NAME: Hammad Ansari **ROLL NO: 2018450002**

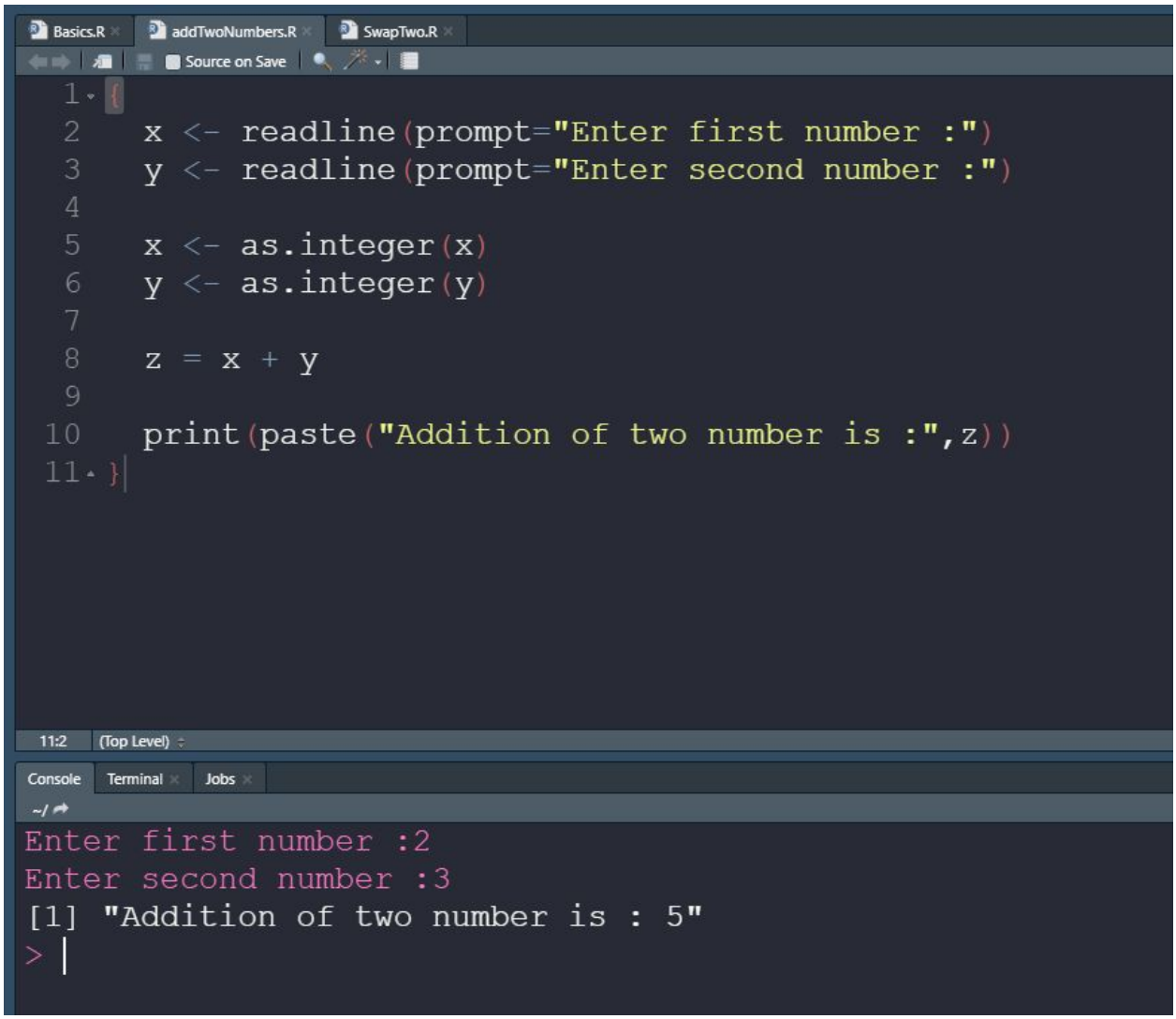
Experiment No. 1

Title: To create basic Data structures and perform various operations on each data structure in R.

