier):[10.1145/355993.355997](https://dx.doi.org/10.1145%2F355993.355997).
3. Donald E. Knuth (1969). Seminumerical Algorithms. [The Art of Computer Programming](https://en.wikipedia.org/wiki/The_Art_of_Computer_Programming), Volume 2. [Addison Wesley](https://en.wikipedia.org/wiki/Addison_Wesley).