**Assignment 1**

1. Study of basic Syntaxes in R **(Wednesday- 16-11-2022)**

2. Implementation of vector data objects operations **(Wednesday- 16-11-2022)**

3. Implementation of matrix, array and factors and perform va in **R (Wednesday- 16-11-2022)**

4. Implementation and use of data frames in R **(Wednesday- 16-11-2022**)

5. Create Sample (Dummy) Data in R and perform data manipulation with R **(Wednesday- 16-11-2022)**

6. Study and implementation of various control structures in R **(Wednesday- 16-11-2022)**

7. Data Manipulation with dplyr package **(Friday-18-11-2022)**

8. Data Manipulation with data.table package**(Friday-18-11-2022)**

9. Study and implementation of Data Visualization with ggplot2 **(Friday-18-11-2022)**

10. Study and implementation data transpose operations in R **(Friday-18-11-2022)**

Assignment 2

1. Create a function named pass\_check that takes a number for the argument grade and returns “pass” if the number is equal or greater than 5 and “fail” if it’s lower. **(Wednesday- 23-11-2022)**

##### Add two aditional arguments, on\_time and optional\_part. When on\_time is FALSE, then 1 point should be substracted from the number entered, and when optional\_part is TRUE, then 1 point should be added to the number entered. Then return “pass” when the final grade is greater than 5 and “fail” when it’s lower. As a clarifying example, when you call the function with pass\_check(grade=5,on\_time = F, optional\_part = F) the result should be “fail”, as 5 - 1 + 0 = 4, and when you call the function with pass\_check(grade=4,on\_time = T, optional\_part = T) it should return “pass”, as 4 - 0 + 1 = 5. Besides, in this case, the final grade is allowed to be -1 or 11.

**(Wednesday- 23-11-2022)**

1. Create a vector grades with numbers 1 to 10. Pass the function to each element of the vector as the argument grade, with values for on\_time and optional\_part always fixed at TRUE and FALSE respectively. **(Wednesday- 23-11-2022)**

##### 4. Read the df\_states.csv from local, with the argument stringsAsFactors=F. Manage to automatically coerce all character variables to factor ones, without naming any specific column. This function should work with any data.frame no matter the dimension, number, names or position of character variables. (Friday-25-11-2022)

5. You can check which directory the R workspace is pointing to using the getwd() function. You can also set a new working directory using setwd()function.. **(Friday-25-11-2022)**

id,name,salary,start\_date,dept

1,Rick,623.3,2012-01-01,IT

2,Dan,515.2,2013-09-23,Operations

3,Michelle,611,2014-11-15,IT

4,Ryan,729,2014-05-11,HR

5,Gary,843.25,2015-03-27,Finance

6,Nina,578,2013-05-21,IT

7,Simon,632.8,2013-07-30,Operations

8,Guru,722.5,2014-06-17,Finance

**Operations to perform**

1. Read and Print

2. data <- read.csv("input.csv")

print(is.data.frame(data))

print(ncol(data))

print(nrow(data))

### 3. Get the maximum salary

### 4. Get the details of the person with max salary

### 5. Get all the people working in IT department

### 6. Get the persons in IT department whose salary is greater than 60000

### 7. Get the people who joined on or after 2014

8. Use **write.csv()**

**Assignment 3**

Exercise 1 **(Wed-30-11-2022)**An experimenter intends to arrange experimental plots in four blocks. In each block there are seven plots, one for each of seven treatments. Use the function sample() to find four random permutations of the numbers 1 to 7 that will be used, one set in each block, to make the assignments of treatments to plots

Exercise 2  
Use y <- rnorm(100) to generate a random sample of 100 numbers from a normal distribution. Calculate the mean and standard deviation of y. Now put the calculation in a loop and repeat 25 times. Store the 25 means in a vector named av. Calculate the standard deviation of the values in av. **(Wed-30-11-2022)**

Exercise 3  
Create a function that does the calculations of exercise 2. **(Wed-30-11-2022)**

**Assignment 4**

1. Implement R program for finding the factorial of a given number. **(FRI-02-12-2022)**

2. (a)Implement R program to read two integers and perform all possible arithmetic operations

and display the results.

(b)Write R program to create a vector which contains 10 random integer values between -50

and +50.

(c) Write R program to create three vectors having numeric data, character data and logical data.

Display the content of the vectors and their type. **(FRI-02-12-2022)**

3. Write R program to create data frame which contain details of employees such as name, salary and date of birth. Display statistics of the data on salary and date of birth. **(FRI-02-12-2022)**

4. Write R program to create and print a list of elements using vectors, matrices. **(FRI-02-12-2022)**

5. Write R program to create and print list of heterogeneous data, which include character, numeric and logical vectors. **(Wed-07-12-2022)**

6. Write R program to read CSV file and perform the following preprocessing operations: **(Wed-07-12-2022)**

(a)Display the contents of CSV file.

(b) Find the missing values in a dataset.

(c) How to remove missing values in a data set.

7. Implement R program to import packages and create a bar plot and bell curve of a random normal distribution for a given data. **(Wed-07-12-2022)**