UCLA College | Social Sciences Economics

Day 11: Probability & Statistics

Paul Schumacher, MSc Quantitative Economics

Announcements

Attendance

Class Survey

https://forms.gle/QnCN7MnSHD5dC1Xz9

Final Review

Today 4pm – 5:30pm

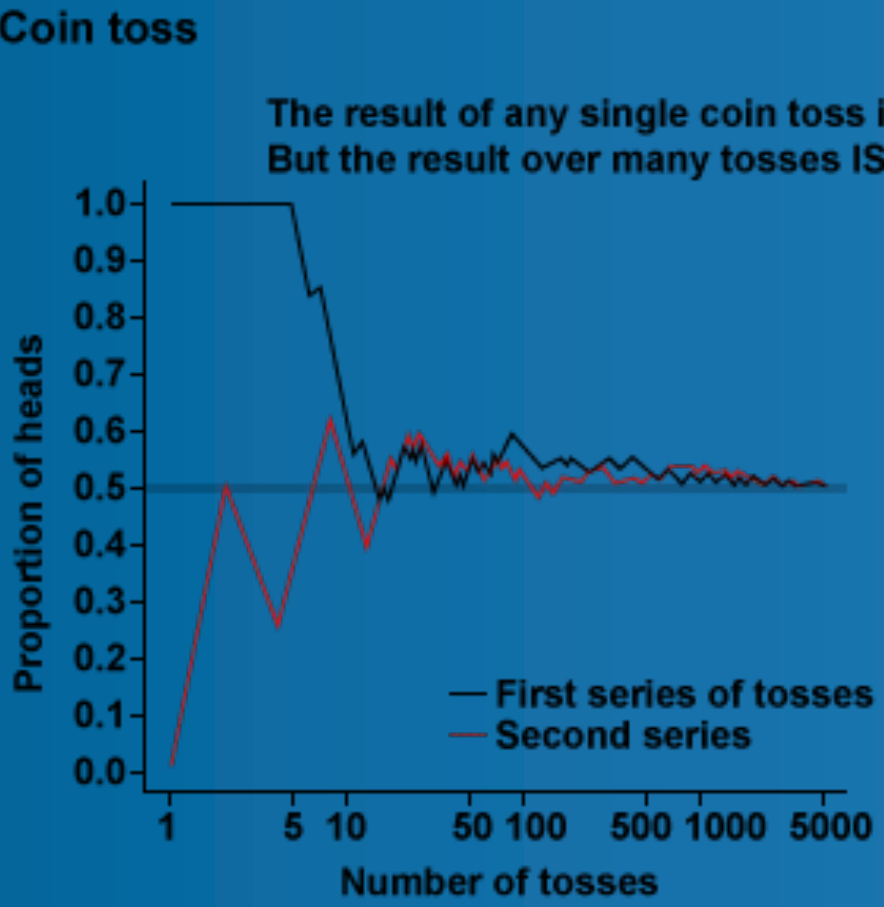
Final

Tomorrow 4pm – 6pm

Exam Prep

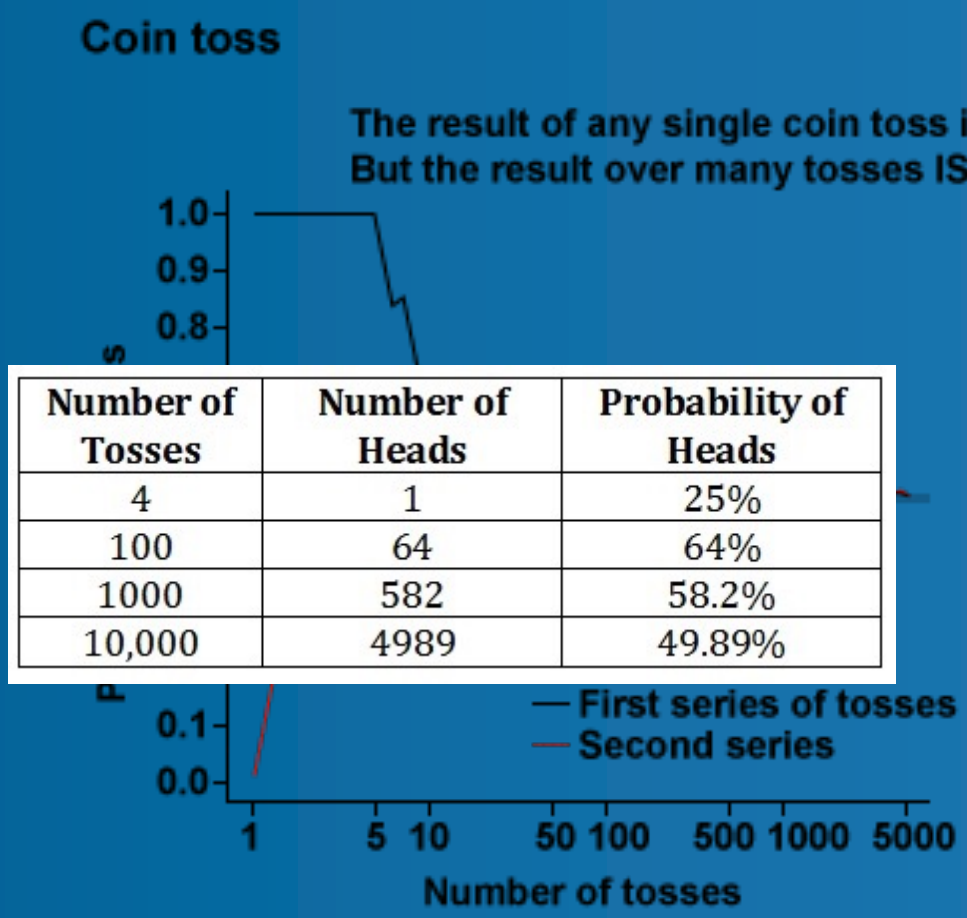
- “PLF Day 11 Exam Prep II.ipynb”
- Breakout rooms
- Time: 15 - 20 min

