

SHETH LUJ AND SIR MV COLLEGE
Subject: Data Analysis with SAS / SPSS / R

Practical No: 3

Aim: Exploring data: View() or print() (R).

1) head:

The screenshot shows the RStudio interface with the following components:

- File**: Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Addins**: Go to file/function.
- Environment**: Shows objects: Daily_Coffee_Intake_ (10000 obs. of 16 variables), Daily_Coffee_Intake_ (10000 obs. of 1 variable), Daily.Coffee.Intake_. (10000 obs. of 16 variables). It also lists variables: \$ ID, \$ Age, \$ Gender, \$ Country, \$ Coffee_Intake, \$ Caffeine_mg.
- Data**: Shows the structure of the Daily_Coffee_Intake_ data frame.
- Console**: Displays R code and its output. The code reads a CSV file "Daily.Coffee.Intake.vs.Sleep.Duration.csv" and prints the first 10 rows of the data frame.
- Terminal**: Shows the command line history.
- Background Jobs**: Shows the status of background jobs.
- R Script**: A script editor tab.
- File Browser**: Shows the file structure in the current directory, including files like Data.Science.Excel.csv, (del)C++ lec.cpp, (del)f098 Prac 6 Abstract Class.py, (del)f100 data science python 5 nov.py, (F100)Different Parts of computer.pdf, (referecnes)Operators,variables,databases .py, 5-12-24(d) python.py, 12 dec python lec.py, 17-12-24(d) python.py, 28-09-2024(d) python.pdf, 31-8-24(d) python.py, Advanced Python for Data Science, algorithm practical 1.py, algorithm practical 2.py, algorithm practical 3.py, algorithm practical 4.pdf, and algorithm practical 4.nov.

2) tail:

The screenshot shows the RStudio interface with the following components:

- Header Bar:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Project Bar:** Project: (None)
- Script Editor:** A code editor window titled "5097 R Programming practical no 3.R" containing R code. The code includes installing packages, reading a CSV file, and displaying the first few rows of the dataset.
- Environment Pane:** Shows the global environment with objects like Daily_Coffee_Intake_, Age, Gender, Country, Coffee_Intake, and Caffeine_mg.
- Data View:** Displays the structure of the "Daily_Coffee_Intake" dataset, showing 10000 observations and 16 variables.
- File Browser:** A sidebar titled "File" showing a list of files and folders, including Python scripts and PDFs related to data science and computer parts.
- Taskbar:** At the bottom, it shows the Windows Start button, task icons for various applications (File Explorer, Edge, Mail, Photos, etc.), and the system tray with network and battery status.

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3) dim:

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Toolbar:** Source On Save, Run, Source.
- Code Editor:** Screenshot of R code for "S097 R Programming practical no 3.R".
- Environment Tab:** Shows objects in the global environment, including `Daily_Coffee_Intake`, `Gender`, `Country`, `Coffee_Intake`, and `Caffeine_mg`.
- Data Tab:** Displays the structure of the `Daily_Coffee_Intake` dataset.
- Console Tab:** Shows the R session output, including the loading of packages and the head of the dataset.
- Background Jobs Tab:** Shows the execution of various R scripts and Python files.
- File Browser:** A tree view of the project directory structure under "Home".

4) cat:

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profiler, Tools, Help.
- Toolbar:** Source, Save, Run, Source, Environment, History, Connections, Tutorial, Project (None).
- Code Editor:** Displays R code for loading packages, reading a CSV file, and analyzing its dimensions.
- Console:** Shows the execution of the R code, including an error message about using 'cat' on a list.
- File Explorer:** Shows files in the current directory, including various Python and R scripts, and PDFs.
- File List:** Shows a list of files with their names, sizes, and modification dates.

```
install.packages(c("readr", "psych"))
library(readr)
library(psych)
Caffeine_mg <- read.csv("Daily.Coffee.Intake.vs.Sleep.Duration.csv")
head(Daily.Coffee.Intake.vs.Sleep.Duration)
tail(Daily.Coffee.Intake.vs.Sleep.Duration)
dim(Daily.Coffee.Intake.vs.Sleep.Duration)
cat("Dimensions (Rows, Columns): ", dim(Daily.Coffee.Intake.vs.Sleep.Duration), "\n")
Error in cat(Daily.Coffee.Intake.vs.Sleep.Duration) :
  argument 1 (type 'list') cannot be handled by 'cat'

> cat("Dimensions (Rows, Columns): ", dim(Daily.Coffee.Intake.vs.Sleep.Duration), "\n")
Dimensions (Rows, Columns):  10000  16
```

