Sub : Foundations for Data Analytics

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Assignment 6 : **Date: 09/03/2021**

1. WAP in R to print the given pattern and take n from the user

```
1
2 * 3
4 * 5 * 6
7 * 8 * 9 * 10
```

```
> n = as.integer(readline(prompt="Enter a number of rows : "))
Enter a number of rows : 4
> temp=1
> for (i in 1:n) {
+   for (j in 1:i) {
+     cat(temp)
+     if (i != j)
+       cat(' * ')
+     temp = temp+1
+   }
+   cat("\n")
+ }
1
2 * 3
4 * 5 * 6
7 * 8 * 9 * 10
>
```

2. WAP in R to find the sum ( ) of the series :

1/1! + 2/2! + 3/3! +...+N/N!. Use method user defined method for factorial ( ). (function calling with in function)

```
> n = as.integer(readline(prompt = "Enter a number: "))
Enter a number: 3
> summ = 0
> myFactorial = function(i) {
+   facto = 1
+   for (j in 1: i) {
+     facto = facto * j
+   }
+   return(facto)
+ }
>
> for (i in 1:n) {
+   summ = summ + (i/myFactorial(i))
+ }
>
> print(paste(" Sum of series = ", summ))
[1] " Sum of series =  2.5"
>
```

3. Convert the data frame1 to data frame2 as given format. Create groupings or categories for infant, children, young, adults and elderly as given below

0 to 2 = 'Toddler/Baby'

3 to 17 = 'Child'

19 to 40 = 'Young'

41 to 65 = 'Adult'

66 to 99='Elderly'

```
> Sex = c('male', 'female', 'female', 'female', 'male', 'male', 'male',
+         'male', 'female', 'female', 'female', 'female')
> Age = c(22, 38, 26, 35, 35, 80, 54, 2, 27, 14, 4, 58)
>
> dataframe1 = data.frame(Sex,Age)
> dataframe1
      Sex Age
1    male  22
2  female  38
3  female  26
4  female  35
5    male  35
6    male  80
7    male  54
8    male   2
9  female  27
10 female  14
11 female   4
12 female  58
```

After grouping the data frame :

```
>
> j=1
> Age=0
> for (i in dataframe1$Age){
+   if(i>=66 && i<=99){
+     Age[j]='Elderly'
+   }
+   else if(i>=41 && i<=65){
+     Age[j]='Adult'
+   }
+   else if(i>=19 && i<=40){
+     Age[j]='Young'
+   }
+   else if(i>=3 && i<=17){
+     Age[j]='Child'
+   }
+   else if(i>=0 && i<=2){
+     Age[j]='Toddler/Baby'
+   }
+   j=j+1
+ }
>
> dataframe2 = dataframe1
> dataframe2$Age=Age
> dataframe2
      Sex          Age
1    male        Young
2  female        Young
3  female        Young
4  female        Young
5    male        Young
6    male      Elderly
7    male        Adult
8    male Toddler/Baby
9  female        Young
10 female        Child
11 female        Child
12 female        Adult
```

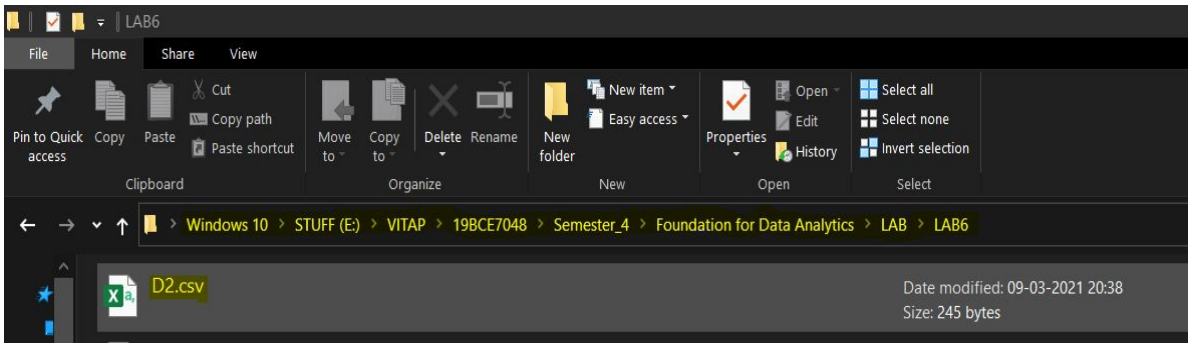
4. Create a Data frame as given below as D1

```
> gender = c('male', 'female', 'male', 'female', 'female',
+            'male', 'female', 'male', 'female', 'female')
>
> age = c(40, 57, 66, 61, 48, 25, 49, 52, 57, 35)
>
> degree = c('MA', 'BSCS', 'BE', 'BSCS', 'MA', 'MA',
+            'BE', 'ME', 'MA', 'MA')
>
> D1 = data.frame(gender, age, degree)
> D1
   gender age degree
1    male  40     MA
2  female  57   BSCS
3    male  66     BE
4  female  61   BSCS
5  female  48     MA
6    male  25     MA
7  female  49     BE
8    male  52     ME
9  female  57     MA
10 female  35     MA
>
```

