***Lab 3 – Data Structures***

***Matrix***

1. Write a R program to create a blank matrix
2. Write a R program to create a matrix taking a given vector of numbers as input. Display the matrix.
3. Write a R program to create a matrix taking a given vector of numbers as input and define the column and row names. Display the matrix.
4. Write a R program to access the element at 3rd column and 2nd row, only the 3rd row and only the 4th column of a given matrix.
5. Write a R program to create two 2x3 matrix and add, subtract, multiply and divide the matrixes
6. Write a R program to find row and column index of maximum and minimum value in a given matrix.
7. Write a R program to concatenate two given matrices of same column but different rows

***Data Frames***

1. Write a R program to create an empty data frame
2. Write a R program to create a data frame from four given vectors
3. Write a R program to extract specific column from a data frame using column name
4. Write a R program to extract first two rows from a given data frame
5. Write a R program to add a new column in a given data frame
6. Write a R program to add new row(s) to an existing data frame
7. Write a R program to drop column(s) by name from a given data frame

***Array***

1. Write a R program to create an array of two 3x3 matrices each with 3 rows and 3 columns from two given two vectors
2. Write a R program to create an 3 dimensional array of 24 elements using the dim() function
3. Write a R program to create an array of two 3x3 matrices each with 3 rows and 3 columns from two given two vectors. Print the second row of the second matrix of the array and the element in the 3rd row and 3rd column of the 1st matrix.

**List**

1. Write a R program to create a list containing strings, numbers, vectors and a logical values.
2. Write a 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.