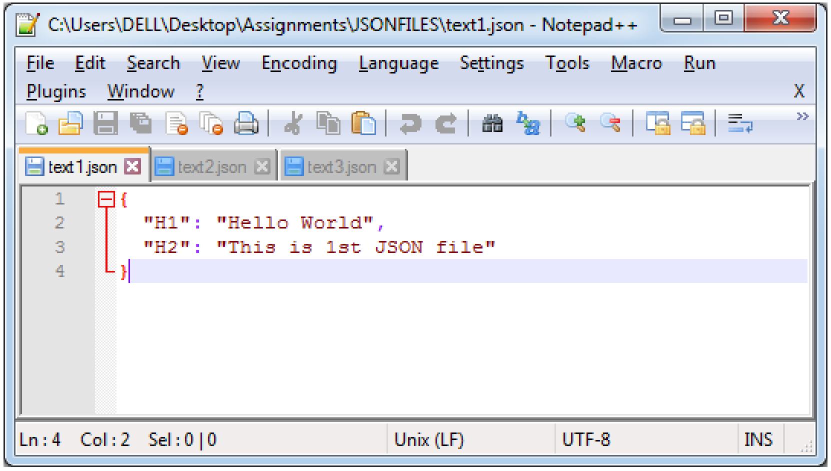
SESSION 2: Introduction to working with R

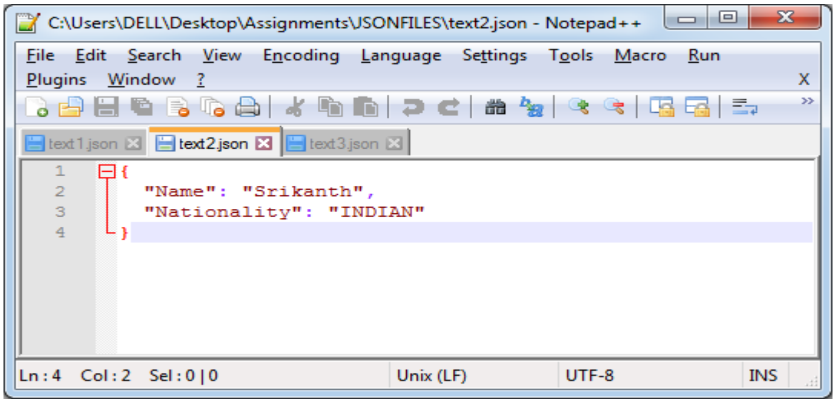
Assignment 2

1. Read multiple json files into a working directory for further converting into a dataset. I have files text1, text2, text3 in the directory json.

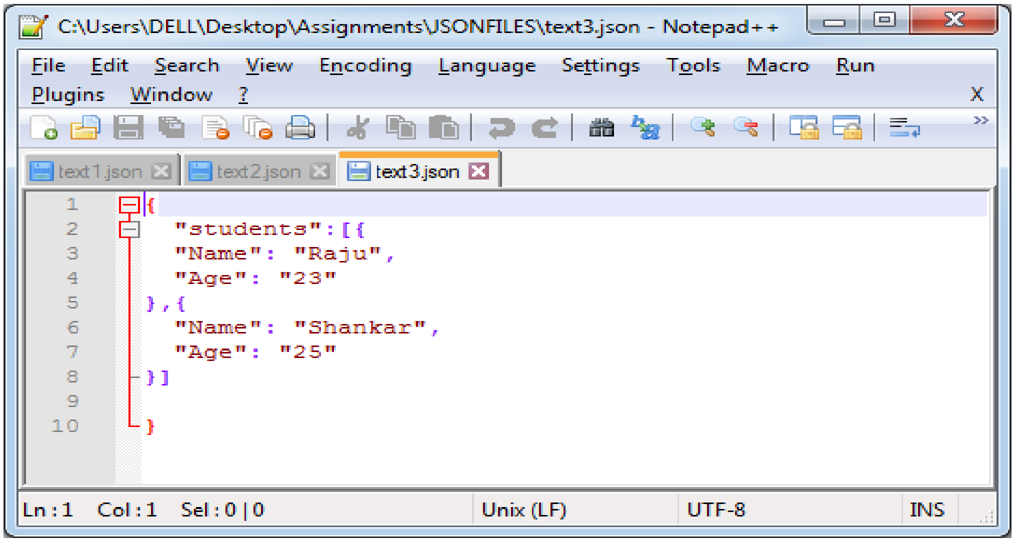
Answer: Created these 3 json files under “C:\Users\DELL\Desktop\Assignments\JSONFILES” folder


