

COMP 1433 Quiz 2 (Tuesday)

1. What does the function `str()` do in R?
 - A. Convert an object into string format.
 - B. Compute summary statistics of a variable.
 - C. Display the structure of an object.
 - D. Sort a vector in ascending order.

The correct answer is C. See P43 of Lecture 6.

2. What is the purpose of aesthetic mapping in `ggplot2`?
 - A. To assign data variables to visual properties of the objects in a plot
 - B. To specify the type of plot to create
 - C. To add annotations to a plot
 - D. To control the appearance of the legend

The correct answer is A. See P19 Lecture 7.

3. Suppose we have a data frame `df` with columns `x`, `y`, and `z`. Which of the following R code can we use to obtain a random sample of 100 rows from `df`?
 - A. `sample(df, size = 100)`
 - B. `sample(nrow(df), size = 100)`
 - C. `df[sample(seq_len(nrow(df)), 100),]`
 - D. `df[sample(df, 100),]`

The correct answer is C. To obtain a random sample of rows from a data frame in R, we can use the `sample()` function to generate a random sequence of row indices, and then use the `[...]` operator to select those rows. See Pg 20 Lecture 8.

4. Given 1000 flipping of a fair coin, which of the following code allows us to calculate the probability of 512 heads-up or more?
 - A. `dbinom(512, 1000, prob=0.5, lower.tail=TRUE)`
 - B. `dbinom(512, 1000, prob=0.5, lower.tail=FALSE)`
 - C. `pbinom(512, 1000, prob=0.5, lower.tail=TRUE)`
 - D. `pbinom(512, 1000, prob=0.5, lower.tail=FALSE)`

The correct answer is D. See P29 Lecture 9.

5. Which of the following about Monte Carlo simulation is NOT true?
 - A. The confidence of the estimation largely depends on the variance of samples.
 - B. It is a very effective method possibly allow 100% accuracy.
 - C. Larger sample size may be helpful to draw unbiased results.
 - D. The Monte Carlo simulation is based on the principles of inferential statistics.

The correct answer is B. See P17 Lecture 9