**LISTS**

**Aim:** Write an R program to sort a Vector in ascending and descending order.

**Code:**

|  |
| --- |
| l=list("R","lab",12.2,88.8,c(10,20,30,40),TRUE,FALSE) print(l) |

**Output:**

Text

Description automatically generated

**Aim**:-

Write an R program to count the number of objects in a list.

**Code:**

|  |
| --- |
| paste("Number of objects in the given list is ",length(l)) |

**Output**



**Aim**:- Write an R program to create a list containg a vector,a matrix and a list and give names to the elements in a list

**Code:**

|  |
| --- |
| li=list(c("family","friends","food"),matrix(c(1,2,3,4,5,6),nrow=3),list("c","c++","python","java")) print(li)  names(li)=c("mylife","natural numbers","prog. languages") print(li) |

**Output:**

Graphical user interface, text, application, chat or text message

Description automatically generated

**Aim**:- Write an R program to create a list containg a vector,a matrix and a list and remove the 2nd element.

**Code:**

|  |
| --- |
| li[2]=NULL print(li) |

**Output:**

Text

Description automatically generated with medium confidence

**Aim**:- Write an R program to create a list containg a vector,a matrix and list and element at the end of the list.

**Code:**

|  |
| --- |
| li[3]="new element" print(li) |

**Output:**

Text

Description automatically generated with medium confidence

**DATA FRAMES**

**Aim**:- Write an R program to create a Data frame which contains details of 5 employees and display the data.

**Code:**

|  |
| --- |
| emp.data <- data.frame(   id = c(1:5),   name = c("A","B","C","D","E"),   dept = c("IT","HR","IT","Finance","HR"),   stringsAsFactors = FALSE )  print(emp.data)  #get structure of dataframe str(emp.data)  #print summary print(summary(emp.data))  #extract specific columns res <- data.frame(emp.data$id,emp.data$name) print(res) |

**Output:**

Text

Description automatically generated with medium confidence

**Aim**:- Implement dataframes in R. Write a program to join columns and rows in a dataframe using cbind() and rbind() in R.

**Code:**

|  |
| --- |
| emp.data <- data.frame(   id = c(1:5),   name = c("A","B","C","D","E"),   dept = c("IT","HR","IT","Finance","HR"),   stringsAsFactors = FALSE )  emp.newrows <- data.frame(   id = c(6:7),   name = c("F","G"),   dept = c("Finance","HR"),   stringsAsFactors = FALSE )  emp.newcols <- data.frame(   place = c("Delhi","Hyderabad","Mumbai","Vizag","Chennai","Bengaluru","Kolkata") )  print(emp.data)  emp.finalrows = rbind(emp.data,emp.newrows) print(emp.finalrows)  emp.finalcols = cbind(emp.finalrows,emp.newcols) print(emp.finalcols) |

**Output:**

Graphical user interface, text

Description automatically generated with medium confidence

**BASICS**

**Aim**:Write an R program to create a function to print squares of a number in sequence.

**Code:**

|  |
| --- |
| sq<- function(n){   for(i in 1:n){     s=i\*i     print(s)   } } num=readline(prompt = "enter a number: ") sq(num) |

**Output:**

Graphical user interface, text, application

Description automatically generated

**DATA TYPES**

**Aim**:- Write an R program to create a vector which contains 10 random integer values between -50 and +50.

**Code:**

|  |
| --- |
| x <- c(sample(-50:50,10,replace=FALSE)) print(x) |

**Output:**

A picture containing calendar

Description automatically generated

**Aim**:- Write an R program to create a 5 × 4 matrix, 3 × 3 matrix with labels and fill the matrix by rows and 2 × 2 matrix with labels and fill the matrix by columns.

**Code:**

|  |
| --- |
| x <- matrix(c(1:20),nrow=5,ncol=4,byrow = TRUE,dimnames = list(c("r1","r2","r3","r4","r5"),c("c1","c2","c3","c4"))) y <- matrix(c(1:9),nrow=3,ncol=3,byrow=TRUE,dimnames=list(c("r1","r2","r3"),c("c1","c2","c3"))) z <- matrix(c(1:4),nrow=2,ncol=2,byrow=FALSE,dimnames=list(c("r1","r2"),c("c1","c2"))) print(x) print(y) print(z) |

**Output:**

Text, application

Description automatically generated

**Aim**:- Write an R program to sort a Vector in ascending and descending order.

**Code:**

|  |
| --- |
| x <- c(20,10,30,15) print(sort(x)) print(sort(x,decreasing = TRUE)) |

