

# SHETH L.U.J AND SIR M.V COLLEGE

Subject: Data Analysis with SAS / SPSS /R

## Practical no. 14

**Aim:** Extracting date components using lubridate:: functions (R).

**Outputs**→

The screenshot shows the RStudio interface with the following components:

- Source:** Contains the R console output for installing 'lubridate' and 'dplyr'.
- Environment:** Shows the global environment with variables: split\_matrix, starts\_with\_d, tidy\_sales, unique\_sales\_rep, and volatile\_days.
- Files:** Shows a file explorer view of the user's home directory.

**Source Console Output:**

```
R - R4.5.2 - ~/
> install.packages("lubridate")

WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/

Installing package into 'C:/Users/gazala/AppData/Local/R/win-library/4.5'
(as 'lib' is unspecified)

also installing the dependency 'timechange'

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.5/timechange_0.3.0.zip'
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.5/lubridate_1.9.4.zip'
package 'timechange' successfully unpacked and MD5 sums checked
package 'lubridate' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
C:/Users/gazala/AppData/Local/Temp/RtmpMSbmae/downloaded_packages
> install.packages("dplyr")

Restarting R session...

> install.packages("dplyr")

WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/

Installing package into 'C:/Users/gazala/AppData/Local/R/win-library/4.5'
(as 'lib' is unspecified)

trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.5/dplyr_1.1.4.zip'
Content type 'application/zip' length 1593482 bytes (1.5 MB)
downloaded 1.5 MB

package 'dplyr' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
```

**Environment:**

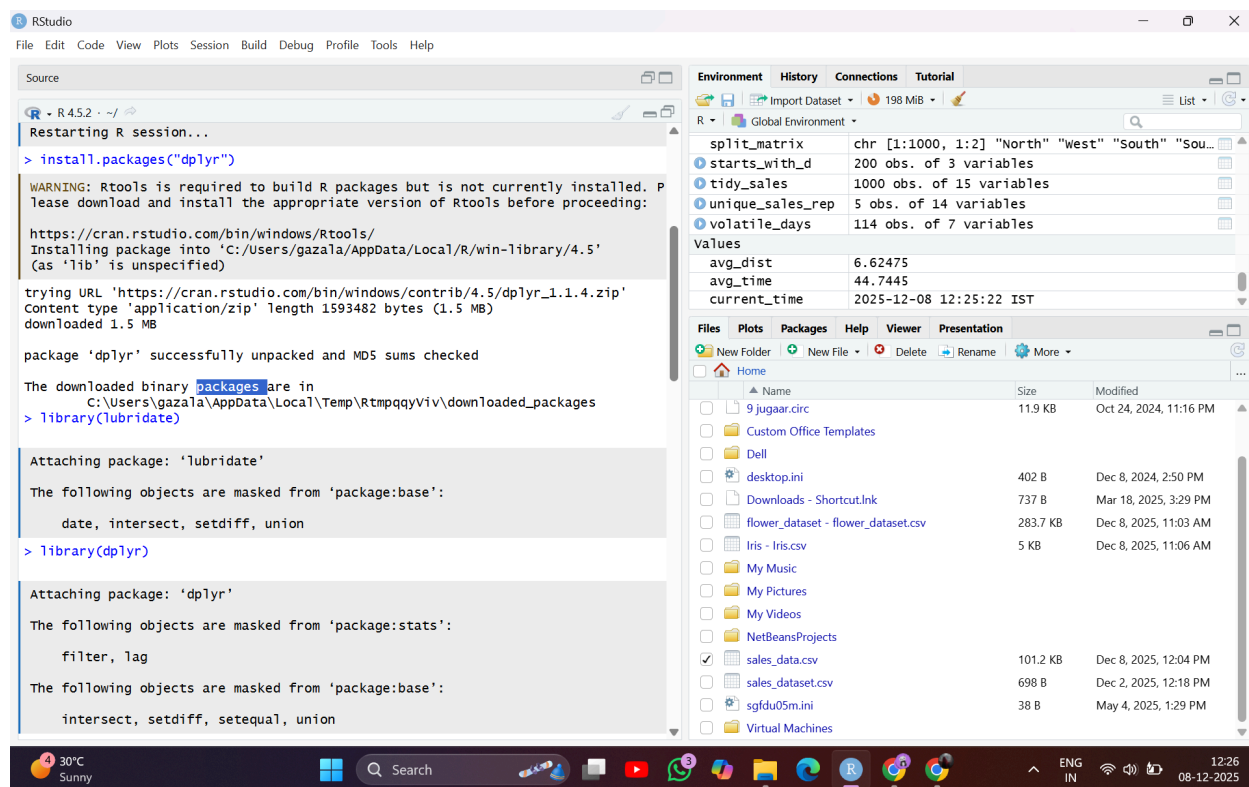
Variable	Value
split_matrix	chr [1:1000, 1:2] "North" "west" "south" "sou..."
starts_with_d	200 obs. of 3 variables
tidy_sales	1000 obs. of 15 variables
unique_sales_rep	5 obs. of 14 variables
volatile_days	114 obs. of 7 variables