C:\Users\DELL\Desktop\Assignments\JSONFILES\text1.json - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run
Plugins Window ?
text1.json
text2.json
text3.json
Ln : 4 Col : 2 Sel : 0 | 0
Unix (LF)
UTF-8
INS

```
{
    "H1": "Hello World",
    "H2": "This is 1st JSON file"
}
```


C:\Users\DELL\Desktop\Assignments\JSONFILES\text2.json - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run
Plugins Window ?
text1.json
text2.json
text3.json
Ln : 4 Col : 2 Sel : 0 | 0
Unix (LF)
UTF-8
INS

```
{
    "Name": "Srikanth",
    "Nationality": "INDIAN"
}
```


C:\Users\DELL\Desktop\Assignments\JSONFILES\text3.json - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run
Plugins Window ?
text1.json
text2.json
text3.json
Ln : 1 Col : 1 Sel : 0 | 0
Unix (LF)
UTF-8
INS

```
{
    "students":[{
    "Name": "Raju",
    "Age": "23"
  },{
    "Name": "Shankar",
    "Age": "25"
  }]

}
```

Installed the package rjson

Set the working directory to the folder path where all the Json files are present

setwd("C://Users//DELL//Desktop//Assignments//JSONFILES")

Stored all the json files name to vector x using list.files function passing “*.json” as the pattern

x <-list.files(pattern="*.json")

using lapply function we are storing the content of json file one by one in dataframe l

l<-lapply(x,function(x) fromJSON(file=x))

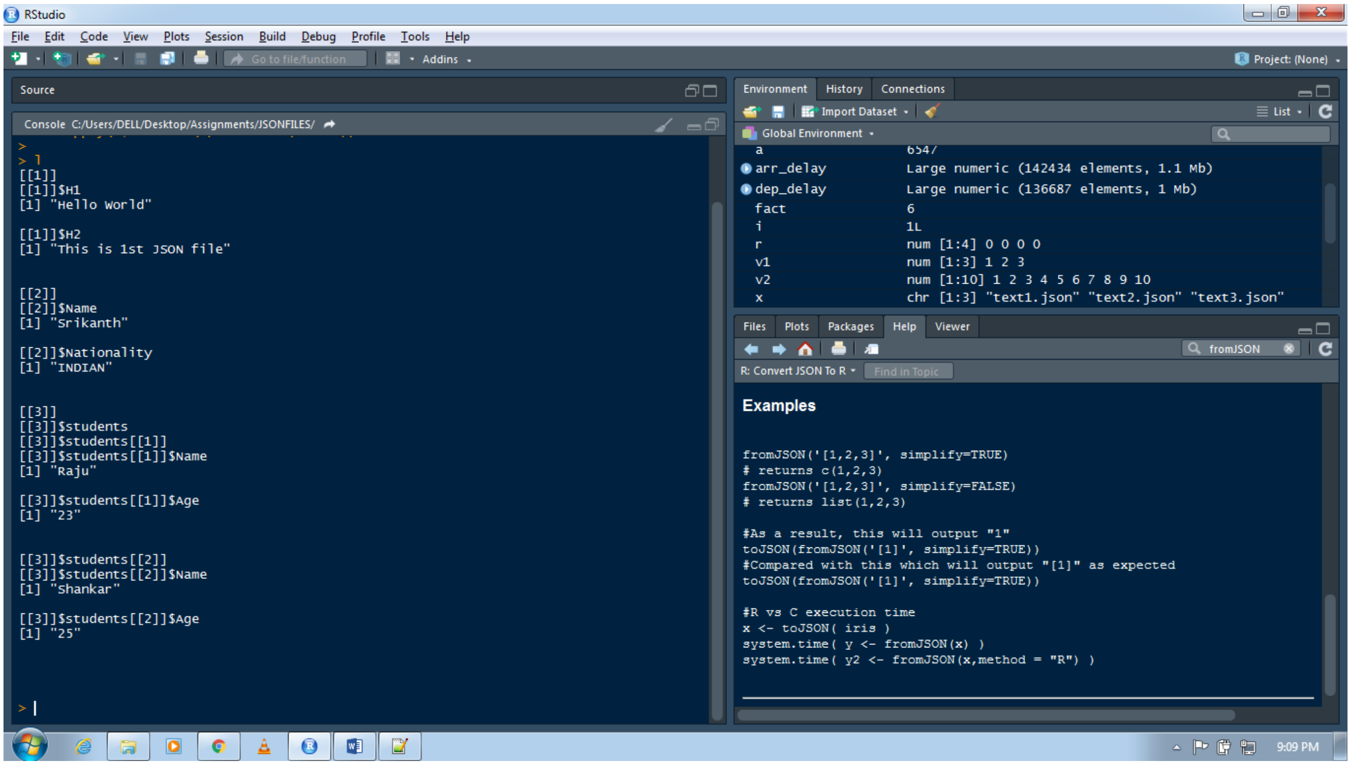
install.packages("rjson")
library(rjson)

