

SHETH L.U.J.AND SIR M.V. COLLEGE
PRACTICAL NO.14
Data Analysis with SAS / SPSS /R

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

INPUT:-

```
# R Script: Extracting Date Components using lubridate (Wine Dataset Version)
```

```
# 1. INSTALL & LOAD LIBRARIES
```

```
# Run this ONCE:
```

```
install.packages("lubridate")
```

```
# Load libraries
```

```
library(lubridate)
```

```
library(dplyr)
```

```
# 2. SET WORKING DIRECTORY
```

```
setwd("D:/S079_VIBHUTI/ADV PYTHON FOR DATA SCIENCE")
```

```
print(list.files())
```

```
# 3. LOAD WINE DATASET
```

```
wine <- read.csv("winequality-red.csv")
```

**VIBHUTI GAWADE
S079**

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```
head(wine)
```

```
# 4. ADD DATE COLUMN
```

```
wine$date_recorded <- seq(  
  from = as.Date("2023-01-01"),  
  length.out = nrow(wine),  
  by = "day"  
)
```

```
# 5. PARSE & EXTRACT DATE COMPONENTS
```

```
wine_dates_processed <- wine %>%  
  mutate(  
    Actual_Date = ymd(date_recorded),  
    Year_Num = year(Actual_Date),  
    Month_Num = month(Actual_Date),  
    Month_Name = month(Actual_Date, label = TRUE),  
    Day_Num = day(Actual_Date),  
    Weekday_Num = wday(Actual_Date),  
    Weekday_Name = wday(Actual_Date, label = TRUE, abbr = FALSE),  
    Quarter = quarter(Actual_Date),  
    Day_of_Year = yday(Actual_Date)
```

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)

```
print(head(wine_dates_processed))
```

6. SYSTEM DATE & TIME

```
current_time <- now()
```

```
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 downloaded binary packages were ...
C:\Users\mvlui\AppData\Local\Temp\RtmpM15EZG\downloaded_packages
> # R Script: Extracting Date Components using lubridate (wine Dataset Version)
>
>
> # 1. INSTALL & LOAD LIBRARIES
>
> # Run this ONCE:
> install.packages("lubridate")
```

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PRACTICAL NO.14
Data Analysis with SAS / SPSS /R

```
The downloaded binary packages are in
  C:\Users\mvluui\AppData\Local\Temp\rtmpM15EZG\downloaded_packages
>
> # Load libraries
> library(lubridate)
```

