

**WQD7004 Programming for Data Science**  
**Lab 5 Function and File**

1. Write R scripts for each of the following.
  - a. A **multiprint** function that consists of two arguments n and c that prints n copies of character c.
  - b. An **ismultiply** function that returns TRUE if the third argument is equal to the multiplication of the first and second argument. The default value of all arguments is 1.
  - c. An **issquare** function that returns TRUE if the argument is a square number.
  - d. A **generatetwice** function that generates random numbers from 1 – 10. The function will display the random number generated and return the first random number that generate twice.
2. Write R scripts for each of the following.
  - a. A **getfirstlast** function that returns the first and last elements of the argument vector.
  - b. A **getrows** function that consists of two arguments, the first argument is the data frame and the second argument is the number of rows, n. The function will return the first n rows of the data frame.
  - c. A **getrowbyname** function that consists of two arguments, the first argument is data frame and the second argument is name rows. The function will return the row based on the name.
  - d. A **getcolumnbyname** function that consists of two arguments, the first argument is data frame and the second argument is column(s) name. The function will return the column(s) stated.
3. Create a data frame with the following columns name ("EID", "EXP1", "EXP2", "EXP3") The value of EID is from 1 to 8, and the value of EXP1, EXP2 and EXP3 is any random number from 1-100.
  - a. Store the data frame in a csv file name **numtest.csv**. After that, read the csv file created and display the mean value for EXP1, EXP2 and EXP3.
  - b. Store the data frame in a csv file name **numtest1.csv** (use ; as separator). After that, read the csv file created and display the min value for EXP1, EXP2 and EXP3.
  - c. Store the data frame in a rds file name **numtest.rds**. After that, read the rds file created and display the max value for EXP1, EXP2 and EXP3.
4. Create an R file named **matrixfile.r**. The script will ask user to enter M and N. Create a matrix with M rows and N columns with random numbers 1-99 (no duplicate) and save it in **matrix.rds**. After that, read the rds file and get the maximum and minimum position of the matrix.