setwd("C://Users//DELL//Desktop//Assignments//JSONFILES")

x <-list.files(pattern="*.json")

l<-lapply(x,function(x) fromJSON(file=x))

l


RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Project: (None)
Source
Console C:/Users/DELL/Desktop/Assignments/JSONFILES/
Environment History Connections
Import Dataset
List
Global Environment
Files Plots Packages Help Viewer
fromJSON
R: Convert JSON To R
Find in Topic
9:09 PM

```
>
> l
[[1]]
[[1]]$H1
[1] "Hello World"

[[1]]$H2
[1] "This is 1st JSON file"


[[2]]
[[2]]$Name
[1] "Srikanth"

[[2]]$Nationality
[1] "INDIAN"


[[3]]
[[3]]$students
[[3]]$students[[1]]
[[3]]$students[[1]]$Name
[1] "Raju"

[[3]]$students[[1]]$Age
[1] "23"


[[3]]$students[[2]]
[[3]]$students[[2]]$Name
[1] "Shankar"

[[3]]$students[[2]]$Age
[1] "25"


> |
```

```
a                    6547
arr_delay            Large numeric (142434 elements, 1.1 Mb)
dep_delay            Large numeric (136687 elements, 1 Mb)
fact                 6
i                    1L
r                    num [1:4] 0 0 0 0
v1                   num [1:3] 1 2 3
v2                   num [1:10] 1 2 3 4 5 6 7 8 9 10
x                    chr [1:3] "text1.json" "text2.json" "text3.json"
```

Examples

```
fromJSON('[1,2,3]', simplify=TRUE)
# returns c(1,2,3)
fromJSON('[1,2,3]', simplify=FALSE)
# returns list(1,2,3)

#As a result, this will output "1"
toJSON(fromJSON('[1]', simplify=TRUE))
#Compared with this which will output "[1]" as expected
toJSON(fromJSON('[1]', simplify=TRUE))

#R vs C execution time
x <- toJSON( iris )
system.time( y <- fromJSON(x) )
system.time( y2 <- fromJSON(x,method = "R") )
```

