**CME 4403**

**Lab 1 Worksheet - Due Date: 23th October, 17:00**

*Write down answer the space below the question. Please replace the file name with your name before submitting to the SAKAI.*

1. a) Define a variable **name** that contains a person name “John”.

b) Define a variable **measure** that contains the value 5.7

c) Define a variable **fault** that shows the execution status of a process as TRUE

1. a) Define a character vector **name\_vector** that contains 5 names: John, Asli, Can, Berk, Cansu.

b) Define a numeric vector **num\_vector** that contains 5 integer values: 3, -2, 4, -1, 5.

c) Define a Boolean vector **bool\_vector** that contains: TRUE, FALSE, TRUE, FALSE, TRUE.

d) Define a numeric vector **rand\_num** that contains 30 numbers between 3 and 100 with equal intervals (Hint: use the seq() function).

1. a) Print **second** and **third** elements of **name\_vector.**

b) Print **num\_vector** elements which are bigger than 3.

c) Print people names that are indicated as TRUE in **bool\_vector**.

d) Print the summation of **num\_vector** (Hint: use the sum() function).

e) Create a new vector (**pos\_num**) that only contains positive values in **num\_vector**.

1. a) Create a new list for specifying person data: **person\_list.** The initial list should contain 3 entiries: “John”, 27, “Computer Engineer”.

b) Assign the name of each element in **person\_list**: “name”, “age”, “occupation”

c) Add a new element to the current **person\_list**:name: “salary” value: 5000

d) Print the name and salary of this person separately.

1. Create a matrix and apply the following operations on:
2. Create a matrix called **weather\_matrix** by using ***seq***command that creates 15 numbers from 5 to 30 with equal intervals. **weather\_matrix** should contain 5 rows and 3 columns, fill the matrix by rows.
3. Set the row (day1, day2, day3, day4, day5) and column (s1, s2, s3) names of **weather\_matrix.**
4. Compute the summation of samples (rowSums) and find which day has the highest amount of temperature.
5. Choose day4 and day5 and their s2 and s3 samples, save them in a **subB** object.
6. Use built-in data.frame: “mtcars”
7. What are the dimensions of mtcars?
8. Select the cars from **mtcars** that has 6 or smaller cylinder size, and then assign it to a new object called as **smallc**.
9. How many cars are in the **smallc** object?
10. What is the average horse power (hp) of all cars in **smallc**?
11. Get the cars that have 5 gears in **smallc**. What are the names of those cars?
12. Write a loop block to check which numbers are even / odd within a given vector **inp\_vec** that contains5, 2, 7, 6, 3, 19, 23, 78, 145, 3, 4, 6, 9, 12, 67. Print a message that indicates the number type such as “6 is even” (the number itself and its type: even/odd).
13. Create 3 vectors: **name** ("Ali","Cenk","Mete"), **age** (26,32,29), **salary** (2700, 3200, 4900). Then combine these vectors in a data.frame (**company**). Find the name of the employee who gets the highest salary in that company by writing a loop structure.