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## Final practical

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**Branch: BE- CSE**  
**Semester: 5**  
**Subject Name: AIML Lab**

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**Section/Group: CSE-11 'B'**  
**Date of Performance: 29/11/2021**  
**Subject Code: CSP - 309**

### 1. Aim/Overview of the practical:

To create and manipulate Data Frames using **data.frame()** function.

### 2. Which logistics used:

**Software:** R-Studio

### 3. Code:

```
# Create the data frame.
emp.data <- data.frame(
  emp_id = c(1:5),
  emp_name = c("Rick","Dan","Michelle","Ryan","Gary"),
  salary = c(623.3,515.2,611.0,729.0,843.25),

  start_date = as.Date(c("2012-01-01", "2013-09-23", "2014-11-15", "2014-05-11",
    "2015-03-27")),
  stringsAsFactors = FALSE
)
# Print the data frame.
print(emp.data)
# Get the structure of the data frame.
str(emp.data)
# Print the summary.
print(summary(emp.data))
# Extract Specific columns.
result <- data.frame(emp.data$emp_name,emp.data$salary)
print(result)
# Extract first two rows.
result <- emp.data[1:2,]
print(result)
# Extract 3rd and 5th row with 2nd and 4th column.
result <- emp.data[c(3,5),c(2,4)]
print(result)
#Add the "dept" coulumn.
emp.data$dept <- c("IT","Operations","IT","HR","Finance")
v <- emp.data
print(v)
```

```
# Create the second data frame
emp.newdata <- data.frame(
  emp_id = c(6:8),
  emp_name = c("Rasmi", "Pranab", "Tusar"),
  salary = c(578.0, 722.5, 632.8),
  start_date = as.Date(c("2013-05-21", "2013-07-30", "2014-06-17")),
  dept = c("IT", "Operations", "Finance"),
  stringsAsFactors = FALSE
)
```

```
# Bind the two data frames.
emp.finaldata <- rbind(emp.data, emp.newdata)
print(emp.finaldata)
```

The top screenshot shows the RStudio interface with the following code in the script editor:

```
1 # Create the data frame.
2 emp.data <- data.frame(
3   emp_id = c(1:5),
4   emp_name = c("Rick", "Dan", "Michelle", "Ryan", "Gary"),
5   salary = c(623.3, 515.2, 611.0, 729.0, 843.25),
6
7   start_date = as.Date(c("2012-01-01", "2013-09-23", "2014-11-15", "2014-05-11",
8                         "2015-03-27")),
9   stringsAsFactors = FALSE
10 )
11 # Print the data frame.
12 print(emp.data)
13 # Get the structure of the data frame.
14 str(emp.data)
15 # Print the summary.
16 print(summary(emp.data))
17 # Extract Specific columns.
18 result <- data.frame(emp.data$emp_name, emp.data$salary)
19 print(result)
```

The bottom screenshot shows the RStudio interface with the following code in the script editor:

```
17 # Extract Specific columns.
18 result <- data.frame(emp.data$emp_name, emp.data$salary)
19 print(result)
20 # Extract first two rows.
21 result <- emp.data[1:2,]
22 print(result)
23 # Extract 3rd and 5th row with 2nd and 4th column.
24 result <- emp.data[c(3,5), c(2,4)]
25 print(result)
26 # Add the "dept" column.
27 emp.data$dept <- c("IT", "Operations", "IT", "HR", "Finance")
28 v <- emp.data
29 print(v)
30 # Create the second data frame
31 emp.newdata <- data.frame(
32   emp_id = c(6:8),
33   emp_name = c("Rasmi", "Pranab", "Tusar"),
34   salary = c(578.0, 722.5, 632.8),
35   start_date = as.Date(c("2013-05-21", "2013-07-30", "2014-06-17")),
```

```

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Project: (None)

ex3.R x Untitled1* x Untitled2* x Untitled3* x Untitled4* x Untitled5* x Untitled6* x >>
Source on Save Run Source
24 result <- emp.data[c(3,5),c(2,4)]
25 print(result)
26 # Add the "dept" column.
27 emp.data$dept <- c("IT","Operations","IT","HR","Finance")
28 v <- emp.data
29 print(v)
30 # Create the second data frame
31 emp.newdata <- data.frame(
32   emp_id = c(6:8),
33   emp_name = c("Rasmi","Pranab","Tusar"),
34   salary = c(578.0,722.5,632.8),
35   start_date = as.Date(c("2013-05-21","2013-07-30","2014-06-17")),
36   dept = c("IT","Operations","Finance"),
37   stringsAsFactors = FALSE
38 )
39
40 # Bind the two data frames.
41 emp.finaldata <- rbind(emp.data,emp.newdata)
42 print(emp.finaldata)
11:27 (Top Level) R Script

Console Terminal Jobs
R 4.1.1 ~ Ryan 729.00 2014-05-11 HR
4 4
Type here to search 17°C 10:36 29-11-2021