Name	Size	Modified
(Data Science) Excel.csv	5 B	May 9, 2025, 10:56 AM
(del)c++ jec.cpp	2 B	Feb 7, 2025, 11:56 AM
(del)F098 Prac 6 Abstract Class.py	2.3 KB	Feb 18, 2025, 12:08 PM
(del)f100 data science python 5 nov.py	4.3 KB	Feb 16, 2025, 8:25 PM
(F100)Different Parts of computer.pdf	1.4 MB	Aug 5, 2024, 9:47 AM
(refrences)Operators,variables,databases .py	1.7 KB	Aug 2, 2024, 10:04 AM
5-12-24(d8) python.py	704 B	Jan 2, 2025, 7:37 PM
12 dec python lec.py	693 B	Dec 10, 2024, 12:40 PM
17-12-24(d5) python.py	251 B	Jan 2, 2025, 7:23 PM
28-09-2024(d5) python.pdf	278.7 KB	Jan 2, 2025, 7:46 PM
31-8-24(d5) python.py	0 B	Jan 2, 2025, 8:14 PM
Advanced Python for Data Science		
algorithm practical 1.py	2.8 KB	Jan 3, 2025, 1:40 PM
algorithm practical 2.py	1.4 KB	Feb 7, 2025, 1:59 PM
algorithm practical 3.py	1.1 KB	Feb 7, 2025, 9:56 PM
algorithm practical no 4.pdf	224.9 KB	Feb 21, 2025, 1:58 PM
algorithm practical no 5.pdf	653.0 KB	Feb 21, 2025, 1:58 PM

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5) str:

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Project:** Project: (None)
- Code Editor:** Screenshot R Programming practical no 3.R*
Content:

```
1 install.packages(c("readr", "psych"))
2
3 library(readr)
4 library(psych)
5
6 Caffeine_mg <- read.csv("Daily.Coffee.Intake.vs.Sleep.Duration.csv")
7
8 head(Daily.Coffee.Intake.vs.Sleep.Duration)
9 tail(Daily.Coffee.Intake.vs.Sleep.Duration)
10 dim(Daily.Coffee.Intake.vs.Sleep.Duration)
11 cat("Dimensions (Rows, Columns): ", dim(Daily.Coffee.Intake.vs.Sleep.duration), "\n")
12 str(Daily.Coffee.Intake.vs.Sleep.Duration)
13
```
- Environment Tab:** Shows objects in the global environment:
 - Daily_Coffee_Intake_10000 obs. of 16 variables
 - Daily_Coffee_Intake_10000 obs. of 1 variable
 - daily.coffee.intake_10000 obs. of 16 variables
 - \$ ID : int 1 2 3 4 5 6 7 8 9 10 ...
 - \$ Age : int 40 33 42 53 32 32 53 44 29 41 ...
 - \$ Gender : chr "Male" "Male" "Male" "Male" ...
 - \$ Country : chr "Germany" "Germany" "Germany" ...
 - \$ Coffee_Intake : num 3.5 1.5 2.6 3.1 3.4 2.7 4.5 1.7 4 ...
 - \$ Caffeine_mg : num 328.1 94.1 503.7 249.2 298 ...
 - \$ Sleep_Hours : num 7.5 6.2 5.9 7.3 5.3 6.4 7.8 5.5 7.1 6.4 ...
 - \$ Sleep_Quality : chr "Good" "Good" "Fair" "Good" ...
 - \$ BMI : num 24.9 20 22.7 24.7 24.1 27 24.3 15.8 21.7 30.4 ...
 - \$ Heart_Rate : int 78 67 59 71 75 82 58 62 60 69 ...
 - \$ Stress_Level : chr "Low" "Low" "Medium" "Low" ...
 - \$ Physical_Activity_Hours: num 14.5 11 11.2 6.6 8.5 8.8 1 0.7 2.2 11.9 ...
 - \$ Health_Issues : chr "None" "None" "Mild" "Mild" ...
 - \$ Occupation : chr "Other" "Service" "Office" "Other" ...
 - \$ Smoking : int 0 0 0 0 0 1 1 1 0 ...
 - \$ Alcohol_Consumption : int 0 0 0 0 1 0 0 1 0 ...
- Data Tab:** Shows the structure of the Daily_Coffee_Intake_10000 object.
- File Browser:** Shows the contents of the current directory:

Name	Size	Modified
Excel.csv	5 B	May 9, 2025, 10:56 AM
(del)c++ lec.cpp	2 B	Feb 7, 2025, 11:56 AM
(del)F098 Prac 6 Abstract Class.py	2.3 KB	Feb 18, 2025, 12:08 PM
(del)100 data science python 5 nov.py	4.3 KB	Feb 16, 2025, 8:25 PM
(F100)Different Parts of computer.pdf	1.4 MB	Aug 5, 2024, 9:47 AM
(references)Operators,variables,databases .py	1.7 KB	Aug 2, 2024, 10:04 AM
5-12-24(d)s python.py	704 B	Jan 20, 2025, 7:37 PM
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Advanced Python for Data Science		
algorithm practical 1.py	2.8 KB	Jan 3, 2025, 1:40 PM
algorithm practical 2.py	1.4 KB	Feb 7, 2025, 1:59 PM
algorithm practical 3.py	1.1 KB	Feb 7, 2025, 9:56 PM
algorithm practical 4.pdf	224.9 KB	Feb 21, 2025, 1:58 PM
algorithm practical 4.rnw	0 B	Feb 21, 2025, 1:58 PM

6) summary:

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Project:** Project (None) is selected.
- Code Editor:** The code editor shows R code for "5997 R Programming practical no 3.R". It includes a summary of the "Daily.Coffee.Intake.vs.Sleep.Duration" dataset.
- Console:** The console displays the summary statistics for the dataset, including columns like ID, Age, Country, Coffee_Intake, Sleep_Hours, BMI, Heart_Rate, Stress_Level, Physical_Activity_Hours, Health_Issues, Occupation, and Smoking.
- Data View:** The Data view pane shows three global environment objects:
 - Daily_Coffee_Intake_1: 10000 obs. of 16 variables
 - Daily_Coffee_Intake_2: 10000 obs. of 1 variable
 - Daily_Coffee_Intake_3: 10000 obs. of 16 variables
- File Browser:** The files browser shows a list of files in the "Home" directory, including various R scripts and PDFs, with details like size and modification date.

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7) column names:

8) describe:

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Addins:** Go to function, Run, Source.
- Environment:** History, Connections, Tutorial.
- R Script:** S097 R Programming practical no 3.R
- Data:** Daily_Coffee_Intake_1, Daily_Coffee_Intake_2, Daily_Coffee_Intake_3.
- Console:** R 4.5.2 - ~
- Terminal:** Not visible.
- Background Jobs:** Not visible.
- Code:**

```
> library(readr)
> library(psych)
> describe(Daily.Coffee.Intake.vs.Sleep.Duration)
```

	vars	n	mean	sd	median	trimmed	mad	min	max	range
ID	1	10000	5000.50	2886.90	5000.50	3706.50	1	10000.0	9999.0	
Age	2	10000	34.95	11.16	34.0	34.48	11.86	18	80.0	62.0
Gender*	3	10000	1.52	0.54	1.0	1.50	0.00	1	3.0	2.0
Country*	4	10000	10.47	5.74	10.0	10.47	7.41	1	20.0	19.0
Coffee_Intake	5	10000	2.51	1.45	2.5	2.47	1.48	0	8.2	8.2
Caffeine_mg	6	10000	238.41	137.75	235.4	235.07	143.29	0	780.3	780.3
Sleep_Hours	7	10000	6.64	1.22	6.6	6.64	1.19	3	10.0	7.0
Sleep_Quality*	8	10000	2.62	0.84	3.0	2.66	0.00	1	4.0	3.0
BMI	9	10000	23.99	3.91	24.0	23.99	4.00	15	38.2	23.2
Heart_Rate	10	10000	70.62	9.82	71.0	70.55	10.38	50	109.0	59.0
Stress_Level*	11	10000	2.11	0.54	2.0	2.13	0.00	1	3.0	2.0
Physical_Activity_Hours	12	10000	7.49	4.32	7.5	7.46	5.49	0	15.0	15.0
Health_Issues*	13	10000	2.24	0.95	3.0	2.30	0.00	1	4.0	3.0
Occupation*	14	10000	2.99	1.41	3.0	2.99	1.48	1	5.0	4.0
Smoking	15	10000	0.20	0.40	0.0	0.13	0.00	0	1.0	1.0
Alcohol_Consumption	16	10000	0.30	0.46	0.0	0.25	0.00	0	1.0	1.0

skewness: skew, kurtosis: se

	0.00	-1.20	28.87
ID	0.00	-1.20	28.87
Age	0.36	-0.35	0.11
Gender*	0.33	-1.05	0.01
Country*	0.01	-1.21	0.06
Coffee_Intake	0.26	-0.28	0.01
Caffeine_mg	0.26	-0.28	1.38
Sleep_Hours	-0.02	-0.14	0.01
Sleep_Quality*	-0.59	-0.29	0.01
BMI	0.05	-0.17	0.04
Heart_Rate	0.10	-0.26	0.10
Stress_Level*	0.08	0.28	0.01
Physical Activity Hours	0.00	-1.20	0.04
- File Browser:** Shows a list of files and folders, including Data Science, F100, references, and various Python scripts.