**Files:**

Name	Size	Modified
9 jugaar.circ	11.9 KB	Oct 24, 2024, 11:16 PM
Custom Office Templates		
Dell		
desktop.ini	402 B	Dec 8, 2024, 2:50 PM
Downloads - ShortcutLink	737 B	Mar 18, 2025, 3:29 PM
flower_dataset - flower_dataset.csv	283.7 KB	Dec 8, 2025, 11:03 AM
Iris - Iris.csv	5 KB	Dec 8, 2025, 11:06 AM
My Music		
My Pictures		
My Videos		
NetBeansProjects		
sales_data.csv	101.2 KB	Dec 8, 2025, 12:04 PM
sales_dataset.csv	698 B	Dec 2, 2025, 12:18 PM
sgfdu05m.ini	38 B	May 4, 2025, 1:29 PM
Virtual Machines		

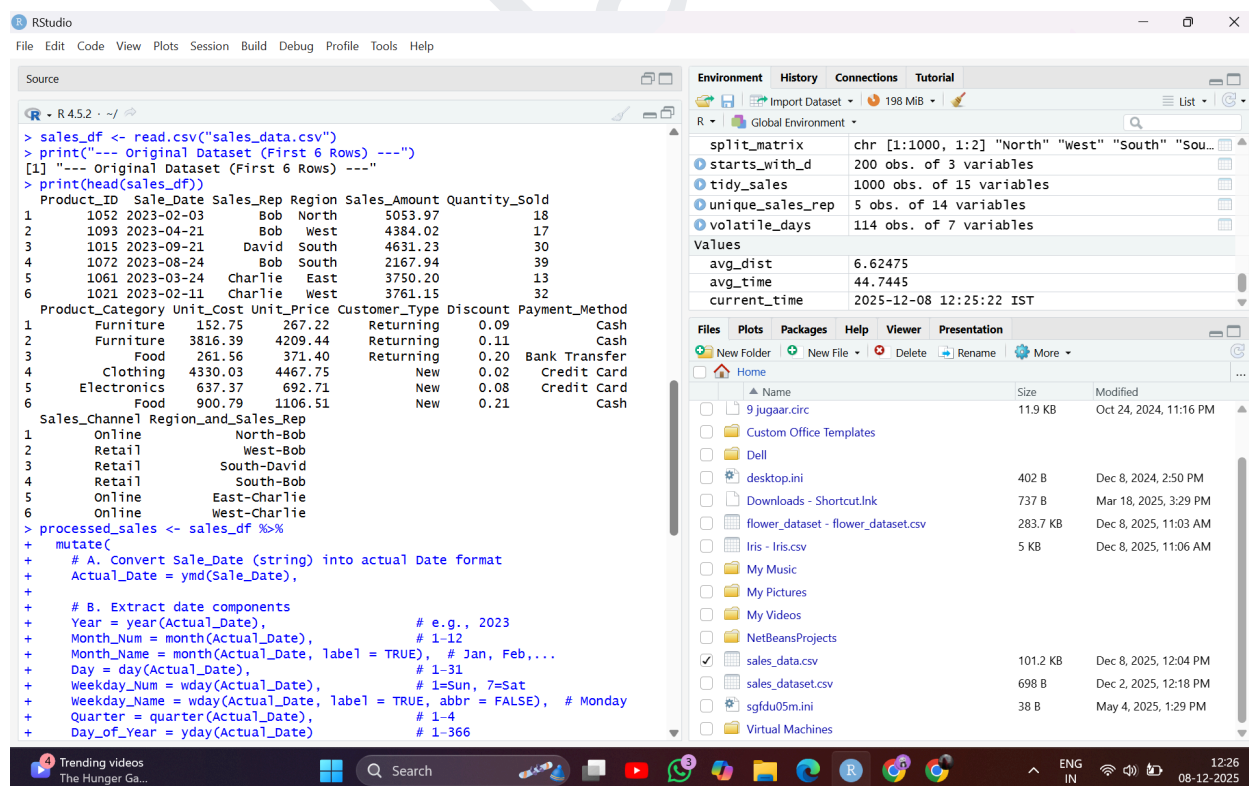
# SHETH L.U.J AND SIR M.V COLLEGE

Subject: Data Analysis with SAS / SPSS /R



The screenshot shows the RStudio interface with the following components:

- Source:** Displays the R console output for installing the `dplyr` package. It shows a warning about Rtools, the download of the package from CRAN, and the successful installation of `dplyr` and `lubridate`.
- Environment:** Shows the global environment with variables like `split_matrix`, `starts_with_d`, `tidy_sales`, `unique_sales_rep`, and `volatile_days`.
