ILLINOIS

STAT107 Data Science Discovery

Lab: Central Limit Theorem

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- Please work in a group of 2–4 students
  - collaboration is important in data science!
  - meet new friends and discuss :)
  - let us know if you have any questions
- Attendance form
  - you can come up if you do not want to use this form
  - submit before you leave the lab

Practical experience of the day

When $n \to \infty$, the conclusions of LLN and CLT are similar. However, CLT provides variability assessment, which tells us more information. This is useful if we want to compare different estimators.

Comment: project_mosaic

- Check email for score decomposition
- Grading is based on test cases in or before Q7
    - rubric states that it should be all-or-nothing. However, I give back at least half of the points if your code is partly correct
- Final mosaic (and own tiles)
    - always 0 if Section 8 is not completed
    - -5 if there is any other problem with your code or final mosaic. You should upload at least the web version of your mosaic unless you have sent it to me for attendance purpose
- EC in Q9:
    - partial credit is given depending on the level of completion
    - if you are working on the LAB color space, you need to give all the necessary code for a new mosaic output (or at least point out the code blocks that you also re-executed) for full credit

- Main page
- Hints
    - 2.1: use .sample() and .mean(). Check previous labs if you forget what do they do. Remember to subset the correct column first
    - 2.2: be aware of the difference between the number of replications r and the sample size n
    - 3.1: groupby appropriate column name and aggregate with sum
- Extra credit (5 points)
    - for Cauchy average, check numpy on how to generate Cauchy random variables
    - the remaining simulations are similar to 2.2. To have reproducible results, set seed before each simulation
- Submit your work. Feel free to:
    - ask us questions
    - leave whenever you finish the lab