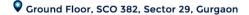


R FOUNDATION PRACTICE QUESTIONS (Not for Submission)

Ground Floor, SCO 382 (Next to Iffco Chowk Metro station) Sector 29, Gurgaon, Haryana First Floor, Bldg-41, 14th Main Road Sector 7, HSR Layout, Bengaluru, Karnataka

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- 1. Use R code to get a description of the version of R and its attached packages used in the current session?
- 2. Create an object that has the list of all the installed packages in your system.
- 3. Create an object with the following data types and check their data types by using the class function after creation
 - a. integer
 - b. numeric
 - c. character
 - d. logical
 - e. complex
- 4. Create the following objects:

```
object_1 <- "my_text"
```

object_2 <- "123.456"

object_3 <- 123.456

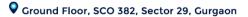
object_4 <- 0

object 4 <- FALSE

Perform type casting on each of the object. (Convert each of the objects into different available data types and analyze the results).

- 5. List all the objects in the current session.
- 6. Convert the data "1/December/1998" into a Date type.
- 7. Find the number of years from the Independence of India till present.
- 8. Convert the following text into a Date format:
 - "On the 16th of December the hostilities between the two countries ended and a new nation was formed in the winter of 1971" (Hint: Use lubridate)
- 9. Convert the string "December-31-2018" to a date format and extract the month. (Hint: use lubridate)
- 10. Create a vector with 5 numbers and find the data type of it.
- 11. Create a vector with 5 numbers and 1 text and find the data type of it.
- 12. Create a vector with number from 1 to 1000 with a step of 10. (Hint: use seq())
- 13. Create a vector V1 having numbers from 11 to 20. (Hint: use n:m)
- 14. Extract the 5th, 7th and 9th element of the vector v1 and save it in an object V2.
- 15. Save the first 9 elements of the vector V1 in a separate object naming 'V3'.
- 16. Create a vector "Airport.Codes" with the following information:
 DEL, BOM, PUN, MAA, DEL, MAA, PUN, DEL, MAA, PUN, DEL, BOM
- 17. PUN is the incorrect airport code and it should be PNQ. Replace the values in the vector Airport.Codes.





- 18. Create vector "x" with the values {4, 4, 5, 6, 7, 2, 9}.
 - a. Calculate the number of observation (n), mean, sum, max, min, variance of the vector 'x".
 - b. Also print the 3rd element, odd positions elements and elements from 2 to 6 positions.
- 19. Create a vector 'Age' with values from 1 to 99.
- 20. Create a vector 'Young.Old' by extracting values from 1 to 18 and 80 to 99 from Age Vector.
- 21. Find the number of elements in the vector Young.Old.
- 22. Find the sum, mean, median, min and max age in the vector Young.Old.
- 23. Create 6x4 matrix (6 rows and 4 columns) using 1 to 24 numbers
- 24. Create a vector 'for.m' which has 30 numeric values. Use this vector to create a matrix my matrix with 10 rows.
- 25. Extract the 1st, 5th and 9th row of the 1st and 2nd column from the matrix my_matrix.
- 26. Create data frame with the below vectors

```
StoreID - (111, 208, 113, 408)
```

Tenure - (25, 34, 28, 52)

StoreType - ("Type1", "Type2", "Type1", "Type1")

status - ("Poor", "Improved", "Excellent", "Poor")

- 27. Print the data in different programs.
 - a. only storeld, tenure
 - b. only storetype and status
 - c. only tenure
- 28. Create a data.frame 'Employee.Info' by combining vectors. The table should have 4 columns with 5 rows. The columns should be 'Employee.ID', 'Employee. Name', 'Employee.Salary', 'Employee.Department'. (Provide arbitrary values for the rows).
- 29. Create different factors using the below vectors and label the values and order levels for factors "outcome" and "status".
 - a. ethnicity White", "African amrican", "White", "Asian"
 - b. status Poor", "Improved", "Excellent", "Poor"
 - c. outcome c(1, 3, 2, 4, 3, 1, 1) labels- "Poor", "Average", "Good", "Excellent"
- 30. Create list called "mylist" with the title "My First List" and with the below objects called "ages" with below h, j and k. Also print the different combinations of objects.
 - h -numeric vector with the values 25, 26, 18, 39
 - j matrix with 5 rows and 2 columns with the values 1 to 10
 - k character vector with the values "one", "two", "three"