- Files:** A file explorer showing the local file system, including folders like `9 jugaar.circ`, `Custom Office Templates`, and files like `desktop.ini`, `Downloads - ShortcutLink`, `flower_dataset - flower_dataset.csv`, `Iris - Iris.csv`, `My Music`, `My Pictures`, `My Videos`, `NetBeansProjects`, `sales_data.csv`, `sales_dataset.csv`, `sgfdu05m.ini`, and `Virtual Machines`.



The screenshot shows the RStudio interface with the following components:

- Source:** Displays the R console output for loading the `sales_data.csv` file and performing data manipulation using `dplyr`. The output shows the first 6 rows of the dataset and the results of the `processed_sales` variable.
- Environment:** Shows the global environment with variables like `split_matrix`, `starts_with_d`, `tidy_sales`, `unique_sales_rep`, and `volatile_days`.
- Files:** A file explorer showing the local file system, including folders like `9 jugaar.circ`, `Custom Office Templates`, and files like `desktop.ini`, `Downloads - ShortcutLink`, `flower_dataset - flower_dataset.csv`, `Iris - Iris.csv`, `My Music`, `My Pictures`, `My Videos`, `NetBeansProjects`, `sales_data.csv`, `sales_dataset.csv`, `sgfdu05m.ini`, and `Virtual Machines`.

