

R

Q1 [Central Limit theorem]

1. Create a random vector of length 50000 from an exponential distribution with $\text{LAMBDA} = 0.2$. Create a scatter plot (point) of the sorted values.
2. Partition the values into 500 vectors containing 100 element each.
3. Plot cumulative distribution function (CDF) and probability density function (PDF) for first five (5) vectors. Also calculate the mean and standard deviation for each of the groups and print the values for first five.
4. Treat means for each partition as a random variable to plot graphs for frequency, cumulative distribution function (CDF) and probability density function (PDF).
5. Calculate the mean and standard deviation of the distribution for means.
6. Verify that the mean and standard deviation of the distribution of sample mean values to be close to the original distribution.

Submission format

Your submission should be a single rollno.r file.