Probability & Statistics: Law of Large Numbers



The probability of heads is 0.5 = the proportion of times you get heads in many repeated trials.

Probability & Statistics: Law of Large Numbers

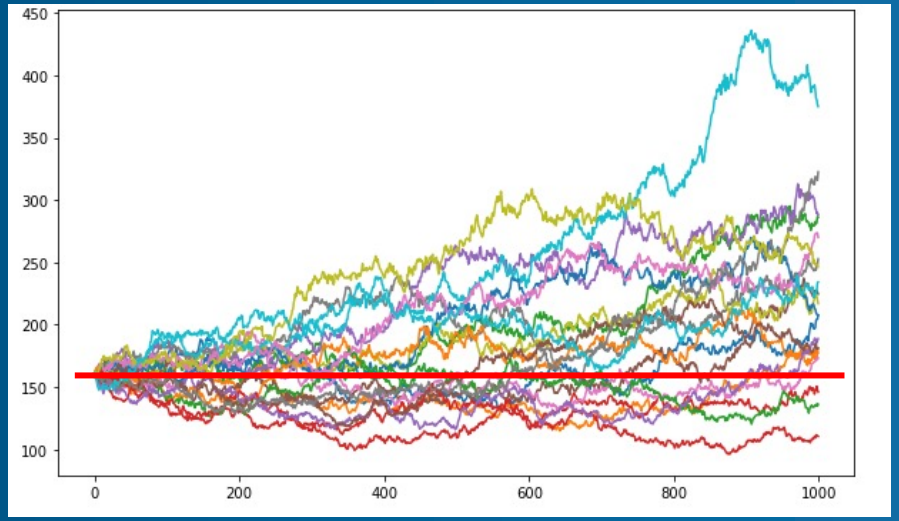


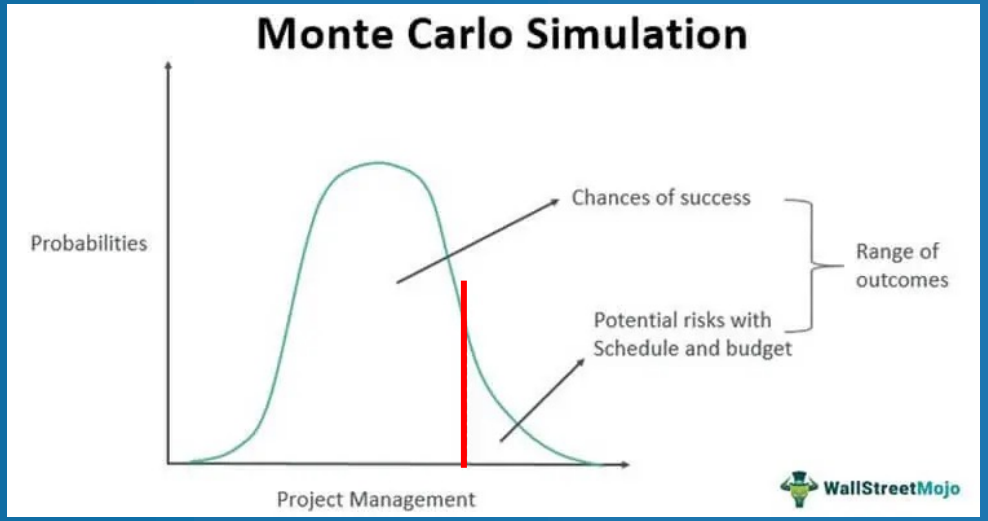
Number of Tosses	Number of Heads	Probability of Heads
4	1	25%
100	64	64%
1000	582	58.2%
10,000	4989	49.89%

The probability of heads is 0.5 = the proportion of times you get heads in many repeated trials.