# SHETH L.U.J AND SIR M.V COLLEGE

Subject: Data Analysis with SAS / SPSS /R

The screenshot displays the RStudio interface. The Source pane on the left contains R code for data processing, including date extraction and printing. The Environment pane on the right shows the current workspace with variables like split\_matrix, starts\_with\_d, tidy\_sales, unique\_sales\_rep, and volatile\_days. The Files pane at the bottom shows the file explorer with various files and folders.

```
R - R4.5.2 - ~/
File Edit Code View Plots Session Build Debug Profile Tools Help

Source
R - R4.5.2 - ~/
+ Month_Name = month(Actual_Date, label = TRUE), # Jan, Feb,...
+ Day = day(Actual_Date), # 1-31
+ Weekday_Num = wday(Actual_Date), # 1=Sun, 7=Sat
+ Weekday_Name = wday(Actual_Date, label = TRUE, abbr = FALSE), # Monday
+ Quarter = quarter(Actual_Date), # 1-4
+ Day_of_Year = yday(Actual_Date), # 1-366
+ )
> print("--- Processed Dataset with Extracted Date Components ---")
[1] "--- Processed Dataset with Extracted Date Components ---"
> print(head(processed_sales))
  Product_ID Sale_Date Sales_Rep Region Sales_Amount Quantity_Sold
1 1052 2023-02-03 Bob North 5053.97 18
2 1093 2023-04-21 Bob West 4384.02 17
3 1015 2023-09-21 David South 4631.23 30
4 1072 2023-08-24 Bob South 2167.94 39
5 1061 2023-03-24 Charlie East 3750.20 13
6 1021 2023-02-11 Charlie West 3761.15 32
  Product_Category Unit_Cost Unit_Price Customer_Type Discount Payment_Method
1 Furniture 152.75 267.22 Returning 0.09 Cash
2 Furniture 3816.39 4209.44 Returning 0.11 Cash
3 Food 261.56 371.40 Returning 0.20 Bank Transfer
4 Clothing 4330.03 4467.75 New 0.02 Credit Card
5 Electronics 637.37 692.71 New 0.08 Credit Card
6 Food 900.79 1106.51 New 0.21 Cash
  Sales_Channel Region_and_Sales_Rep Actual_Date Year Month_Num Month_Name
1 Online North-Bob 2023-02-03 2023 2 Feb
2 Retail West-Bob 2023-04-21 2023 4 Apr
3 Retail South-David 2023-09-21 2023 9 Sep
4 Retail South-Bob 2023-08-24 2023 8 Aug
5 Online East-Charlie 2023-03-24 2023 3 Mar
6 Online West-Charlie 2023-02-11 2023 2 Feb
  Day Weekday_Num Weekday_Name Quarter Day_of_Year
1 3 6 Friday 1 34
2 21 6 Friday 2 111
3 21 5 Thursday 3 264
4 24 5 Thursday 3 236
5 24 6 Friday 1 83
6 11 7 Saturday 1 42
> current_time <- now()

Environment History Connections Tutorial
R - Global Environment
split_matrix chr [1:1000, 1:2] "North" "West" "South" "Sou..."
starts_with_d 200 obs. of 3 variables
tidy_sales 1000 obs. of 15 variables
unique_sales_rep 5 obs. of 14 variables
volatile_days 114 obs. of 7 variables
Values
avg_dist 6.62475
avg_time 44.7445
current_time 2025-12-08 12:25:22 IST

Files Plots Packages Help Viewer Presentation
New Folder New File Delete Rename More
Home
  Name Size Modified
  9 jugaar.circ 11.9 KB Oct 24, 2024, 11:16 PM
  Custom Office Templates
  Dell
  desktop.ini 402 B Dec 8, 2024, 2:50 PM
  Downloads - Shortcut.Link 737 B Mar 18, 2025, 3:29 PM
  flower_dataset - flower_dataset.csv 283.7 KB Dec 8, 2025, 11:03 AM
  Iris - Iris.csv 5 KB Dec 8, 2025, 11:06 AM
  My Music
  My Pictures
  My Videos
  NetBeansProjects
  sales_data.csv 101.2 KB Dec 8, 2025, 12:04 PM
  sales_dataset.csv 698 B Dec 2, 2025, 12:18 PM
  sgfd05m.ini 38 B May 4, 2025, 1:29 PM
  Virtual Machines
```

