

Quiz on Vectors, Matrices, and Dataframes in R

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Your name: _____

Quiz: Vectors, Matrices, and Dataframes in R

Instructions

Answer all questions. Each question is worth 1 point.

Multiple Choice Questions (MCQs)

1. Which of the following will create a numeric vector with values 1, 2, 3?
 - a) `c("1", "2", "3")`
 - b) `c(1, 2, 3)`
 - c) `c(1L, 2L, 3L)`
 - d) `c(TRUE, FALSE, TRUE)`
2. What function is used to check the type of a vector?
 - a) `is.vector()`
 - b) `typeof()`
 - c) `mode()`
 - d) `class()`
3. What is the output of `length(1:10)`?
 - a) 9
 - b) 10
 - c) 11
 - d) 1

4. How do you create a matrix with 2 rows and 3 columns filled by rows with numbers 1 to 6?
- a) `matrix(1:6, nrow = 2, byrow = TRUE)`
 - b) `matrix(1:6, ncol = 2)`
 - c) `matrix(1:6, nrow = 2)`
 - d) `matrix(1:6, byrow = FALSE)`
5. What will be the result of `matrix(1:6, nrow = 2, byrow = TRUE)[1,]`?
- a) 1 3 5
 - b) 1 2
 - c) 2 4 6
 - d) 1 2 3
6. How can you name the columns of a matrix `m` with `c("A", "B", "C")`?
- a) `colnames(m) <- c("A", "B", "C")`
 - b) `names(m) <- c("A", "B", "C")`
 - c) `dimnames(m) <- c("A", "B", "C")`
 - d) `labels(m) <- c("A", "B", "C")`
7. Which of the following will create a dataframe `df` with two columns `a` and `b`?
- a) `df <- data.frame(c(1, 2, 3), c(4, 5, 6))`
 - b) `df <- dataframe(a = c(1, 2, 3), b = c(4, 5, 6))`
 - c) `df <- data.frame(a = c(1, 2, 3), b = c(4, 5, 6))`
 - d) `df <- c(a = c(1, 2, 3), b = c(4, 5, 6))`
8. How do you select the `a` column from a dataframe `df`?
- a) `df$a`
 - b) `df["a"]`
 - c) `df[, "a"]`
 - d) All of the above
9. What will be the result of `sum(c(1, 2, 3) * c(4, 5, 6))`?
- a) 12
 - b) 21
 - c) 32
 - d) 44
10. How do you remove the second column from a dataframe `df`?
- a) `df <- df[-2,]`
 - b) `df <- df[, -2]`
 - c) `df <- df[, -c(2)]`
 - d) `df <- remove(df, 2)`

True or False Questions

11. A matrix in R can only contain elements of the same data type.
 - True
 - False
12. You can store both numeric and character data in the same vector.
 - True
 - False
13. The `nrow` function returns the number of rows in a dataframe.
 - True
 - False
14. Vectors in R can have elements of different lengths.
 - True
 - False
15. `data.frame()` automatically converts strings into factors by default.
 - True
 - False

Short Answer Questions

16. Write the R code to create a vector with the sequence of numbers from 10 to 1.
 17. Write the R code to create a 2x2 matrix with the values 1, 2, 3, and 4.
 18. How do you calculate the mean of all elements in a numeric vector `v`?
 19. Create a dataframe `df` with three columns: `height` (numeric), `weight` (numeric), and `gender` (factor) with at least 3 rows.
 20. How do you subset a dataframe `df` to only include rows where `age > 30`?
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End of Quiz