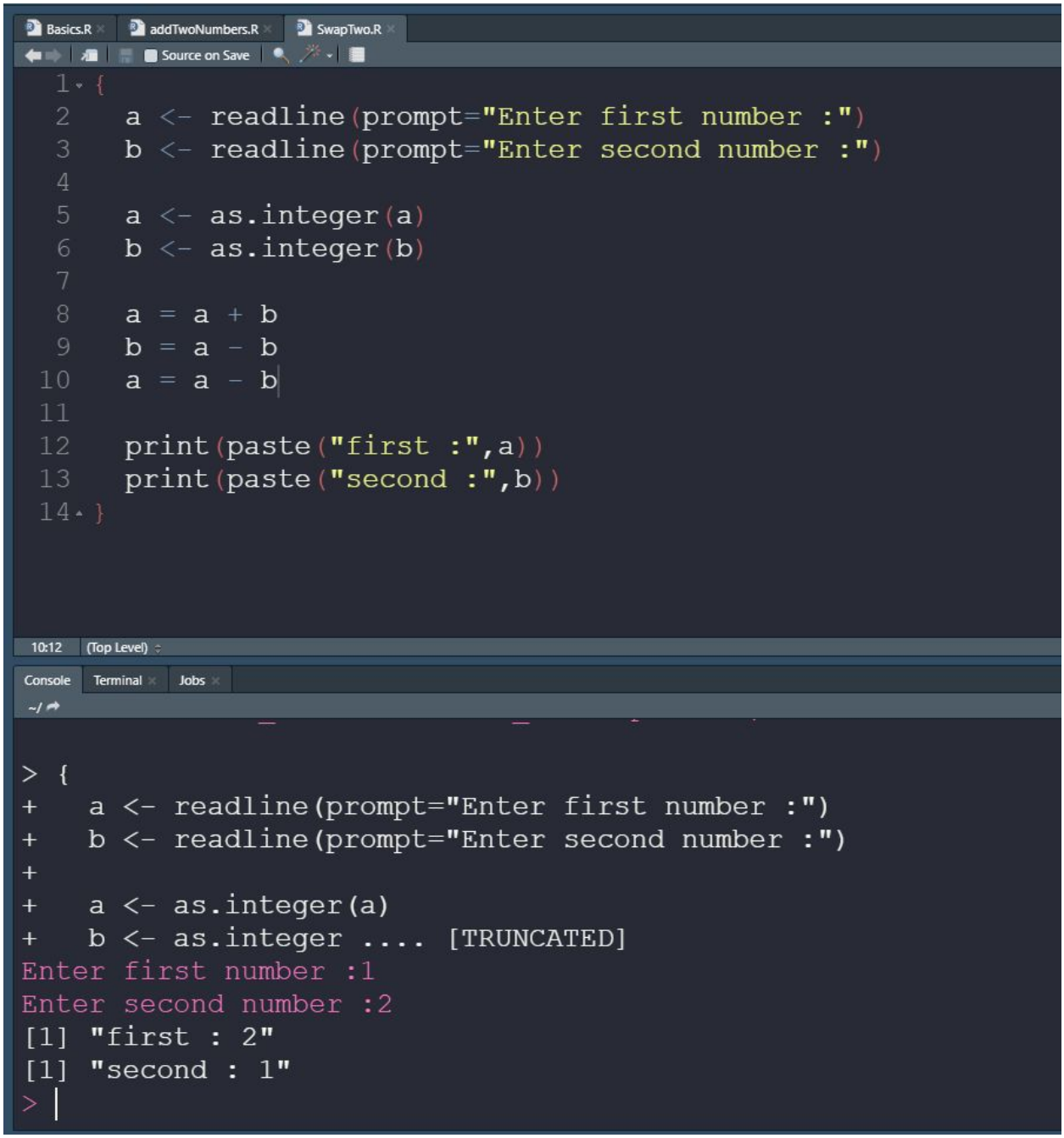
Create a CSV file and read & write data in R.