Probability & Statistics: Monte Carlo Simulation

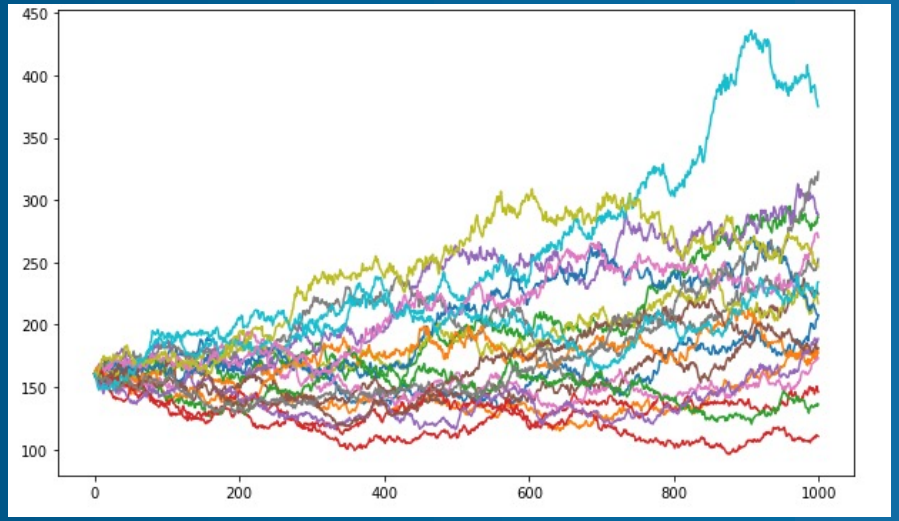
- Technique (MCS) ≠ Theorem (LLN)

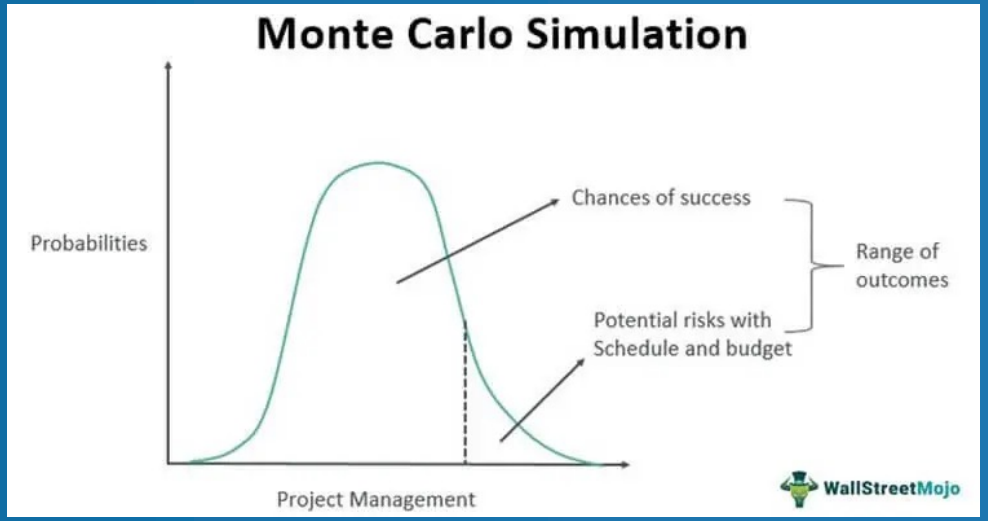




Probability & Statistics: Monte Carlo Simulation

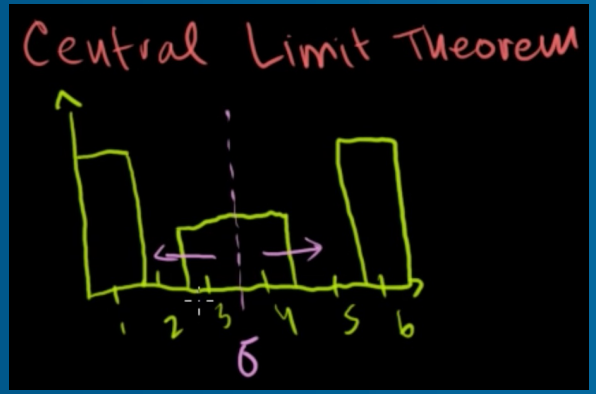
- Technique (MCS) ≠ Theorem (LLN)

