Experiment No.4

> #Create data frame

> student\_name=c("A", "B" ,"C", "D", "E", "F", "G", "H", "I", "J", "H", "K", "L", "M", "N", "O", "P", "Q", "R", "S")

> student\_seatno=c("12270750", "12270751", "12270752", "12270753", "12270754", "12270755", "12270756", "12270757", "12270758", "12270759", "12270760", "12270761", "12270762", "12270763", "12270764", "12270765", "12270766", "12270767", "12270769", "12270770")

> sub\_END=c(84, 40, 54, 61, 20, 36, 52, 62, 72, 46, 47, 22, 37, 87, 65, 95, 65, 75, 86, 93)

> sub\_IS=c(80, 30, 61, 64, 56, 54, 71, 58, 69, 80, 60, 14, 48, 71, 70, 78, 63, 72, 82, 37)

> sub\_AI=c(83, 34, 61, 67, 31, 66, 52, 60, 68, 88, 77, 78, 35, 34, 84, 95, 58, 88, 88, 79)

> sub\_DL=c(85, 31, 56, 50, 44, 30, 53, 28, 66, 39, 49, 54, 45, 82, 30, 73, 50, 68, 72, 57)

> sub\_IL=c(88, 20, 47, 45, 48, 43, 62, 60, 32, 96, 33, 68, 30, 82, 74, 79, 53, 49, 75, 33)

> sub\_Project1=c(83, 35, 83, 78, 63, 76, 75, 83, 73, 84, 80, 70, 71, 95, 83, 82, 76, 79, 90, 81)

> students.data<-data.frame(student\_name,student\_seatno,sub\_END,sub\_IS,sub\_AI,sub\_DL,sub\_IL,sub\_Project1)

>

> #Total Marks

> Total\_Marks<-rowSums(students.data[,3:8])

> #Percentage

> Percentage<-(Total\_Marks/600)\*100

>

> students.data<-cbind(students.data,Total\_Marks)

> students.data<-cbind(students.data,Percentage)

> df<-students.data[order(students.data$Percentage),]

>

> #Top 5

> apply(tail(df,5),2,rev)

student\_name student\_seatno sub\_END sub\_IS sub\_AI sub\_DL sub\_IL sub\_Project1 Total\_Marks Percentage

1 "A" "12270750" "84" "80" "83" "85" "88" "83" "503" "83.83333"

16 "O" "12270765" "95" "78" "95" "73" "79" "82" "502" "83.66667"

19 "R" "12270769" "86" "82" "88" "72" "75" "90" "493" "82.16667"

14 "M" "12270763" "87" "71" "34" "82" "82" "95" "451" "75.16667"

10 "J" "12270759" "46" "80" "88" "39" "96" "84" "433" "72.16667"

> #Last 5

> head(df,5)

student\_name student\_seatno sub\_END sub\_IS sub\_AI sub\_DL sub\_IL sub\_Project1 Total\_Marks Percentage

2 B 12270751 40 30 34 31 20 35 190 31.66667

5 E 12270754 20 56 31 44 48 63 262 43.66667

13 L 12270762 37 48 35 45 30 71 266 44.33333

6 F 12270755 36 54 66 30 43 76 305 50.83333

12 K 12270761 22 14 78 54 68 70 306 51.00000

>

> median1<-median(students.data$Percentage)

>

> library(dplyr)

> print("Percentage below Median")

[1] "Percentage below Median"

> below\_median<-filter(students.data, students.data$Percentage<median1)

>

> print(below\_median[1])

student\_name

1 B

2 C

3 E

4 F

5 H

6 H

7 K

8 L

>

> Rank1<-c()

> count1=1

> for (i in Percentage){

+ if (i>=80){

+ Rank1[count1]='A'

+ count1=count1+1

+ }

+ else if (i<80 && i>=75){

+ Rank1[count1]='B'

+ count1=count1+1

+ }

+ else if (i<75 && i>=55){

+ Rank1[count1]='C'

+ count1=count1+1

+ }

+ else if (i<55 && i>=40){

+ Rank1[count1]='D'

+ count1=count1+1

+ }

+ else if (i<40 ){

+ Rank1[count1]='E'

+ count1=count1+1

+ }

+ }

>

> students.data<-cbind(students.data,Rank1)

> rank\_A<-filter(students.data, students.data$Rank1=='A')

> print(count(rank\_A))

n

1 3

> rank\_B<-filter(students.data, students.data$Rank1=='B')

> print(count(rank\_B))

n

1 1

> rank\_C<-filter(students.data, students.data$Rank1=='C')

> print(count(rank\_C))

n

1 11

> rank\_D<-filter(students.data, students.data$Rank1=='D')

> print(count(rank\_D))

n

1 4

> rank\_E<-filter(students.data, students.data$Rank1=='E')

> print(count(rank\_E))

n

1 1

>

> Total\_Score=c()

