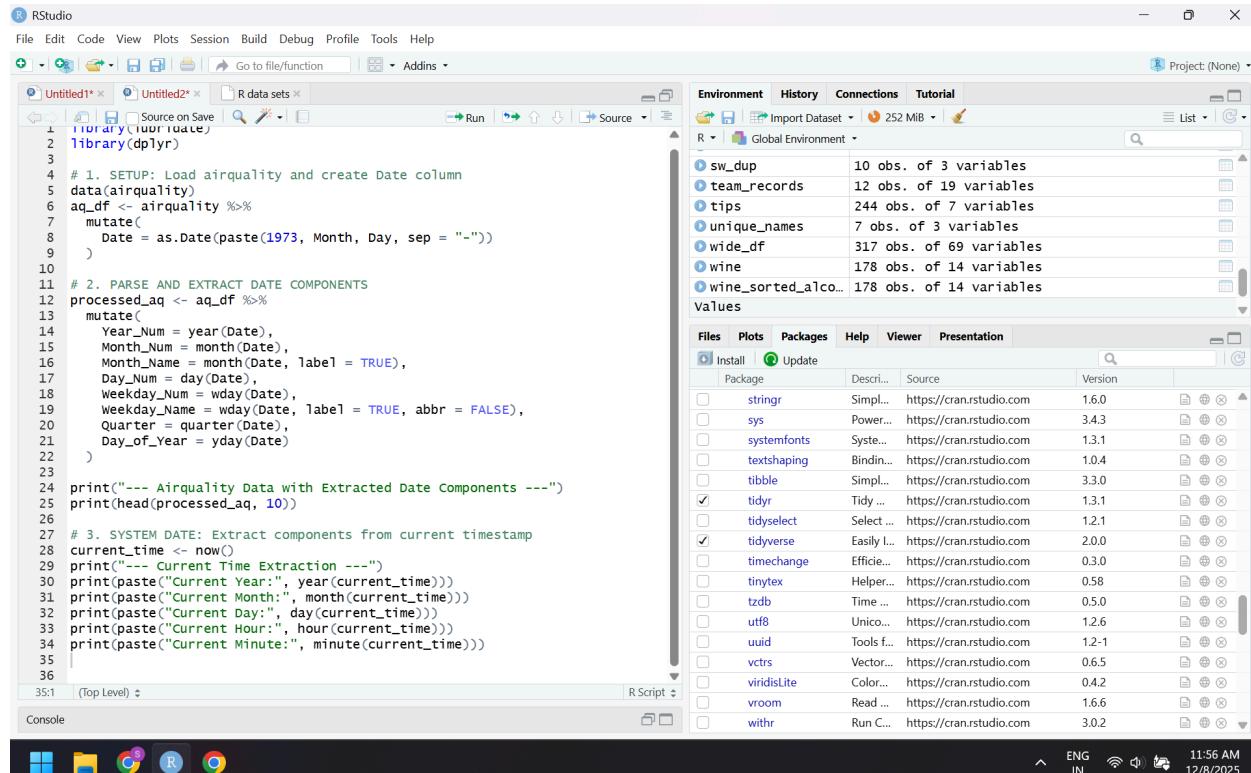


SHETH L.U.J. & SIR M.V. COLLEGE OF SCIENCE
SUBJECT - Data Analysis with SAS / SPSS / R

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

Input :