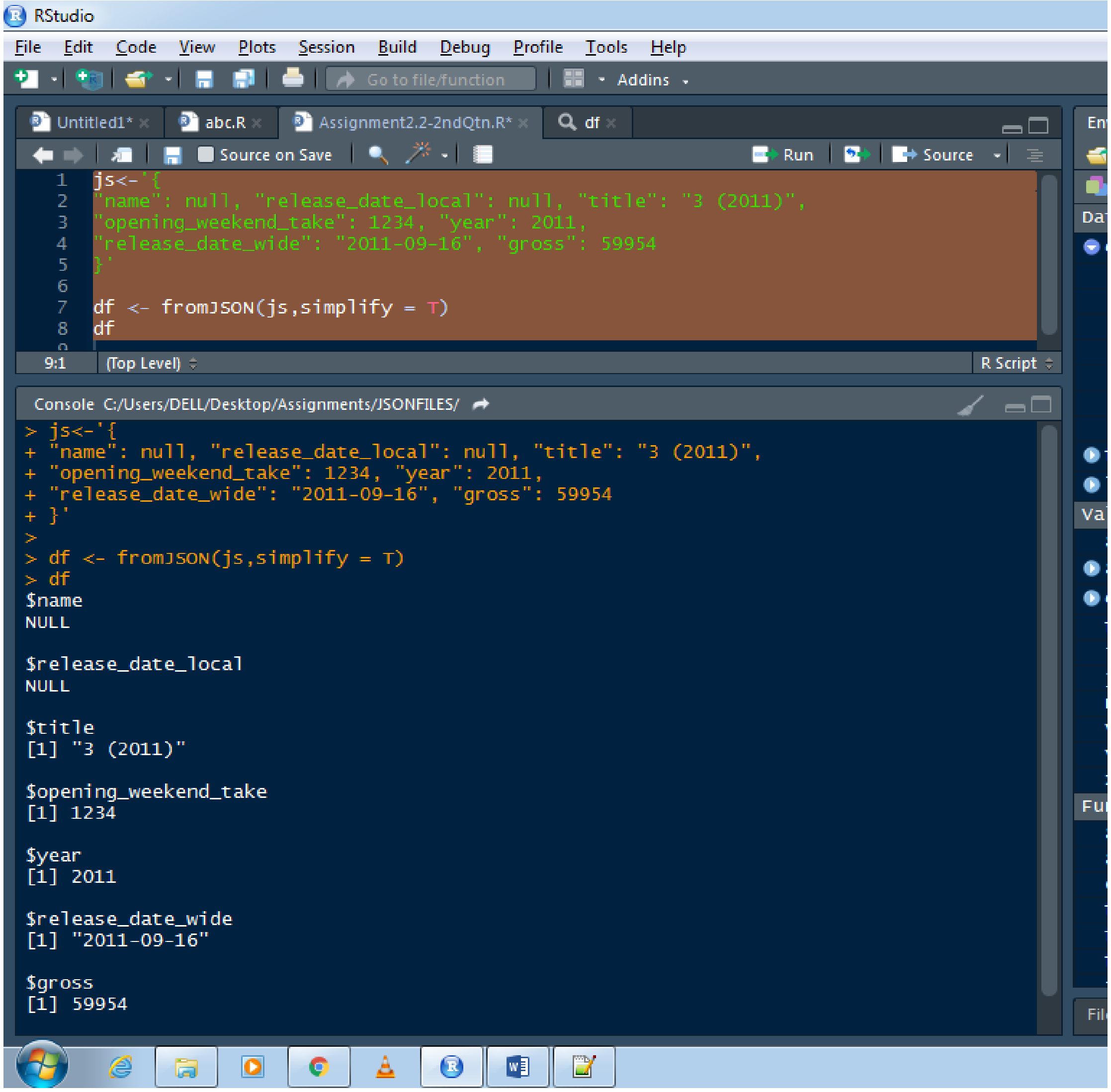
2. Parse the following JSON into a data frame

```
js<-'{
"name": null, "release_date_local": null, "title": "3 (2011)",
"opening_weekend_take": 1234, "year": 2011,
"release_date_wide": "2011-09-16", "gross": 59954
}'
```