List of Programs:

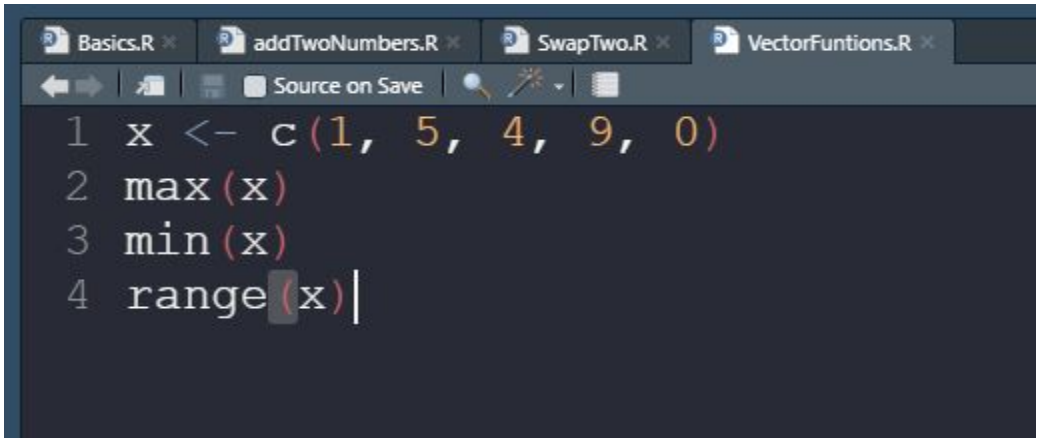
1. To add two numbers taken from the user:



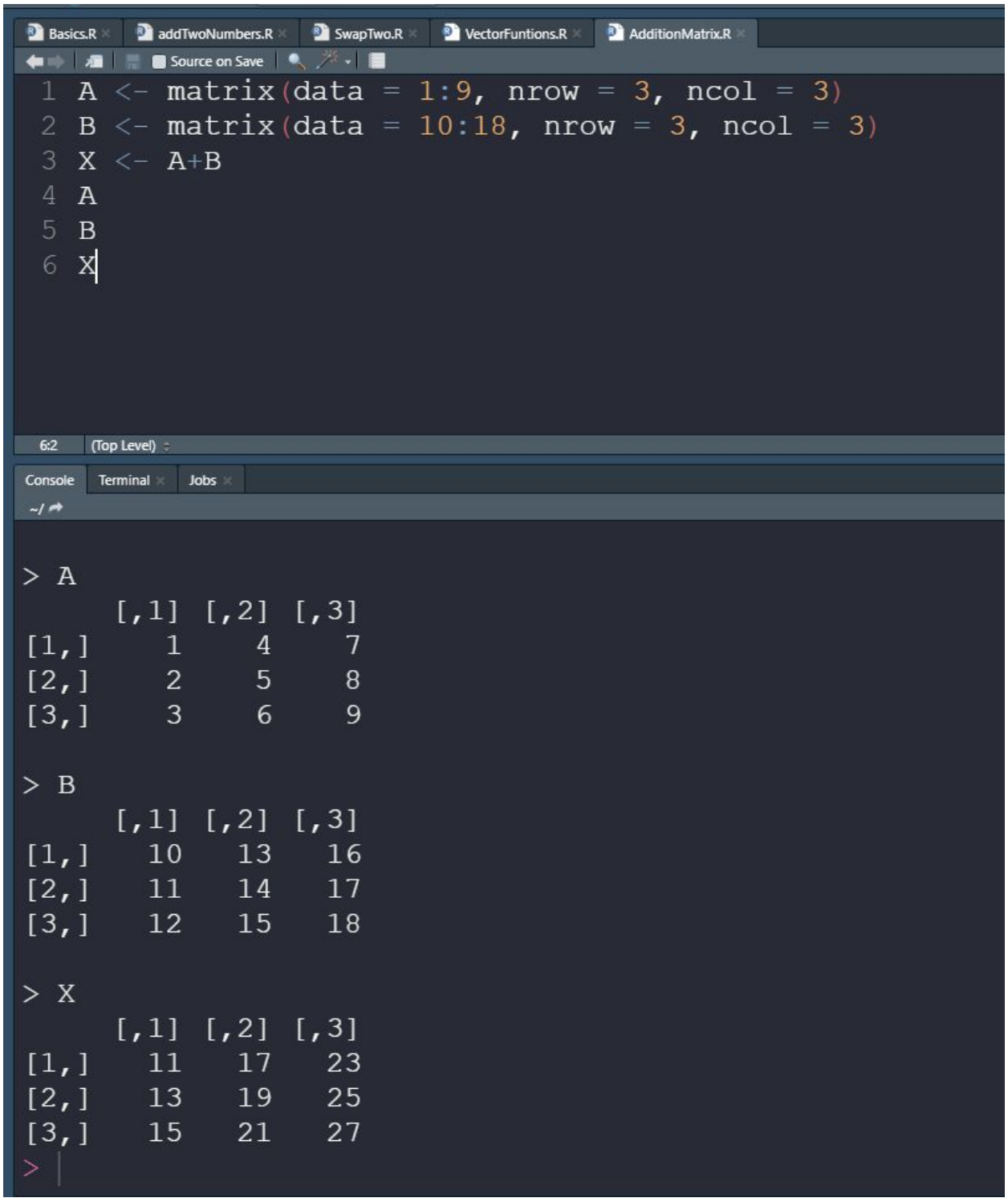
2. To swap 2 numbers:



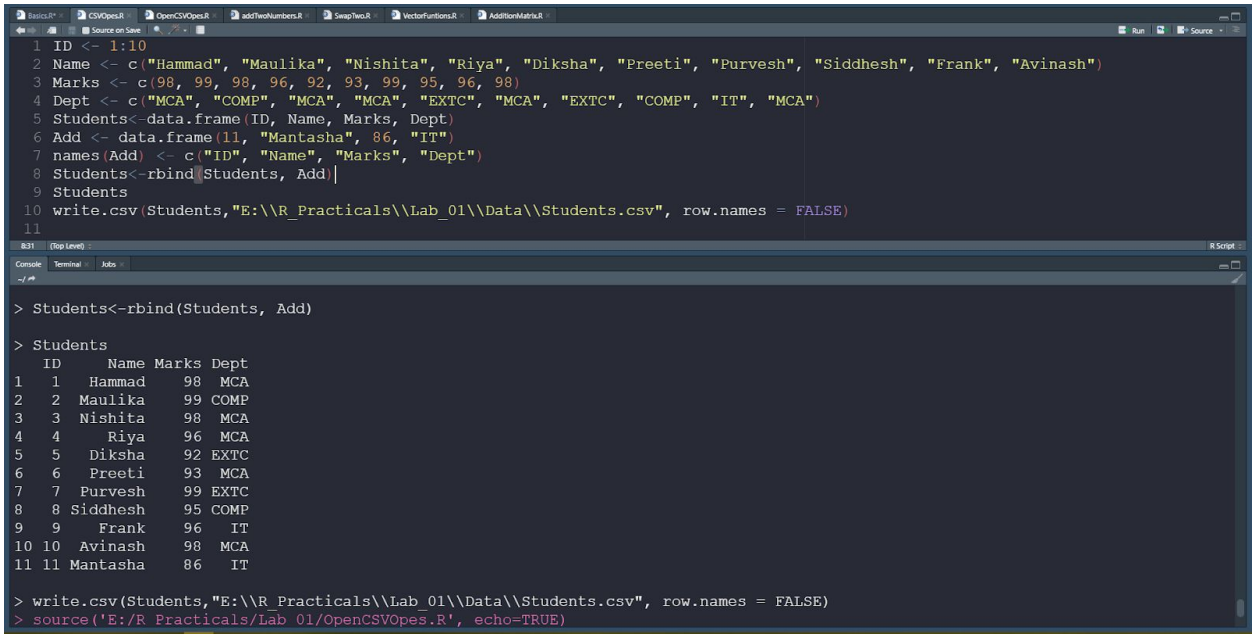
3. To Find Minimum and Maximum element from vector along with their index:



4. Add two Matrices:



5. Read, Write CSV file in R Create CSV file for students containing the following fields: ID, Name, Marks, Dept.



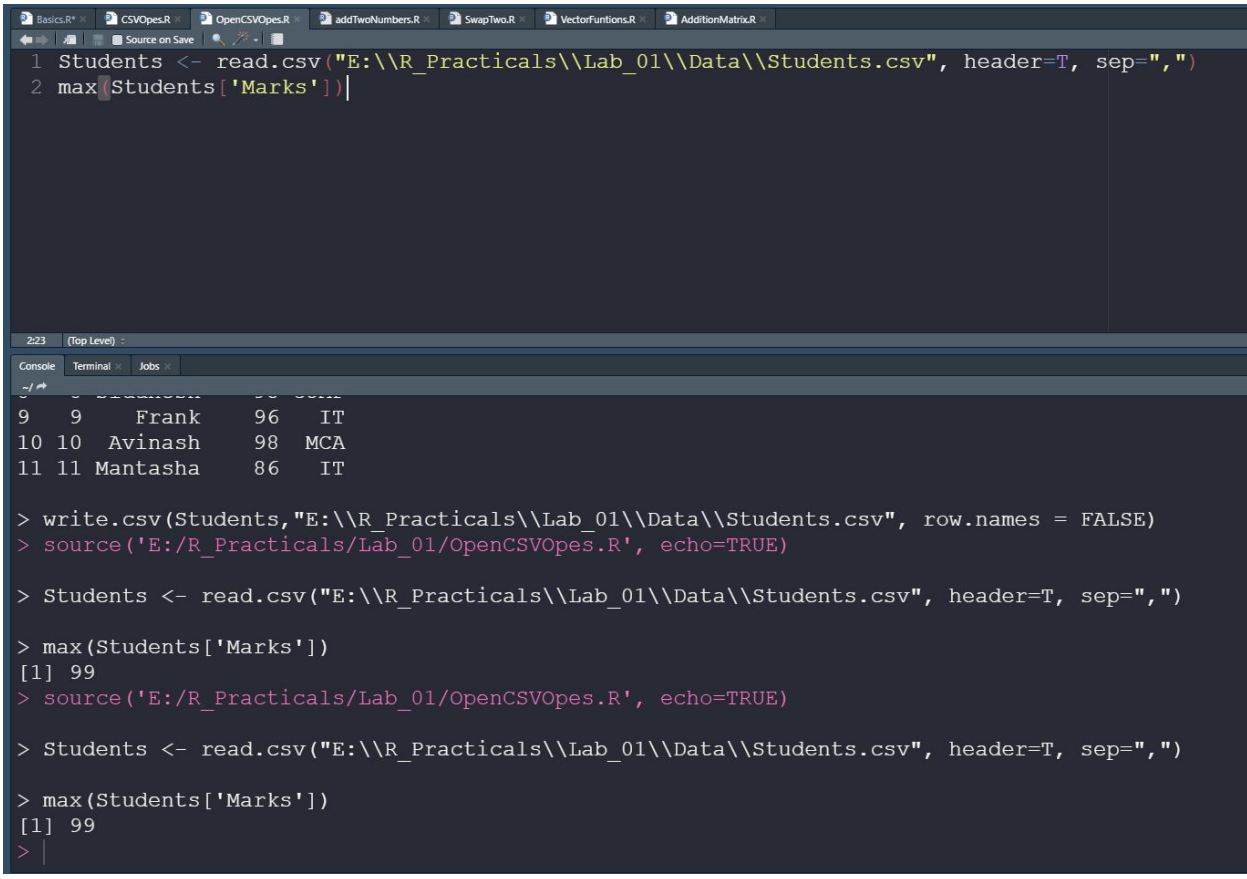
```
ID <- 1:10
Name <- c("Hammad", "Maulika", "Nishita", "Riya", "Diksha", "Preeti", "Purvesh", "Siddhesh", "Frank", "Avinash")
Marks <- c(98, 99, 98, 96, 92, 93, 99, 95, 96, 98)
Dept <- c("MCA", "COMP", "MCA", "MCA", "EXTC", "MCA", "EXTC", "COMP", "IT", "MCA")
Students<-data.frame(ID, Name, Marks, Dept)
Add <- data.frame(11, "Mantasha", 86, "IT")
names(Add) <- c("ID", "Name", "Marks", "Dept")
Students<-rbind(Students, Add)
Students
write.csv(Students,"E:\\R_Practicals\\Lab_01\\Data\\Students.csv", row.names = FALSE)
```

```
> Students<-rbind(Students, Add)

> Students
   ID     Name Marks Dept
1   1   Hammad    98  MCA
2   2  Maulika    99 COMP
3   3  Nishita    98  MCA
4   4     Riya    96  MCA
5   5   Diksha    92 EXTC
6   6   Preeti    93  MCA
7   7  Purvesh    99 EXTC
8   8 Siddhesh    95 COMP
9   9    Frank    96   IT
10 10  Avinash    98  MCA
11 11 Mantasha    86   IT

> write.csv(Students,"E:\\R_Practicals\\Lab_01\\Data\\Students.csv", row.names = FALSE)
> source('E:/R_Practicals/Lab_01/OpenCSVOpes.R', echo=TRUE)
```