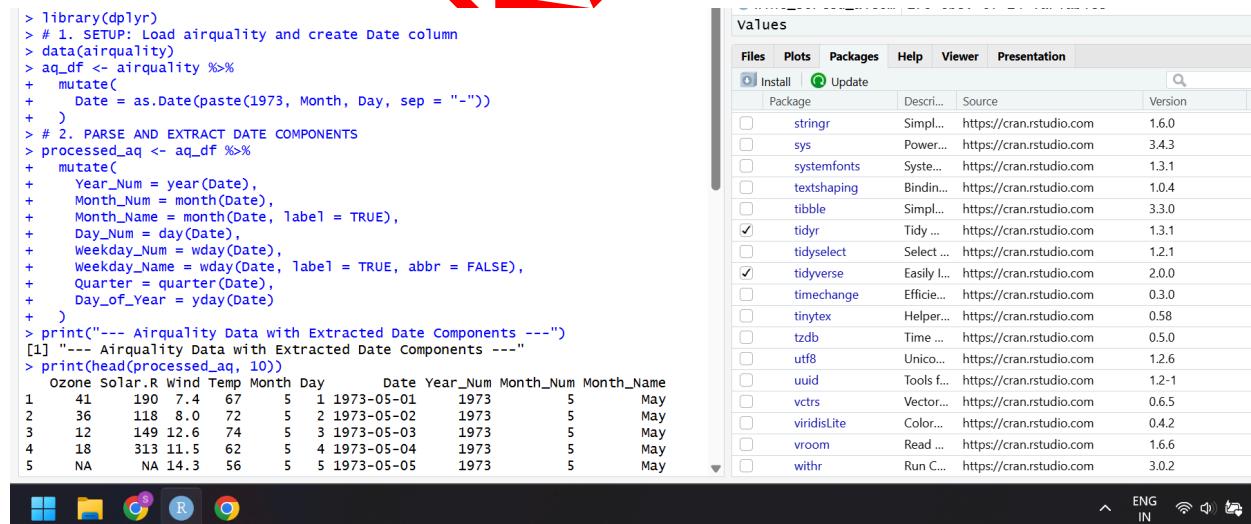
The screenshot shows the RStudio interface. The left pane displays an R script with code for extracting date components from the 'airquality' dataset using the 'lubridate' package. The right pane shows the 'Environment' tab with various datasets loaded, and the bottom right shows system status.

```

library(dplyr)
# 1. SETUP: Load airquality and create Date column
data(airquality)
aq_df <- airquality %>%
  mutate(
    Date = as.Date(paste(1973, Month, Day, sep = "-"))
  )
# 2. PARSE AND EXTRACT DATE COMPONENTS
processed_aq <- aq_df %>%
  mutate(
    Year_Num = year(Date),
    Month_Num = month(Date),
    Month_Name = month(Date, label = TRUE),
    Day_Num = day(Date),
    Weekday_Num = wday(Date),
    Weekday_Name = wday(Date, label = TRUE, abbr = FALSE),
    Quarter = quarter(Date),
    Day_of_Year = yday(Date)
  )
print(" --- Airquality Data with Extracted Date Components ---")
print(head(processed_aq, 10))
# 3. SYSTEM DATE: Extract components from current timestamp
current_time <- now()
print(" --- Current Time Extraction ---")
print(paste("Current Year:", year(current_time)))
print(paste("Current Month:", month(current_time)))
print(paste("Current Day:", day(current_time)))
print(paste("Current Hour:", hour(current_time)))
print(paste("Current Minute:", minute(current_time)))

```

Output :



The screenshot shows the RStudio interface with the output of the R code. The console shows the execution of the script and the resulting data frame 'processed_aq'. The data frame contains the original airquality data with additional columns for Year_Num, Month_Num, Month_Name, Day_Num, Weekday_Num, Weekday_Name, Quarter, and Day_of_Year. The bottom right shows system status.

```

> library(dplyr)
> # 1. SETUP: Load airquality and create Date column
> data(airquality)
> aq_df <- airquality %>%
+   mutate(
+     Date = as.Date(paste(1973, Month, Day, sep = "-"))
+   )
> # 2. PARSE AND EXTRACT DATE COMPONENTS
> processed_aq <- aq_df %>%
+   mutate(
+     Year_Num = year(Date),
+     Month_Num = month(Date),
+     Month_Name = month(Date, label = TRUE),
+     Day_Num = day(Date),
+     Weekday_Num = wday(Date),
+     Weekday_Name = wday(Date, label = TRUE, abbr = FALSE),
+     Quarter = quarter(Date),
+     Day_of_Year = yday(Date)
+   )
> print(" --- Airquality Data with Extracted Date Components ---")
[1] " --- Airquality Data with Extracted Date Components ---"
> print(head(processed_aq, 10))
   Ozone Solar.R Wind Temp Month Day      Date Year_Num Month_Num Month_Name
1     41     190   7.4   67     5    1 1973-05-01    1973        5      May
2     36     118   8.0   72     5    2 1973-05-02    1973        5      May
3     12     149  12.6   74     5    3 1973-05-03    1973        5      May
4     18     313  11.5   62     5    4 1973-05-04    1973        5      May
5     NA     NA  14.3   56     5    5 1973-05-05    1973        5      May

```

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The screenshot shows the RStudio interface with the following details:

- Console Tab:** Displays the R session history. The user has loaded a dataset named "processed_aq" and printed its head. They then extracted date components from the "Date" column and printed the results. Finally, they extracted current time components.
- Global Environment:** Shows a list of objects in the global environment, their sizes, and variable types. Objects include: sw_dup (10 obs. of 3 variables), team_records (12 obs. of 19 variables), tips (244 obs. of 7 variables), unique_names (7 obs. of 3 variables), wide_df (317 obs. of 69 variables), wine (178 obs. of 14 variables), and wine_sorted_alco... (178 obs. of 14 variables).
- Packages Tab:** Shows the installed packages and their versions. Packages listed include stringr, sys, systemfonts, textshaping, tidyverse, tidyverse, tidyselect, tidyverse, timechange, tinytex, tzdb, utf8, uuid, vctrs, viridisLite, vroom, and withr.