Answer:

```
js<-'{
"name": null, "release_date_local": null, "title": "3 (2011)",
"opening_weekend_take": 1234, "year": 2011,
"release_date_wide": "2011-09-16", "gross": 59954
}'

df <- fromJSON(js)
df
```



```
js<-'{
"name": null, "release_date_local": null, "title": "3 (2011)",
"opening_weekend_take": 1234, "year": 2011,
"release_date_wide": "2011-09-16", "gross": 59954
}'

df <- fromJSON(js,simplify = T)
df
```

```
> js<-'{
+ "name": null, "release_date_local": null, "title": "3 (2011)",
+ "opening_weekend_take": 1234, "year": 2011,
+ "release_date_wide": "2011-09-16", "gross": 59954
+ }'
>
> df <- fromJSON(js,simplify = T)
> df
$name
NULL

$release_date_local
NULL

$title
[1] "3 (2011)"

$opening_weekend_take
[1] 1234

$year
[1] 2011

$release_date_wide
[1] "2011-09-16"

$gross
[1] 59954
```

3. Write a script for variable binning using R.

Answer: Bins are create on continuous and categorical variables

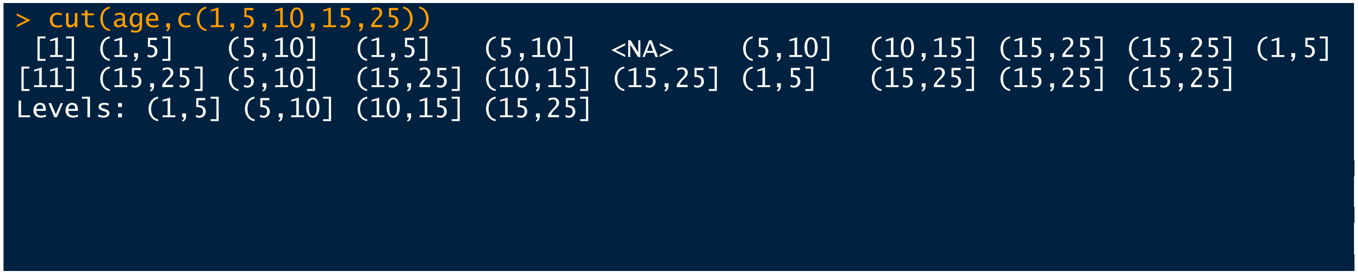
Let’s create a vector **age** as below

age <- c(4,7,5,9,1,10,15,18,19,3,16,10,16,12,22,2,23,16,17)

Vector **age** contains of various elements of different age group.

To group them or to categorize them under certain range we use cut function

cut(age, c(1,5,10,15,25)



```
> cut(age,c(1,5,10,15,25))
 [1] (1,5]   (5,10]  (1,5]   (5,10]  <NA>    (5,10]  (10,15] (15,25] (15,25] (1,5]
[11] (15,25] (5,10]  (15,25] (10,15] (15,25] (1,5]   (15,25] (15,25] (15,25]
Levels: (1,5] (5,10] (10,15] (15,25]
```

Here we are grouping the vector contents into below bin or group or categories

[1,5]

[5,10]