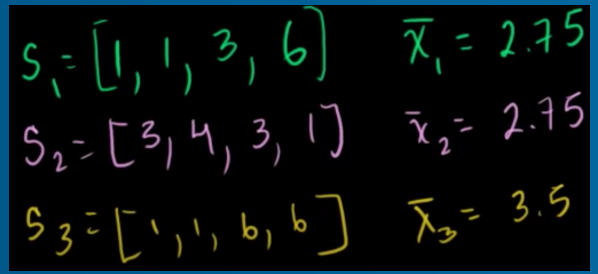


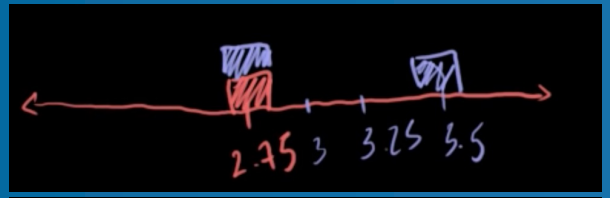


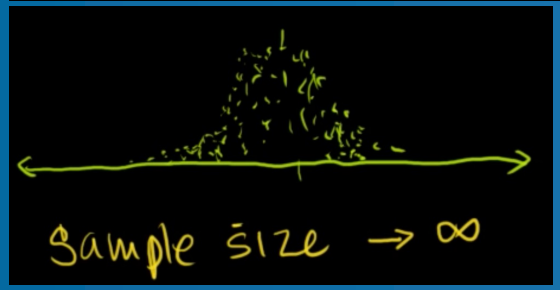
From *undefined* Distribution to *Normal* Distribution

Probability & Statistics: Central Limit Theorem



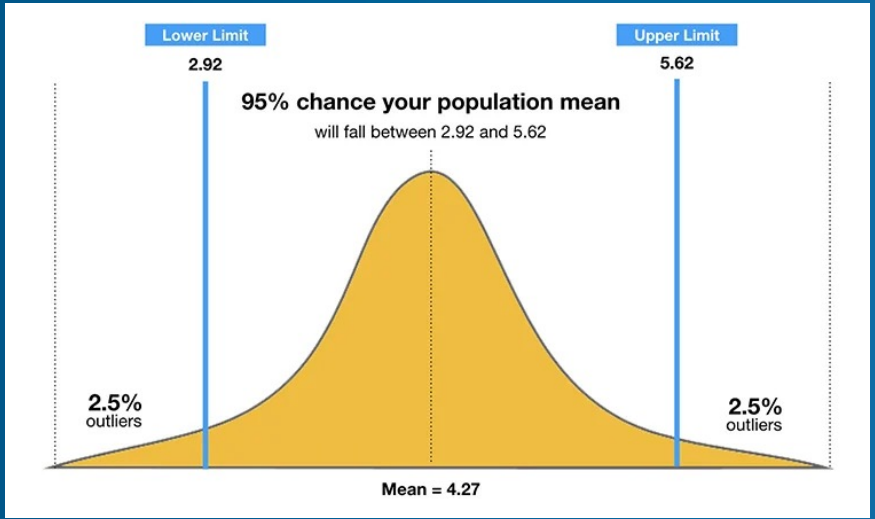


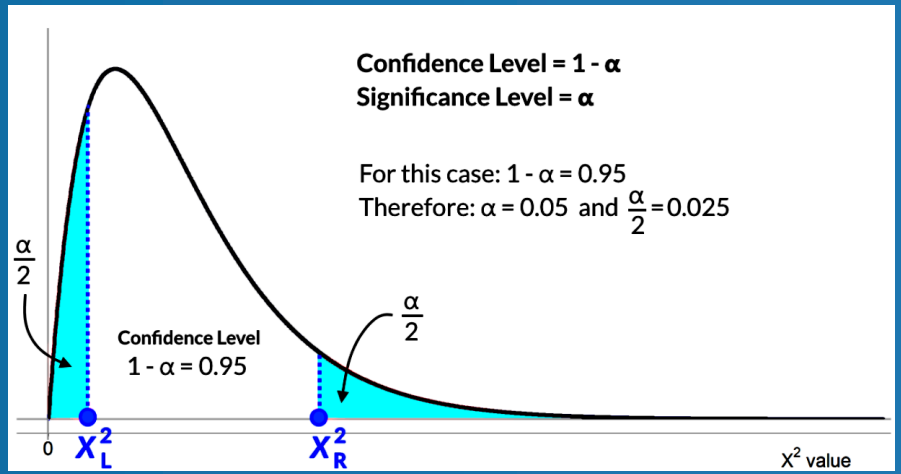




https://www.youtube.com/watch?v=JNm3M9cqWyc&ab_channel=KhanAcademy

Probability & Statistics: Confidence Interval





kaggle

https://www.youtube.com/watch?v=oQy6A9IguFc&ab_channel=ProgrammingStudy

1. Create an Account
2. Find 3 projects for your industry fields (Breakout rooms):
   - Team 1: Tourism
   - Team 2: Education
   - Team 3: Entertainment
   - Team 4: Sport

   Task: Provide Topics, Explanation of and Application for the data set

Any Questions?