**Output:**

Text

Description automatically generated

**Aim**:- Write an R program to find the maximum and the minimum value of a given vector.

**Code:**

|  |
| --- |
| x <- c(20,10,15,30) print(max(x)) print(min(x)) |

**Output:**

Text

Description automatically generated

**Aim**:- Write an 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.

**Code:**

|  |
| --- |
| v1=c(1,2,3,4,5) v2=c(-1,-3,-5,-6,-7,0,32) print(v1) print(v2) com=array(c(v1,v2),dim=c(3,3,2)) print("combined two arrays : ") print(com) print("second row of 2nd matrix of array : ") print(com[2,,2]) print("Third element of 3rd row and the 3rd column of 1st matrix : ") print(com[3,3,1]) |

**Output:**

Graphical user interface, text, application

Description automatically generated

**STATISTICS**

**Aim**: Write an R program to create a simple bar plot of three subject’s marks, change the border color to brown and make inside bar lines as 90 degrees.

**Code:**

|  |
| --- |
| marks=c(10,20,30) barplot(marks,main="marks of 3 subjects",xlab="subjects",ylab="marks",names.arg=c("telugu","maths","science"),angle=90,border="brown",horiz="FALSE") |

**Output:**

Chart, bar chart

Description automatically generated

**Aim**: Write a program to read a csv file and analyze the data in the file in R.

**Code:**

|  |
| --- |
| setwd("G:/sem6/r\_lab")  csv\_data<-read.csv(file='sample.csv') print(csv\_data) print(ncol(csv\_data)) print(nrow(csv\_data)) |

**Output:**

Text

Description automatically generated

**Aim**: Write an R program to draw an empty pie chart and empty plots specify the axes limits of the graph

**Code:**

|  |
| --- |
| plot.new() plot(1,type="n",xlab="",ylab="",xlim=c(0,20),ylim=c(0,20)) |

**Output:**

Chart, bubble chart

Description automatically generated

**Aim**: Write an R program to create a simple bar plot of four subject’s registered, assign the colors to each bar and assign the limit to x-axis as c(0,5) and y-axis as c(0,50).

**Code:**

|  |
| --- |
| marks<-c(40,30,30,40) clr<-c("blue","pink","red","yellow") barplot(marks,main="marks of 4 subjects",xlab="subjects",ylab="marks",xlim=c(0,5),ylim = c(0,50),col = clr,names.arg=c("s1","s2","s3","s4")) |

**Output:**

Chart, bar chart

Description automatically generated

**Aim**: Write an R program to create a simple 3D pie chart, assign color and labels to each part.

**Code:**

|  |
| --- |
| library(plotrix) x<-c(10,20,30,40) pie3D(x,main="3d pie chart",labels=c("label 1","label 2","label 3","label 4"),col=c("pink","green","violet","red")) |

**Output:**

Chart, pie chart

Description automatically generated

**Aim**: Write an R program to create a simple bar plot of five subject’s marks.

**Code:**

|  |
| --- |
| marks<-c(100,99,95,90,80) subjects<-c("telugu","english","hindi","science","maths") barplot(marks,names.arg = subjects,xlab="subjects",ylab=",marks",main="marks of 5 subjects",xlim=c(0,10),ylim=c(0,100)) |

**Output:**

Chart, bar chart

Description automatically generated

**Aim**: Write an R program to create a simple pie chart of four subjects registered, assign the colors to each block and display in anti-clockwise direction.

**Code:**

|  |
| --- |
| subjects<-c(20,40,50,60) colors<-c("red","purple","blue","pink") pie(subjects,main="Pie chart for 4 subjects registered",labels = c("maths","english","science","social"),col = colors,clockwise = FALSE) |

**Output:**

Chart, pie chart

Description automatically generated

**Aim**: Write an R program to create a simple 3D pie chart, assign title to the chart and also split each part.

**Code:**

|  |
| --- |
| library(plotrix) parts<-c(40,30,30,40) label<-c("India","US","Newyork","London") pie3D(parts,main="pie chart representing talents in each country",labels = label,col=c("yellow","pink","purple","red"),explode=0.1) |

**Output:**

Diagram

Description automatically generated with medium confidence

**Aim**: Write an R program to draw an empty bar plot and empty plots specify the axes limits of the graph.

**Code:**

|  |
| --- |
| plot.new() plot(1,type="n",xlab="",ylab="",xlim=c(0,20),ylim=c(0,20)) |

**Output:**

Chart, bubble chart

Description automatically generated

**Aim**: Write an R program to create a simple pie chart of three subject’s marks, change the border color to pink and make inside bar lines as 60 degrees.

**Code:**

|  |
| --- |
| marks<-c(90,80,70) pie(marks,labels = c("maths","science","social"),main="marks of 3 subjects",angle = 60,border = "pink") |

**Output:**

Chart, pie chart

Description automatically generated