

BD Assignment - 5

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1. Print the class, type, mode and storage mode of the following values: inf, NA, NaN, "".

```
a ← inf
b ← NA
c ← NaN
d ← ""

print("inf:")
print(class(a))
print(typeof(a))
print(mode(a))
print(storage.mode(a))
print("NA:")
print(class(b))
print(typeof(b))
print(mode(b))
print(storage.mode(b))
print("NaN:")
print(class(c))
print(typeof(c))
print(mode(c))
print(storage.mode(c))
print(class(d))
print(typeof(d))
print(mode(d))
print(storage.mode(d))
```

OUTPUT:

```
inf :
numeric
double
numeric
double
```

NA:

logical
logical
logical
logical

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NaN:

numeric
numeric
numeric
double

character
character
character
character

2. Randomly generate 1000 pets from the choices "dog", "cat", "hamster" and "goldfish" with equal probability of each being chosen. Display the first few values of the resultant variable and count the number of each type of pet.

```
pet <- sample(c("Dog", "Cat", "Hamster",  
               "Goldfish"), 1000, replace = TRUE)
```

```
summary(as.factor(pet))
```

OUTPUT:

Cat	Dog	Goldfish	Hamster
252	275	211	262

3. The beaver1 and beaver2 data frames contain body temperatures of two beavers.

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Add a column named id to the beaver1 dataset, where the ~~dataset~~ is value is always 1. Similarly, add an id column to beaver2, with value 2. Vertically concatenate the two data frames and find the subset where body temp is above 10.

```
beaver1$id ← 1
```

```
beaver2$id ← 2
```

```
both ← rbind (beaver1, beaver2)
```

```
subset (both, as.logical (active))
```

OUTPUT:

day	time	temp	active	id
54	346	1730	1	1
68	346	1950	1	1
80	346	2179	1	1
212	308	150	1	2

4. Create a data frame to specify data on students given below: Roll number, Name, Department, Course, Year of Joining.

→ Write a function to print names of all students who joined in a particular year.

→ Write a ~~fun~~ function to print the ~~date~~ data of a student whose roll number is given.

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```
name <- c("Shriya", "Shivam", "Rajlaxmi")  
roll_no <- c(1830191, 1830050, 1803037)  
dept <- c("ECS", "ECS", "Electrical")  
course <- c("B.Tech", "B.Tech", "B.Tech")  
year <- c(2018, 2018, 2018)  
emp_dataframe <- data.frame(roll_no,  
                             name, dept, course, year)
```

```
n <- as.integer(readline)  
print_names <- function  
p <- as.integer(readline(prompt = "Enter  
the year:"))
```

```
print_names <- function(p) {  
  emp_dataframe[emp_dataframe$year  
                == (p),]  
}
```

```
print_names(p)  
n <- as.integer(readline(prompt = "Enter  
the Roll No:"))
```

```
details <- function(n) {  
  emp_dataframe[emp_dataframe$roll_no  
                == (n),]  
}  
details(n)
```

OUTPUT:

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Enter the year: 2018

Shriya
Shivam
Rajlaxmi

Enter the Roll No: 1830191

name	roll_no	dept	course	year
Shriya	1830191	ECS	B.Tech	2018

5. Write an R-script to check and count the total no of ~~words~~ vowels within the given string.

```
str <- readline(prompt = "Enter the string:")  
lower <- tolower(str)  
vowel <- function(lower) {  
  count <- 0  
  vector <- c("a", "e", "i", "o", "u")  
  for (i in unlist(strsplit(lower, " ")))  
  {  
    if (i %in% vector)  
      count <- count + 1  
  }  
  print(paste(count, "vowels"))  
}  
vowel(lower)
```

OUTPUT:

Enter the string: Shriya Sarkar
4 vowels

6. Write an R-script to reverse a string and display that.

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```
library(stringi)
n <- c("shriya")
reverse <- stri_reverse(n)
print(reverse)
```

OUTPUT: ayirhs

7. Write an R-script to extract a sub-string of 5 characters from the given string and replace the sub-string with "V-day" within the original string.

```
library(stringi)
str <- c("Hello Shriya")
new_str <- stri_replace(str, "Hello",  
                        "V-day")
print(new_str)
```

OUTPUT: V-day Shriya

8. Write an R-script to search a specific sub-string from a string and display ~~also~~ its position. Then insert a new string at that position without changing anything.

9. Write an R-script that replaces two or more consecutive blanks in a string by a single blank.

```
library(stringi)
str <- readline(prompt = "Enter the string:")

str <- str_squish(str)
print(str)
```

OUTPUT:

My Enter the string: My name is
Sheeja Sarkar

My name is Sheeja Sarkar

10. Write an R-script that receives the month and year of from the keyboard as integers and prints in the ~~cal~~ calendar format.

calendR (year = 2021,
month = 8)

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OUTPUT:

August 2021

Mon	Tue	Wed	Thu	Fri	Sat	Sun
2	3	4	5	6	7	1
9	10	11	12	13	14	8
16	17	18	19	20	21	15
23	24	25	26	27	28	22
30	31					29

11. Write an R-script to check the given vector is a factor or not? If not, then convert it into a factor and display that with levels.

```
a <- as.integer(readline(prompt = "Enter a:"))
b <- as.integer(readline(prompt = "Enter b:"))
c <- as.integer(readline(prompt = "Enter c:"))
d <- as.integer(readline(prompt = "Enter d:"))
vector <- c(a, b, c, d)
n <- is.factor(vector)
if (n == TRUE)
  print("Factor")
else
  print("Convert")
x <- as.factor(vector)
print(x)
```

str(x)

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OUTPUT:

Enter a: 23

Enter b: 45

Enter c: 12

Enter d: 121

Convert

Levels: 12 21 45 121

12. Write an R-script to create a vector having 10 names, where some names are repeated. Then convert it to a factor and display to check the levels, then change the order of levels in alphabetical order and display it.

```
vector <- c("Shriya", "Saptarshi", "Kaustubh",  
            "Saptarshi", "Shriya", "Shivam", "Shriya",  
            "Smigdha", "Rajlaxmi", "Saptarshi")
```

```
fact_name <- factor(vector)  
order(vector, decreasing = F)
```

OUTPUT: 3 9 2 4 10 6 1 5 7 8

13.