```

**Output:**

```

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Project: (None)

Source
Console Terminal Jobs
R 4.1.1 ~ /
> # Create the data frame.
> emp.data <- data.frame(
+   emp_id = c(1:5),
+   emp_name = c("Rick","Dan","Michelle","Ryan","Gary"),
+   salary = c(623.3,515.2,611.0,729.0,843.25),
+   start_date = as.Date(c("2012-01-01", "2013-09-23", "2014-11-15", "2014-05-11",
+   "2015-03-27")),
+   stringsAsFactors = FALSE
+ )
> # Print the data frame.
> print(emp.data)
  emp_id emp_name salary start_date
1      1    Rick 623.30 2012-01-01
2      2     Dan 515.20 2013-09-23
3      3  Michelle 611.00 2014-11-15
4      4     Ryan 729.00 2014-05-11
5      5      Gary 843.25 2015-03-27
> # Get the structure of the data frame.
> str(emp.data)
'data.frame':   5 obs. of  4 variables:
 $ emp_id  : int  1 2 3 4 5
 $ emp_name : chr  "Rick" "Dan" "Michelle" "Ryan" ...
Type here to search 17°C 10:37 29-11-2021

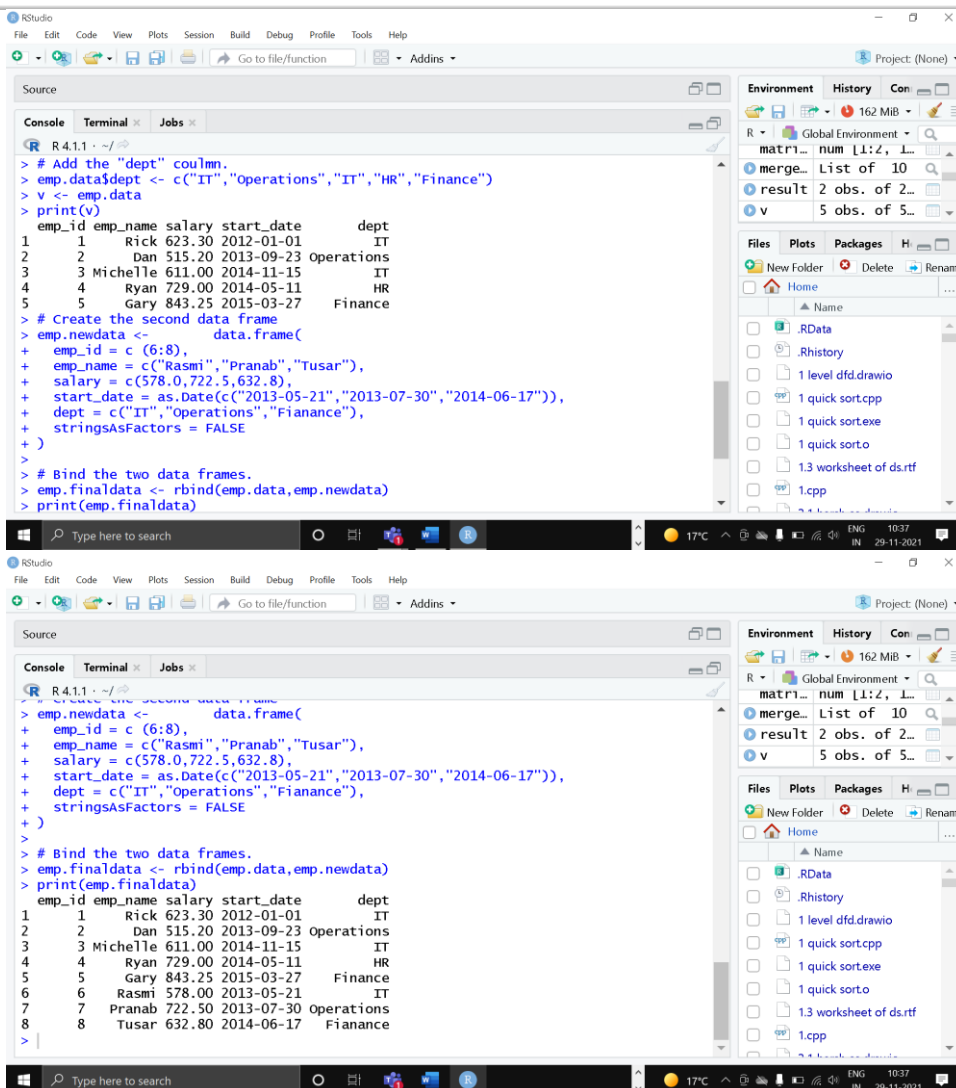
```

```

RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins
Project: (None)

Source
Console Terminal Jobs
R 4.1.1 ~ /
> # Gary 843.25 2015-03-27
> # Get the structure of the data frame.
> str(emp.data)
'data.frame': 5 obs. of 4 variables:
 $ emp_id : int 1 2 3 4 5
 $ emp_name : chr "Rick" "Dan" "Michelle" "Ryan" ...
 $ salary : num 623 515 611 729 843
 $ start_date: Date, format: "2012-01-01" ...
> # Print the summary.
> print(summary(emp.data))
  emp_id emp_name salary
Min. :1 Length:5 Min. :515.2
1st Qu.:2 Class :character 1st Qu.:611.0
Median :3 Mode :character Median :623.3
Mean :3 Mean :664.4
3rd Qu.:4 3rd Qu.:729.0
Max. :5 Max. :843.2
 start_date
Min. :2012-01-01
1st Qu.:2013-09-23
Median :2014-05-11
Mean :2014-01-14
3rd Qu.:2014-11-15
Max. :2015-03-27
> # Extract specific columns.
> result <- data.frame(emp.data$emp_name, emp.data$salary)
> print(result)
  emp.data.emp_name emp.data.salary
1 Rick 623.30
2 Dan 515.20
> # Extract first two rows.
> result <- emp.data[1:2,]
> print(result)
  emp_id emp_name salary start_date
1 1 Rick 623.3 2012-01-01
2 2 Dan 515.2 2013-09-23
> # Extract 3rd and 5th row with 2nd and 4th column.
> result <- emp.data[c(3,5),c(2,4)]
> print(result)
  emp_name start_date
3 Michelle 2014-11-15
5 Gary 2015-03-27
> # Add the "dept" column.
> emp.data$dept <- c("IT", "Operations", "IT", "HR", "Finance")

