

Practical Bioinformatics Assignment-1

Introduction to R

For Practice but will be considered as continuous evaluation

Time = 30 Jan 2022.

1. Write a R program to accept input from the user (say, name and user-ID) and display them. Also, print the version of the R installation. **3**
 2. Write an R program for the following task: - **2+2+3**
 - i) Create a sequence X having first 100 multiples of 3.
 - ii) Find the mean and standard deviation of X.
 - iii) Design a function to find the difference of two consecutive numbers in a series and apply it on X.
 3. Write an R program for the following task :- **1+1+1+2+1+3+3**
 - i) Create a vector named norm_vec of length 100 having random normally distributed numbers with mean 0 and sd 1 and multiply the series with 100.
 - ii) Create a vector named binom_vec of length 100 following random binomial distribution with p i.e. prob of success =0.55.
 - iii) Create a vector named pois_vec of length 100 following random poisson distribution with mean=0.02 and multiply the vec by 100.
 - iv) Create a matrix using cbind command having columns norm_vec,binom_vec,pois_vec.
 - v) Convert this matrix to dataframe and name as df.
 - vi) Draw histogram, densityplot of each column.
 - vii) Find all possible scatterplot of the given data.
- ##Note :- Use ggplot for plotting
- 4) Write a R program to create an 3 dimensional array of 24 elements using the **3** dim() function. (Note: The dim() is an inbuilt R function that **either sets or returns the dimension of the matrix, array, or data frame**)
 - 5) Write R program for the following task :- **3+3+3+1**
 - i) Take input from user asking to print name of fruit, colour, amount to purchase , price.
 - ii) Run this function for 10 times i.e.10 entries should be done.
 - iii) Store each item i.e. name, colour, price, amount in separate vector and then create a list having these elements stored with their name as Name_fruit,Color_fruit,Price_fruit,Amount.
 - iv) Convert this list into a dataframe.

##Additional Problem

Explore NCBI GEO Datasets website and find out possible ways to download data to R directly. Coming assignments will be based on downloading data from GEO dataset and finding differentially expressed genes.