The screenshot displays the RStudio interface. The Source pane on the left contains R code for extracting the current time and printing it. The Environment pane on the right shows the current workspace with variables like split\_matrix, starts\_with\_d, tidy\_sales, unique\_sales\_rep, and volatile\_days. The Files pane at the bottom shows the file explorer with various files and folders.

```
R - R4.5.2 - ~/
File Edit Code View Plots Session Build Debug Profile Tools Help

Source
R - R4.5.2 - ~/
  Product_ID Sale_Date Sales_Rep Region Sales_Amount Quantity_Sold
1 1052 2023-02-03 Bob North 5053.97 18
2 1093 2023-04-21 Bob West 4384.02 17
3 1015 2023-09-21 David South 4631.23 30
4 1072 2023-08-24 Bob South 2167.94 39
5 1061 2023-03-24 Charlie East 3750.20 13
6 1021 2023-02-11 Charlie West 3761.15 32
  Product_Category Unit_Cost Unit_Price Customer_Type Discount Payment_Method
1 Furniture 152.75 267.22 Returning 0.09 Cash
2 Furniture 3816.39 4209.44 Returning 0.11 Cash
3 Food 261.56 371.40 Returning 0.20 Bank Transfer
4 Clothing 4330.03 4467.75 New 0.02 Credit Card
5 Electronics 637.37 692.71 New 0.08 Credit Card
6 Food 900.79 1106.51 New 0.21 Cash
  Sales_Channel Region_and_Sales_Rep Actual_Date Year Month_Num Month_Name
1 Online North-Bob 2023-02-03 2023 2 Feb
2 Retail West-Bob 2023-04-21 2023 4 Apr
3 Retail South-David 2023-09-21 2023 9 Sep
4 Retail South-Bob 2023-08-24 2023 8 Aug
5 Online East-Charlie 2023-03-24 2023 3 Mar
6 Online West-Charlie 2023-02-11 2023 2 Feb
  Day Weekday_Num Weekday_Name Quarter Day_of_Year
1 3 6 Friday 1 34
2 21 6 Friday 2 111
3 21 5 Thursday 3 264
4 24 5 Thursday 3 236
5 24 6 Friday 1 83
6 11 7 Saturday 1 42
> current_time <- now()
> print("--- Current Time Extraction ---")
[1] "--- Current Time Extraction ---"
> print(paste("Current Year:", year(current_time)))
[1] "Current Year: 2025"
> print(paste("Current Hour:", hour(current_time)))
[1] "Current Hour: 12"
> print(paste("Current Minute:", minute(current_time)))
[1] "Current Minute: 25"
>

Environment History Connections Tutorial
R - Global Environment
split_matrix chr [1:1000, 1:2] "North" "West" "South" "Sou..."
starts_with_d 200 obs. of 3 variables
tidy_sales 1000 obs. of 15 variables
unique_sales_rep 5 obs. of 14 variables
volatile_days 114 obs. of 7 variables
Values
avg_dist 6.62475
avg_time 44.7445
current_time 2025-12-08 12:25:22 IST

Files Plots Packages Help Viewer Presentation
New Folder New File Delete Rename More
Home
  Name Size Modified
  9 jugaar.circ 11.9 KB Oct 24, 2024, 11:16 PM
  Custom Office Templates
  Dell
  desktop.ini 402 B Dec 8, 2024, 2:50 PM
  Downloads - Shortcut.Link 737 B Mar 18, 2025, 3:29 PM
  flower_dataset - flower_dataset.csv 283.7 KB Dec 8, 2025, 11:03 AM
  Iris - Iris.csv 5 KB Dec 8, 2025, 11:06 AM
  My Music
  My Pictures
  My Videos
  NetBeansProjects
  sales_data.csv 101.2 KB Dec 8, 2025, 12:04 PM
  sales_dataset.csv 698 B Dec 2, 2025, 12:18 PM
  sgfd05m.ini 38 B May 4, 2025, 1:29 PM
  Virtual Machines
```