```



```
R 4.1.1 ~ / ~
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function Addins
Project: (None)

Source
Console Terminal Jobs
> # Add the "dept" column.
> emp.data$dept <- c("IT","Operations","IT","HR","Finance")
> v <- emp.data
> print(v)
  emp_id emp_name salary start_date dept
1      1    Rick 623.30 2012-01-01   IT
2      2     Dan 515.20 2013-09-23 Operations
3      3 Michelle 611.00 2014-11-15   IT
4      4     Ryan 729.00 2014-05-11   HR
5      5     Gary 843.25 2015-03-27 Finance
> # Create the second data frame
> emp.newdata <- data.frame(
+   emp_id = c(6:8),
+   emp_name = c("Rasmi","Pranab","Tusar"),
+   salary = c(578.0,722.5,632.8),
+   start_date = as.Date(c("2013-05-21","2013-07-30","2014-06-17")),
+   dept = c("IT","Operations","Finance"),
+   stringsAsFactors = FALSE
+ )
>
> # Bind the two data frames.
> emp.finaldata <- rbind(emp.data,emp.newdata)
> print(emp.finaldata)
  emp_id emp_name salary start_date dept
1      1    Rick 623.30 2012-01-01   IT
2      2     Dan 515.20 2013-09-23 Operations
3      3 Michelle 611.00 2014-11-15   IT
4      4     Ryan 729.00 2014-05-11   HR
5      5     Gary 843.25 2015-03-27 Finance
6      6    Rasmi 578.00 2013-05-21   IT
7      7  Pranab 722.50 2013-07-30 Operations
8      8    Tusar 632.80 2014-06-17 Finance

Environment History Con
R Global Environment
matr1 num [1:2, ]
merge... List of 10
result 2 obs. of 2...
v 5 obs. of 5...

Files Plots Packages H
New Folder Delete Renam
Home
Name
.RData
.Rhistory
1 level dfd.drawio
1 quick sortcpp
1 quick sortexe
1 quick sorto
1.3 worksheet of ds.rtf
1.cpp
```

### Learning outcomes (What I have learnt):

1. I have learnt about the R studio.
2. I have learnt about the R programming language.
3. I have learnt about vectors in R

### Evaluation Grid

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			



2.			
3.			