>

> #changing from dataframe to list

> sub\_AI1<-list(students.data$sub\_AI)

> sub\_DL1<-list(students.data$sub\_DL)

> sub\_END1<-list(students.data$sub\_END)

> sub\_IL1<-list(students.data$sub\_IL)

> sub\_IS1<-list(students.data$sub\_IS)

> sub\_Project1\_1<-list(students.data$sub\_Project1)

>

> #subject\_failuers list

> subject\_failures<-list(end=0,ai=0,is=0,dl=0,il=0,project1=0)

>

>

> h<-hash()

>

> abc<-function (list1,name){

+ count3=0

+ for (i in 1:length(list1[[1]])){

+ if(list1[[1]][[i]]<40 && list1[[1]][[i]]>=35){

+ if(list1[[1]][[i]]==39){

+ list1[[1]][[i]]=list1[[1]][[i]]+1

+ count3=count3+1

+ }

+ else if (list1[[1]][[i]]==38){

+ list1[[1]][[i]]=list1[[1]][[i]]+2

+ count3=count3+1

+ }

+ else if (list1[[1]][[i]]==37){

+ list1[[1]][[i]]=list1[[1]][[i]]+3

+ count3=count3+1

+ }

+ else if (list1[[1]][[i]]==36){

+ list1[[1]][[i]]=list1[[1]][[i]]+4

+ count3=count3+1

+ }

+ else if (list1[[1]][[i]]==35){

+ list1[[1]][[i]]=list1[[1]][[i]]+5

+ count3=count3+1

+ }

+ }

+ }

+ h[[name]]<-count3

+ return(list1)

+ }

>

> abc1<-function (list1){

+ count2=0

+ for (i in 1:length(list1[[1]])){

+ if(list1[[1]][[i]]<35){

+ count2=count2+1

+ }

+ }

+ return(count2)

+ }

>

> #changing from list to data frame for grace and count

> sub\_AI\_new<-data.frame(unlist(abc(sub\_AI1,"AI")),stringsAsFactors = FALSE)

> sub\_DL\_new<-data.frame(unlist(abc(sub\_DL1,"DL")),stringsAsFactors = FALSE)

> sub\_END\_new<-data.frame(unlist(abc(sub\_END1,"END")),stringsAsFactors = FALSE)

> sub\_IL\_new<-data.frame(unlist(abc(sub\_IL1,"IL")),stringsAsFactors = FALSE)

> sub\_IS\_new<-data.frame(unlist(abc(sub\_IS1,"IS")),stringsAsFactors = FALSE)

> sub\_Project1\_new<-data.frame(unlist(abc(sub\_Project1\_1,"Project 1")),stringsAsFactors = FALSE)

>

> students.data<-data.frame(student\_name,student\_seatno,sub\_END\_new,sub\_IS\_new,sub\_AI\_new,sub\_DL\_new,sub\_IL\_new,sub\_Project1\_new,Percentage,Rank1,Total\_Marks)

>

> names(students.data)[names(students.data) == "unlist.abc.sub\_END1...END..."] <- "END"

> names(students.data)[names(students.data) == "unlist.abc.sub\_IS1...IS..."] <- "IS"

> names(students.data)[names(students.data) == "unlist.abc.sub\_AI1...AI..."] <- "AI"

> names(students.data)[names(students.data) == "unlist.abc.sub\_DL1...DL..."] <- "DL"

> names(students.data)[names(students.data) == "unlist.abc.sub\_IL1...IL..."] <- "IL"

> names(students.data)[names(students.data) == "unlist.abc.sub\_Project1\_1...Project.1..."] <- "Project 1"

>

> Total\_Score<-rowSums(students.data[,3:8])

> students.data<-cbind(students.data,Total\_Score)

>

>

> subject\_failures<-c(end=abc1(sub\_END1),ai=abc1(sub\_AI1),is=abc1(sub\_IS1),dl=abc1(sub\_DL1),Il=abc1(sub\_IL1),project1=abc1(sub\_Project1\_1))

> subject\_failures= sort(subject\_failures)

> paste("Highest Failure Rate:",names(subject\_failures[6]),"count is", subject\_failures[6])

[1] "Highest Failure Rate: Il count is 5"

> paste("Lowest Failure Rate:",names(subject\_failures[1]),"count is", subject\_failures[1])

[1] "Lowest Failure Rate: project1 count is 0"

>

> #Find out how many students required grace marks in each of the subjects. And print it subjectwise.

> for (v in ls(h)){

+ print(paste("subject is",names(h[v]),"& no of students with grace marks are",h[[v]]))

+ }

[1] "subject is AI & no of students with grace marks are 1"

[1] "subject is DL & no of students with grace marks are 1"

[1] "subject is END & no of students with grace marks are 2"

[1] "subject is IL & no of students with grace marks are 0"

[1] "subject is IS & no of students with grace marks are 1"

[1] "subject is Project 1 & no of students with grace marks are 1"

>

> View(students.data)

>