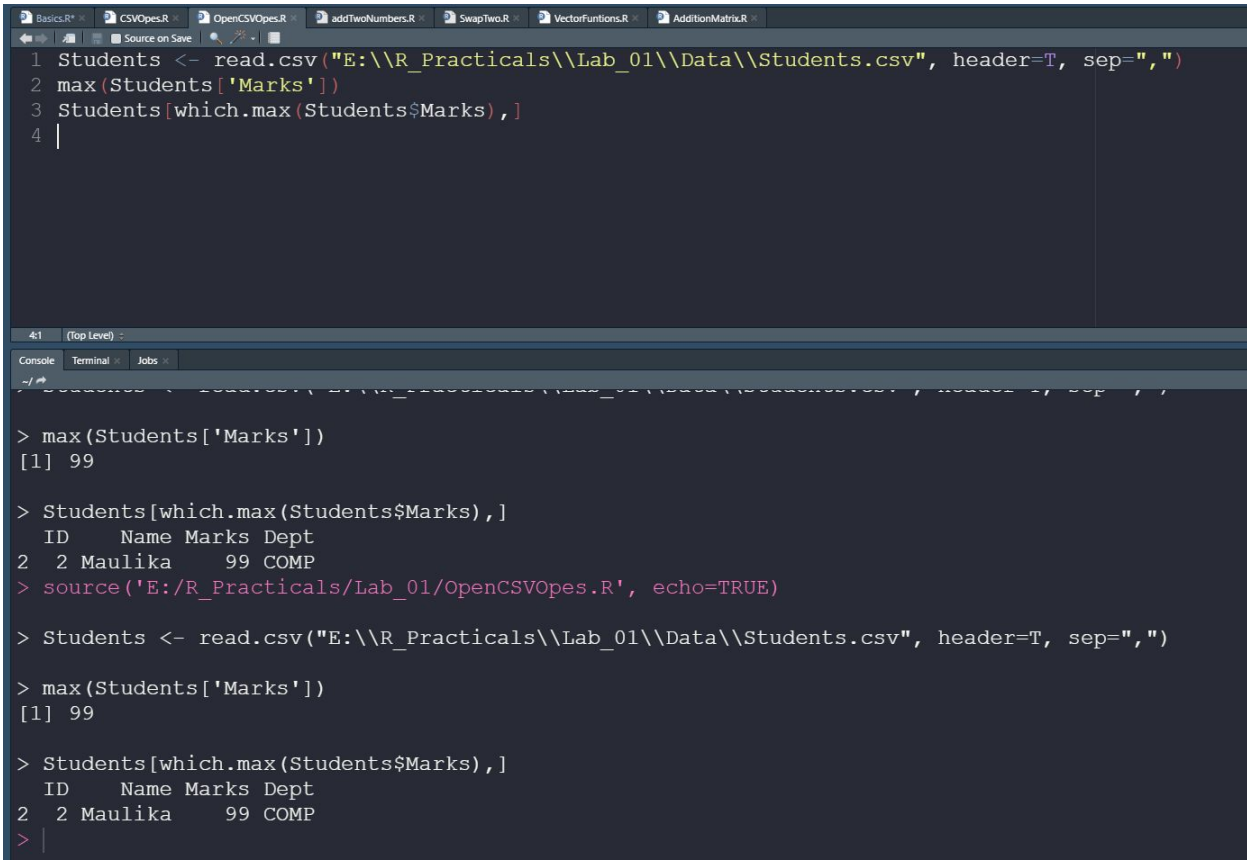
Perform the following:

a. Get the maximum Marks.