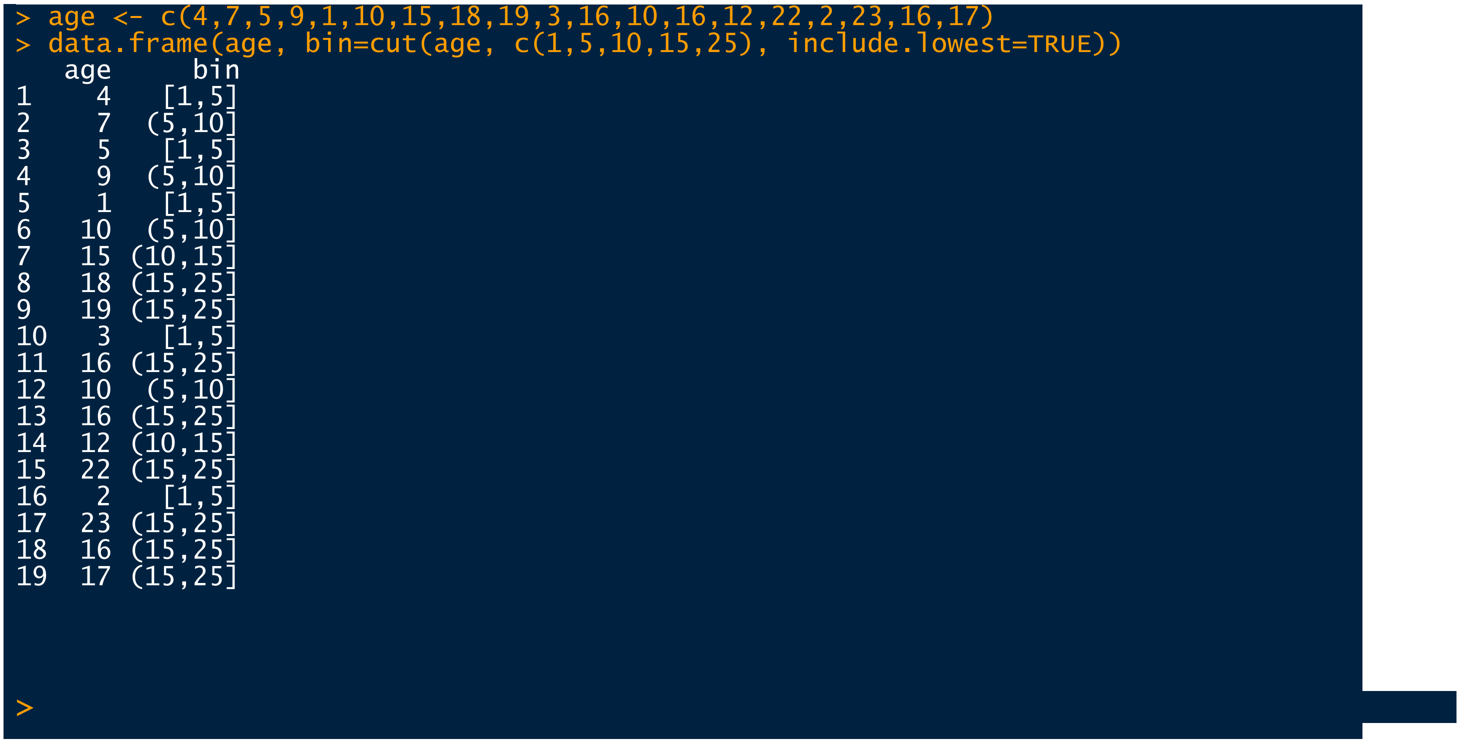
[10,15]

[15,25]

So the above vector values fall under these bins using the **data.frame()** along with **cut()**

age <- c(4,7,5,9,1,10,15,18,19,3,16,10,16,12,22,2,23,16,17)

data.frame(age, bin=cut(age, c(1,5,10,15,25), include.lowest=TRUE))



```
> age <- c(4,7,5,9,1,10,15,18,19,3,16,10,16,12,22,2,23,16,17)
> data.frame(age, bin=cut(age, c(1,5,10,15,25), include.lowest=TRUE))
   age     bin
1    4   [1,5]
2    7  (5,10]
3    5   [1,5]
4    9  (5,10]
5    1   [1,5]
6   10  (5,10]
7   15 (10,15]
8   18 (15,25]
9   19 (15,25]
10   3   [1,5]
11  16 (15,25]
12  10  (5,10]
13  16 (15,25]
14  12 (10,15]
15  22 (15,25]
16   2   [1,5]
17  23 (15,25]
18  16 (15,25]
19  17 (15,25]




>
```

Here we can see each age is falling into respecting bin.