

An Introduction To Bayesian Statistics



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Why

How do we estimate the probability?

- **Classical:** By considering equal outcomes
- **Frequentist:** Relative Frequency over time
- **Bayesian:** By updating our beliefs for each obs.

Coin Toss: Classical Est.



Dice: Classical Est.



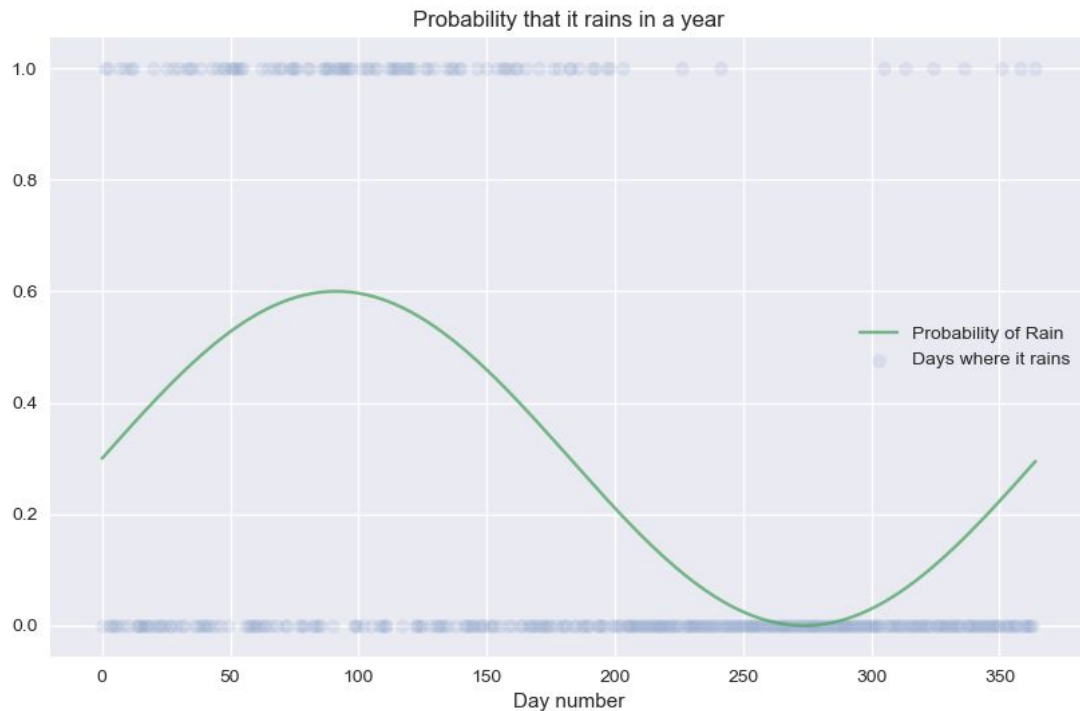
Classical Stats

- Requirements
 - All Outcomes are known
 - Outcomes are assumed to be equally likely
- Advantages
 - Fast Estimation
 - Easy to understand
- Disadvantages
 - High Bias
 - Outcomes must be known
 - Cannot create sophisticated (high variance) models

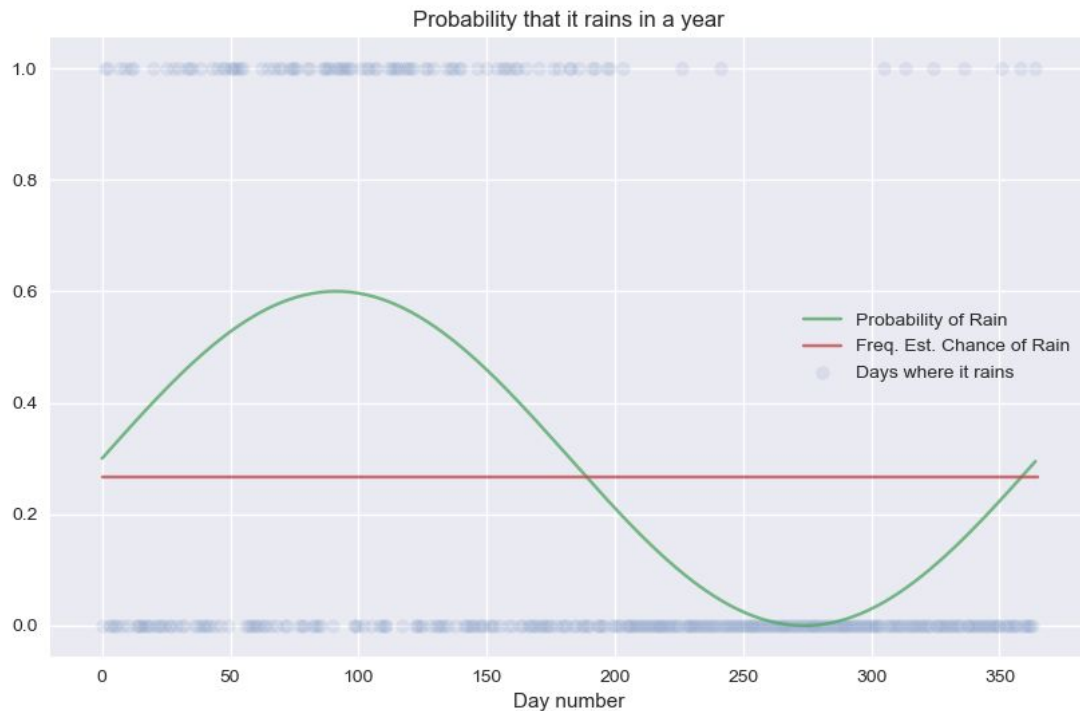
How do we estimate the probability?

- ~~Classical~~
- Frequentist
- Bayesian

Probability of Rain: Frequentist Est.



Probability of Rain: Frequentist Est.



How do we estimate the probability?

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Bayes Theorem

How

Foreshadow MCMC

Conclusion and “Call to Action”

Find Slides on Github

<https://cutt.ly/zGqux9>



A screenshot of the GitHub profile page for Simon Thornevill von Essen. The profile includes a profile picture, a bio, and a list of pinned repositories. The pinned repositories are: 'Udacity-DataScience-Nanodegree', 'Udacity-DataAnalyst-Nanodegree', 'Pet-Project---Bodybuilding-WFPB-Diet', 'Pet-Project---Tygem-Fuseki-Web-Scraper-using-Python', 'Udemy_LazyProgrammer_Courses', and 'Hamburg.DS.Meetup.Bayesian-Stats_Intro'. The 'Hamburg.DS.Meetup.Bayesian-Stats_Intro' repository is highlighted with a yellow background. Below the pinned repositories, there is a section for '178 contributions in the last year' with a calendar grid showing contributions from July to July. The grid shows a pattern of green squares indicating contributions, with a higher density in the latter half of the year. The grid is labeled with days of the week (Mon, Wed, Fri) and months (Jul, Aug, Sep, Oct, Nov, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul). A link to 'Learn how we count contributions.' is provided at the bottom left of the grid, and a 'More' link is at the bottom right.

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