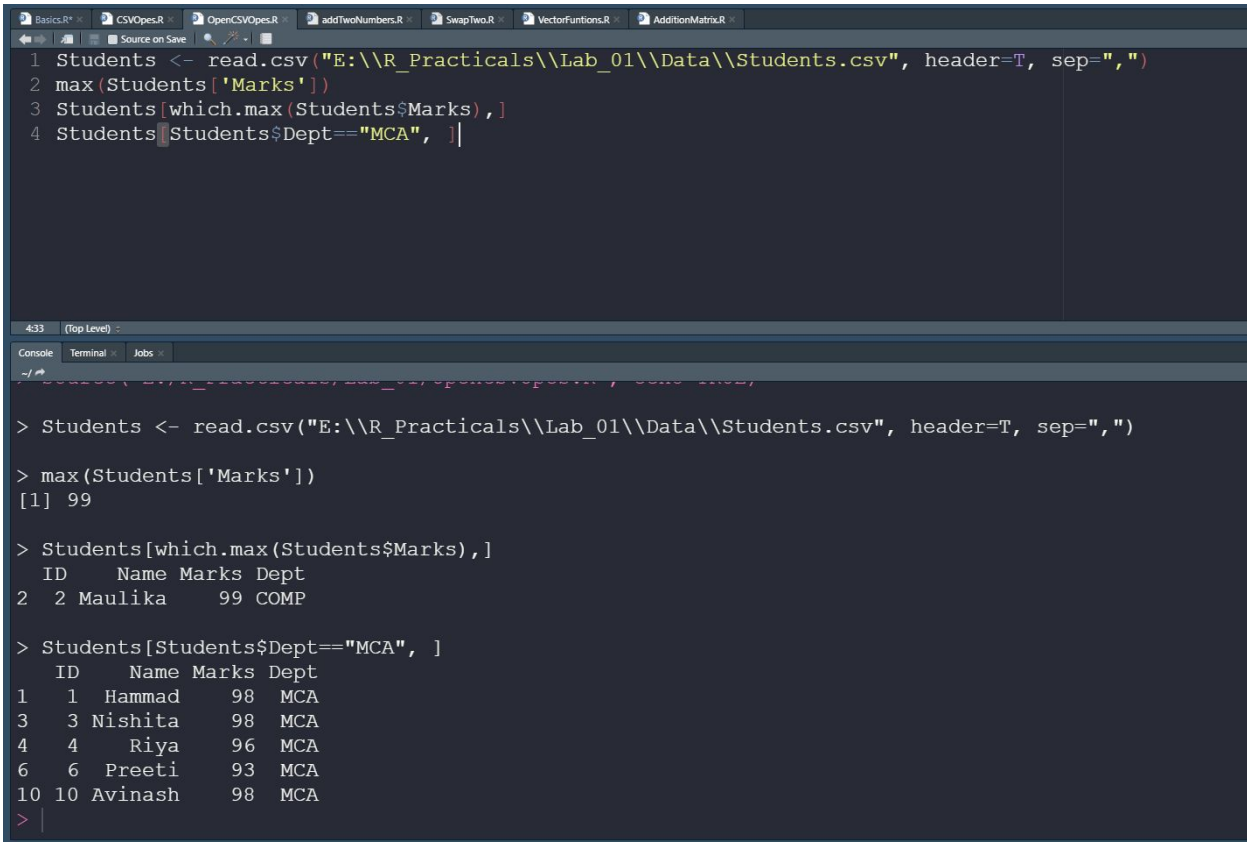
NAME: Hammad Ansari ROLL NO: 2018450002



c. Get the details of the student with max marks



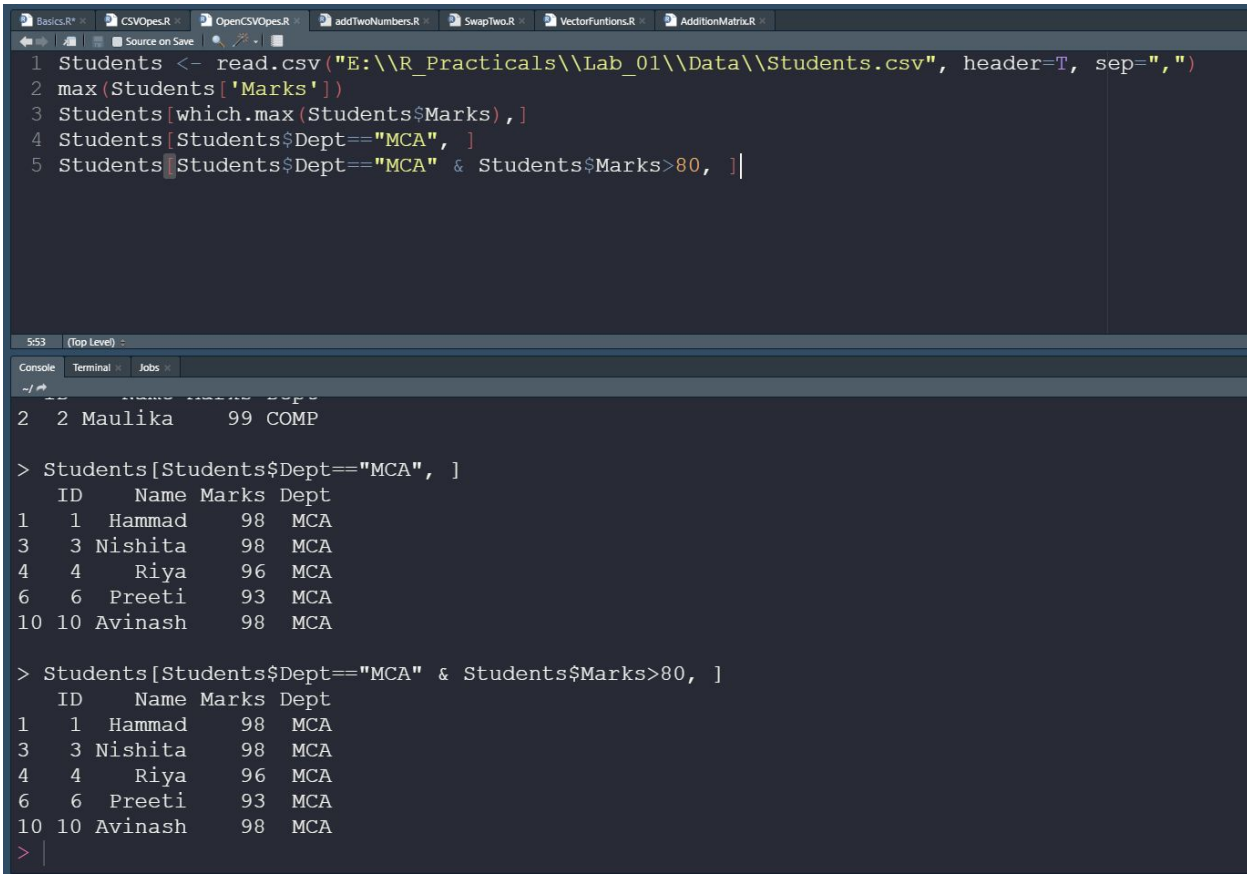
e. Get all the students studying in the MCA department.



```
Students <- read.csv("E:\\R_Practicals\\Lab_01\\Data\\Students.csv", header=T, sep=",")
max(Students['Marks'])
Students[which.max(Students$Marks),]
Students[Students$Dept=="MCA", ]
```

```
> Students <- read.csv("E:\\R_Practicals\\Lab_01\\Data\\Students.csv", header=T, sep=",")

> max(Students['Marks'])
[1] 99

> Students[which.max(Students$Marks),]
  ID    Name Marks Dept
2  2 Maulika    99 COMP

> Students[Students$Dept=="MCA", ]
   ID    Name Marks Dept
1   1  Hammad    98  MCA
3   3 Nishita    98  MCA
4   4    Riya    96  MCA
6   6  Preeti    93  MCA
10 10 Avinash    98  MCA
>
```

g. Get the students in the MCA department whose marks are greater than 80.



```
Students <- read.csv("E:\\R_Practicals\\Lab_01\\Data\\Students.csv", header=T, sep=",")
max(Students['Marks'])
Students[which.max(Students$Marks),]
Students[Students$Dept=="MCA", ]
Students[Students$Dept=="MCA" & Students$Marks>80, ]
```

```
2  2 Maulika    99 COMP

> Students[Students$Dept=="MCA", ]
   ID    Name Marks Dept
1   1  Hammad    98  MCA
3   3 Nishita    98  MCA
4   4    Riya    96  MCA
6   6  Preeti    93  MCA
10 10 Avinash    98  MCA

> Students[Students$Dept=="MCA" & Students$Marks>80, ]
   ID    Name Marks Dept
1   1  Hammad    98  MCA
3   3 Nishita    98  MCA
4   4    Riya    96  MCA
6   6  Preeti    93  MCA
10 10 Avinash    98  MCA
>
```