***Tutorial 3 – Data Structures***

1. Convert 0>Low, 1>Medium, 2>High in *data <-c(1,2,2,0,1,2,0,1,2).*
2. Write an R program to create a matrix taking a given vector of numbers as input. Then, display the matrix.
3. Write an R program to create a matrix taking a given vector of numbers as input. Then, give names for its columns and rows. Finally, display the matrix.
4. Write an R program to create two 2x3 matrices then add, subtract, multiply and divide the matrices.
5. Write an R program to access the element(s) of a given matrix stored in the following indices:
   1. 2nd row and 3rd column,
   2. the 3rd row,
   3. the 4th column.
6. Write an R program to multiply the value stored in *the 2nd row and 3rd column* by the value stored in *the 1st row and 2nd column*.
7. Write an R program to concatenate two given matrices of same number of columns but different number of rows.
8. Write an R program to concatenate two given matrices of same number of rows but different number of columns.
9. Write an R program to find the maximum and minimum value in a given matrix.
10. Write an R program to find the row and column index of the maximum and minimum value in a given matrix.
11. Write an R program to create an array from two 3x3 matrices.
12. From a given array, print the elements stored in the second row of the second matrix of the array. Then, print the element in the 3rd row and 3rd column of the 1st matrix in the array.
13. Given a vector of 24 elements, write an R program to create a 3 dimensional array. **Hint**: use *dim*() function.
14. Write an R program to create a data frame from four given vectors.
15. Write an R program to extract specific column from a data frame using its column name.
16. Write an R program to extract the first two rows from a given data frame.
17. Write an R program to add a new column in a given data frame.
18. Write an R program to add new row(s) to an existing data frame.
19. Write an R program to drop column(s) by name from a given data frame.
20. Write an R program to create a list containing a character, a number, two vectors, a data frame, and a list.
21. Write an R program to create a list containing a vector, a matrix and a list and give names to the elements in the list. Access the first and second element of the list.