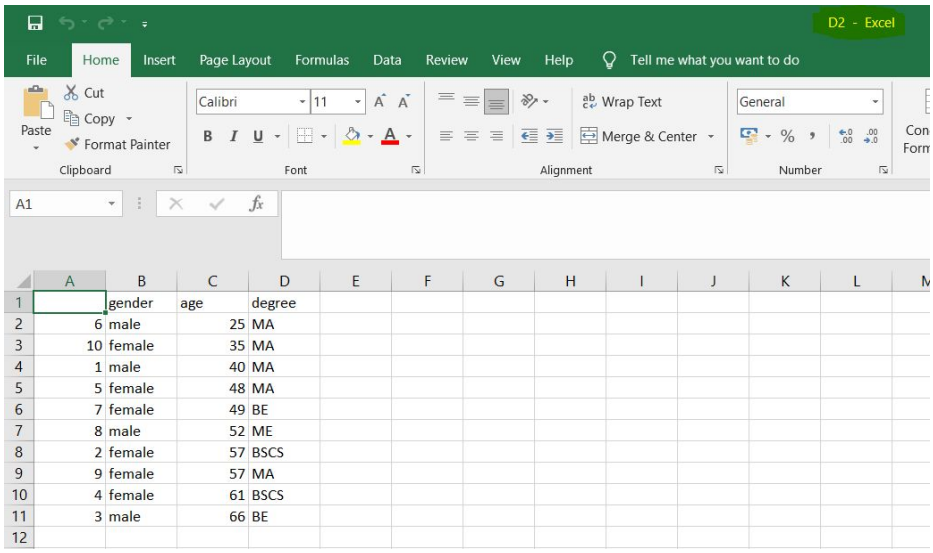
i) Sort the data frame D1 in the ascending order by using order () based on the variable age and save as D2.

```
E:/VITAP/19BCE7048/Semester_4/Foundation for Data Analytics/LAB/LAB6/
> ageOrder = order(D1$age)
> D2 = D1[order(D1$age),]
> D2
   gender age degree
6    male  25     MA
10 female  35     MA
1    male  40     MA
5  female  48     MA
7  female  49     BE
8    male  52     ME
2  female  57   BSCS
9  female  57     MA
4  female  61   BSCS
3    male  66     BE
> write.csv(D2, file="D2.csv")
>
```

The saved Excel File (D2.csv) :



D2.csv :



	A	B	C	D
1		gender	age	degree
2	6	male	25	MA
3	10	female	35	MA
4	1	male	40	MA
5	5	female	48	MA
6	7	female	49	BE
7	8	male	52	ME
8	2	female	57	BSCS
9	9	female	57	MA
10	4	female	61	BSCS
11	3	male	66	BE
12				

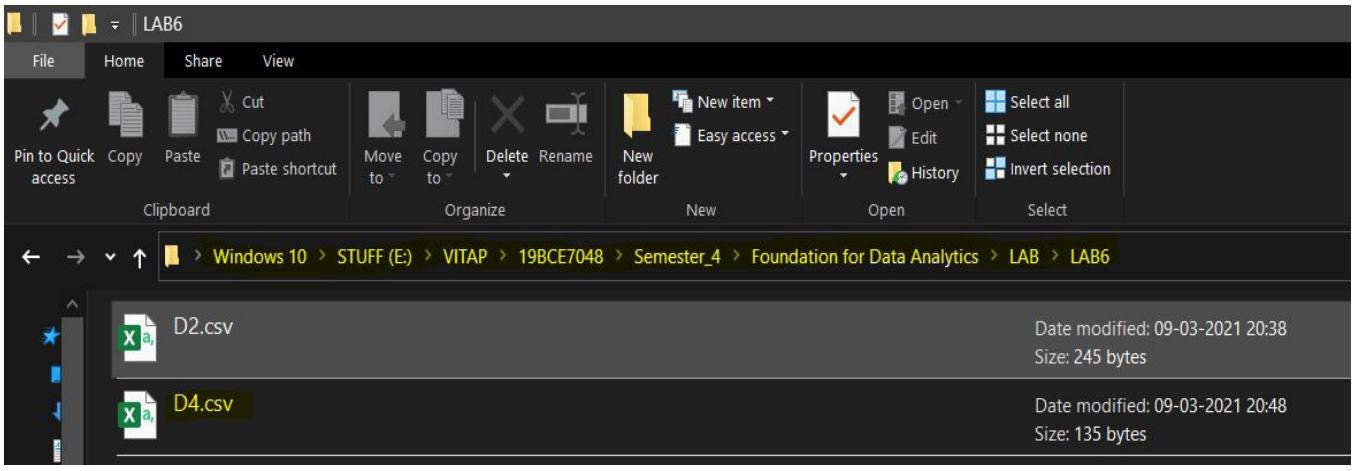
ii) Create data frame D3 from D2 where age is below 50.

```
> D3 = subset(D2,D2$age<50)
> D3
   gender age degree
6    male  25     MA
10 female  35     MA
1    male  40     MA
5  female  48     MA
7  female  49     BE
>
```