The screenshot shows the RStudio interface. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help, and a Project dropdown set to '(None)'. Below the menu is a toolbar with various icons. The main area has tabs for Source, Console, Terminal, and Background Jobs. The Console tab is active, displaying a table of data and R code for extracting timestamp components. The Background Jobs tab shows a list of jobs. The Source tab contains a code editor with R code. The Environment tab in the top right shows a list of global variables with their types and sizes. The Packages tab in the bottom right lists installed packages with their versions and download links.

```
R RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
+ - X
Go to file/function | Addins +
Source
Console Terminal Background Jobs
R 4.5.2 · ~ / ~
2 36 118 8.0 72 5 2 1973-05-02 1973 5 May
3 12 149 12.6 74 5 3 1973-05-03 1973 5 May
4 18 313 11.5 62 5 4 1973-05-04 1973 5 May
5 NA 14.3 56 5 5 1973-05-05 1973 5 May
6 28 NA 14.9 66 5 6 1973-05-06 1973 5 May
7 23 299 8.6 65 5 7 1973-05-07 1973 5 May
8 19 99 13.8 59 5 8 1973-05-08 1973 5 May
9 8 19 20.1 61 5 9 1973-05-09 1973 5 May
10 NA 194 8.6 69 5 10 1973-05-10 1973 5 May
Day_Num Weekday_Num Weekday_Name Quarter Day_of_Year
1 1 3 Tuesday 2 121
2 2 4 Wednesday 2 122
3 3 5 Thursday 2 123
4 4 6 Friday 2 124
5 5 7 Saturday 2 125
6 6 1 Sunday 2 126
7 7 2 Monday 2 127
8 8 3 Tuesday 2 128
9 9 4 Wednesday 2 129
10 10 5 Thursday 2 130
> # 3. SYSTEM DATE: Extract components from current timestamp
> 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 Month:", month(current_time)))
[1] "Current Month: 12"
> print(paste("Current Day:", day(current_time)))
[1] "Current Day: 8"
> print(paste("Current Hour:", hour(current_time)))
[1] "Current Hour: 11"
> print(paste("Current Minute:", minute(current_time)))
[1] "Current Minute: 51"
>
|
```

Environment	History	Connections	Tutorial
sw_dup	10 obs. of 3 variables		
team_records	12 obs. of 19 variables		
tips	244 obs. of 7 variables		
unique_names	7 obs. of 3 variables		
wide_df	317 obs. of 69 variables		
wine	178 obs. of 14 variables		
wine_sorted_alco...	178 obs. of 14 variables		

Values	Files	Plots	Packages	Help	Viewer	Presentation	
Install	Update						
Package	Descri...	Source	Version				
stringr	Simpl...	https://cran.rstudio.com	1.6.0				
sys	Power...	https://cran.rstudio.com	3.4.3				
systemfonts	System...	https://cran.rstudio.com	1.3.1				
textshaping	Bindin...	https://cran.rstudio.com	1.0.4				
tibble	Simpl...	https://cran.rstudio.com	3.3.0				
tidyverse	Tidy ...	https://cran.rstudio.com	1.3.1				
tidyselect	Select ...	https://cran.rstudio.com	1.2.1				
timechange	Easily ...	https://cran.rstudio.com	2.0.0				
tinytex	Efficie...	https://cran.rstudio.com	0.3.0				
tzdb	Helper...	https://cran.rstudio.com	0.58				
utf8	Time ...	https://cran.rstudio.com	0.5.0				
uuid	Unico...	https://cran.rstudio.com	1.2.6				
vctrs	Tools ...	https://cran.rstudio.com	1.2-1				
viridisLite	Color...	https://cran.rstudio.com	0.4.2				
vroom	Read ...	https://cran.rstudio.com	1.6.6				
withr	Run C...	https://cran.rstudio.com	3.0.2				

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