```
Attaching package: 'lubridate'
```

```
The following objects are masked from 'package:base':
  date, intersect, setdiff, union
```

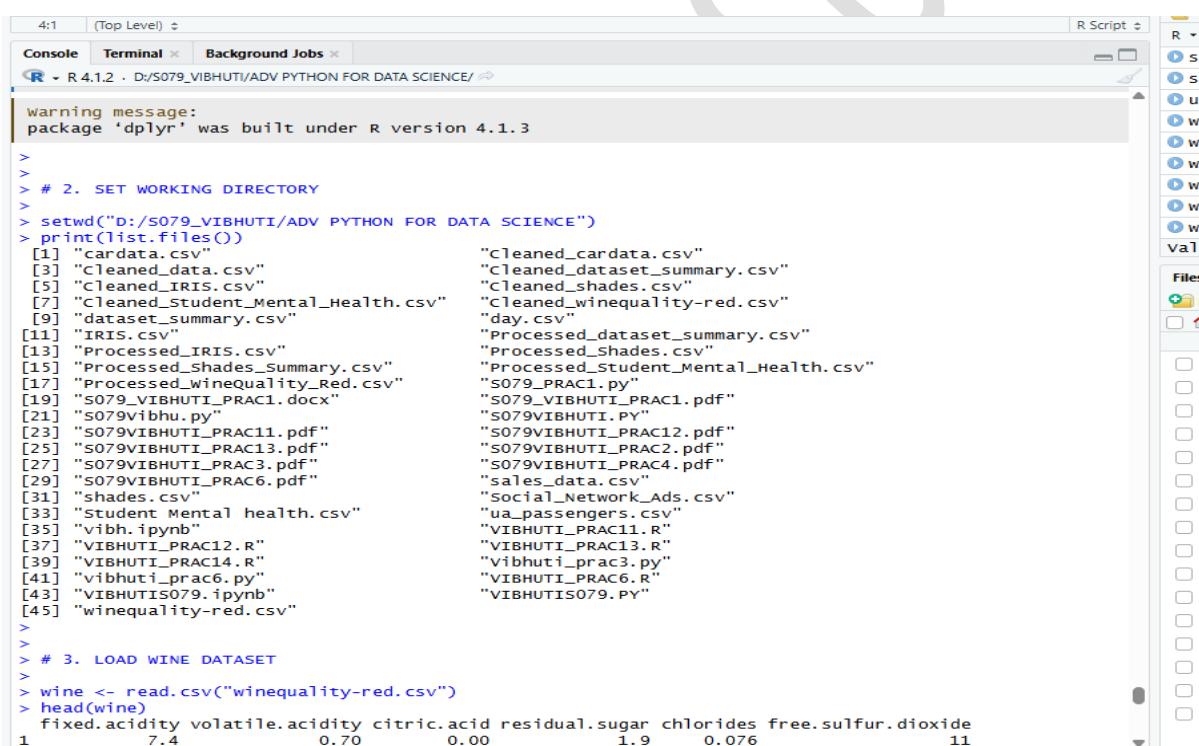
```
Warning message:
package 'lubridate' was built under R version 4.1.3
```

```
> library(dplyr)
```

```
Attaching package: 'dplyr'
```

```
The following objects are masked from 'package:stats':
  filter, lag

The following objects are masked from 'package:base':
  intersect, setdiff, setequal, union
```



The screenshot shows the RStudio interface with the following details:

- Console Tab:** Active, showing R session history.
- Terminal Tab:** Inactive.
- Background Jobs Tab:** Inactive.
- File Explorer (Files):** Shows a list of files in the current directory, including CSV, PDF, and R scripts.
- Code Editor (R Script):** Inactive.
- Variables (R):** Inactive.

```
4:1 (Top Level) ⇣
Console Terminal ✎ Background Jobs ✎
R 4.1.2 · D:/S079_VIBHUTI/ADV PYTHON FOR DATA SCIENCE/ ↵
warning message:
package 'dplyr' was built under R version 4.1.3
>
>
> # 2. SET WORKING DIRECTORY
>
> setwd("D:/S079_VIBHUTI/ADV PYTHON FOR DATA SCIENCE")
> print(list.files())
[1] "cardata.csv"           "Cleaned_cardata.csv"
[3] "Cleaned_data.csv"       "Cleaned_dataset_summary.csv"
[5] "Cleaned_IRIS.csv"       "Cleaned_shades.csv"
[7] "Cleaned_Student_Mental_Health.csv" "Cleaned_winequality-red.csv"
[9] "dataset_summary.csv"    "day.csv"
[11] "IRIS.csv"              "Processed_dataset_summary.csv"
[13] "Processed_IRIS.csv"     "Processed_Shades.csv"
[15] "Processed_Shades_Summary.csv" "Processed_Student_Mental_Health.csv"
[17] "Processed_winequality_Red.csv" "S079_PRAC1.py"
[19] "S079_VIBHUTI_PRAC1.docx"  "S079_VIBHUTI_PRAC1.pdf"
[21] "S079vibhu.py"          "S079VIBHUTI.PY"
[23] "S079VIBHUTI_PRAC11.pdf" "S079VIBHUTI_PRAC12.pdf"
[25] "S079VIBHUTI_PRAC13.pdf" "S079VIBHUTI_PRAC2.pdf"
[27] "S079VIBHUTI_PRAC3.pdf"  "S079VIBHUTI_PRAC4.pdf"
[29] "S079VIBHUTI_PRAC6.pdf"  "sales_data.csv"
[31] "shades.csv"            "Social_Network_Ads.csv"
[33] "Student Mental health.csv" "ua_passengers.csv"
[35] "vibh.ipynb"             "VIBHUTI_PRAC11.R"
[37] "VIBHUTI_PRAC12.R"       "VIBHUTI_PRAC13.R"
[39] "VIBHUTI_PRAC14.R"       "Vibhuti_prac3.py"
[41] "vibhuti_prac6.py"       "VIBHUTI_PRAC6.R"
[43] "VIBHUTISO79.ipynb"      "VIBHUTISO79.PY"
[45] "winequality-red.csv"    "winequality-red.csv"
>
>
> # 3. LOAD WINE DATASET
>
> wine <- read.csv("winequality-red.csv")
> head(wine)
fixed.acidity volatile.acidity citric.acid residual.sugar chlorides free.sulfur.dioxide
1                 7.4            0.70        0.00         1.9      0.076          11
```

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PRACTICAL NO.14
Data Analysis with SAS / SPSS / R