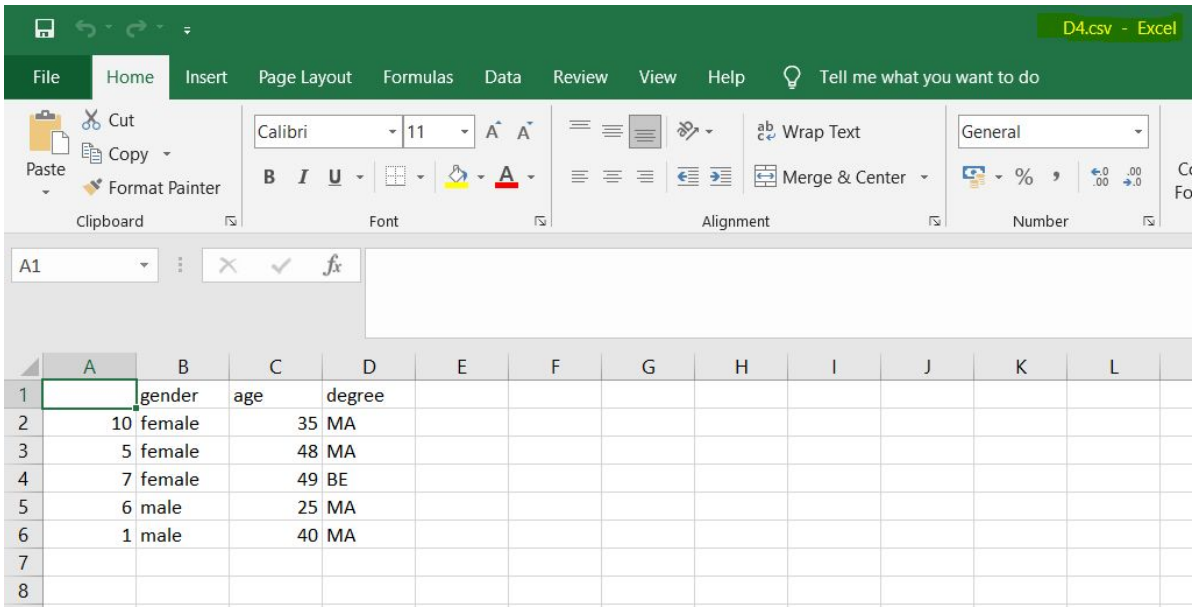
iii) Again sort D3 ascending order by using order () based on the variable Gender and save as D4.

```
E:/VITAP/19BCE7048/Semester_4/Foundation for Data Analytics/LAB/LAB6/
> genderOrder = order(D3$gender)
> genderOrder
[1] 2 4 5 1 3
> D4 = D3[order(D3$gender),]
> D4
   gender age degree
10 female  35     MA
5  female  48     MA
7  female  49     BE
6    male  25     MA
1    male  40     MA
> write.csv(D4, file="D4.csv")
>
```

The saved Excel File (D4.csv) :



D4.csv :



	A	B	C	D
1		gender	age	degree
2	10	female	35	MA
3	5	female	48	MA
4	7	female	49	BE
5	6	male	25	MA
6	1	male	40	MA
7				
8				

iv) Display only the female having MA degree from D4.

```
E:/VITAP/19BCE7048/Semester_4/Foundation for Data Analytics/LAB/LAB6/
> display = subset(D4,D4$degree=='MA' & D4$gender=='female')
> display
   gender age degree
10 female  35     MA
5  female  48     MA
>
```