Basic Exploratory Data Analysis

- 31. Import the stores.csv dataset and save it as df1.
- 32. Apply below functions on stores data frame and observe the outputs.

class(df1)

names(df1)

length(df1)

dim(df1)

str(df1)

head(df1)

tail(df1)

fix(df1)

summary(df1)

Hmisc::describe(df1)

- 33. Import the second sheet of the excel file CarData.xlsx and save it as Car.Info
- 34. Save the object df1 as an .RData file in the hard drive (df1.RData).
- 35. Save all the objects created so far in a .RData File. Name it as My Backup.
- 36. Delete df1 and Car.Info from the global environment.
- 37. Find the names of all the current objects in the global environment and save this information in an object 'Current_objects_in_GE'.
- 38. Delete all the objects available in the global environment.
- 39. Import the df1.RData file from the hard drive.
- 40. Find the summary details of df1 (Hint: use summary() or Hmisc::describe()).





Structure Based Data Manipulation

- 41. Find details regarding the structure of df1 (Hint: use str())
- 42. Extract the column Staff Cnt from df1 and save it in an object 'Staff Count'.
- 43. Add 10 to every value of the vector 'Staff_Count' and name it as 'Updated_ Staff_Count'.
- 44. Add this vector 'Updated_ Staff_Count' as a column in the data.frame df1.
- 45. Create an object 'Store_Details' by extracting the following columns from df1 StoreCode, StoreName, StoreType, Location, OwnStore.
- 46. Find the class of Store_Details.
- 47. Change the data type of the column StoreName from factor to character.
- 48. Rename the column 'AcqCostPercust' to 'ACPC' and 'ProfitPercust' to 'PPC'.
- 49. Create a column 'MarketingSpend' which has a constant value of 200. Use this column to create another column 'UpdatedOperatingCost' which is OperatingCost + MarketingSpend.
- 50. Delete the column MarketingSpend.
- 51. In df1, the UpdatedOperatingCost should be next to the column OperatingCost.
- 52. In df1, Create new variable store_class as follows.
 If total sales<120 then "Low Perform store"</p>
 If total sales>=120 and total sales<240 then "Average Perform store"</p>

If total sales>240 then "High Perform store"



Content Based Data Manipulation

- 53. Find the names of the top 3 SuperMarket stores of Delhi with the highest TotalSales.
- 54. Find the information such as the StoreName, TotalSales, OperatingCost and Staff_Cnt of the stores where the store is owned and there is an online presence.
- 55. Check if there are any duplicate rows in df1
- 56. Check if there are any duplicate rows in df1 on the basis of StoreCode.
- 57. Create a new dataset that has removed duplicates on the basis of StoreName and StoreCode.
- 58. How to find missing values in the df1 dataset and recode missing values with 0? Delete the missing values (if there are any) from the data set?
- 59. Sort the df1 data as follows
 - a. Create new dataset (newstores) with sorted data by "Storetype"
 - b. Create new dataset (newstores) with sorted data by location(ascending) and totalsales in descending order.
- 60. Create subsets of data from stores data as following conditions.
 - a. Only Columns 5,7, 8,9
 - b. Excluding columns 5, 7, 8,9
 - c. Selecting first 10 observations
 - d. Observations with Storetype= Apparel and totalsales>100
 - e. Columns (storecode, storename, location, totalsales) with totalsales between 100 & 300.
 - Include all columns from Storecode to Basketsize with storetype=Electronics and totalsale>100