```
R 4.1.2 - D:\S079_VIBHUTI\ADV PYTHON FOR DATA SCIENCE/
L45j vibhuti15079.ipynb vibhuti15079.R
[45] "winequality-red.csv"
>
>
> # 3. LOAD WINE DATASET
>
> wine <- read.csv("winequality-red.csv")
> head(wine)
fixed.acidity volatile.acidity citric.acid residual.sugar chlorides free.sulfur.dioxide
1          7.4           0.70      0.00       1.9     0.076          11
2          7.8           0.88      0.00       2.6     0.098          25
3          7.8           0.76      0.04       2.3     0.092          15
4         11.2           0.28      0.56       1.9     0.075          17
5          7.4           0.70      0.00       1.9     0.076          11
6          7.4           0.66      0.00       1.8     0.075          13
total.sulfur.dioxide density pH sulphates alcohol quality
1            34  0.9978  3.51      0.56     9.4        5
2            67  0.9968  3.20      0.68     9.8        5
3            54  0.9970  3.26      0.65     9.8        5
4            60  0.9980  3.16      0.58     9.8        6
5            34  0.9978  3.51      0.56     9.4        5
6            40  0.9978  3.51      0.56     9.4        5
>
> # 4. ADD DATE COLUMN
>
> wine$date_recorded <- seq(
+   from = as.Date("2023-01-01"),
+   length.out = nrow(wine),
+   by = "day"
+ )
>
>
> # 5. PARSE & EXTRACT DATE COMPONENTS
>
> wine_dates_processed <- wine %>%
+   mutate(
+     Actual_Date = ymd(date_recorded),
+     Year_Num = year(Actual_Date),
+     Month_Num = month(Actual_Date),
+     Month_Name = month(Actual_date, label = TRUE),
+     Day_Name = day(Actual_date)
+   )
```

The RStudio interface shows the code being run in the console. The code reads a CSV file named 'winequality-red.csv', prints its first six rows, adds a date column, and then creates a new dataset 'wine_dates_processed' with additional date components like year, month, and day names.

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Data Analysis with SAS / SPSS / R



4:1 (Top Level) ▾ R Script ▾

Console Terminal × Background Jobs ×

```

R - R 4.1.2 - D:/S079_VIBHUTI/ADV PYTHON FOR DATA SCIENCE/ ↵
+ Month_Name = month(Actual_Date, label = TRUE),
+ Day_Num = day(Actual_Date),
+ Weekday_Num = wday(Actual_Date),
+ Weekday_Name = wday(Actual_Date, label = TRUE, abbr = FALSE),
+ Quarter = quarter(Actual_Date),
+ Day_of_Year = yday(Actual_Date)
+ )
>
> print(head(wine_dates_processed))
fixed.acidity volatile.acidity citric.acid residual.sugar chlorides free.sulfur.dioxide
1      7.4          0.70     0.00      1.9    0.076        11
2      7.8          0.88     0.00      2.6    0.098        25
3      7.8          0.76     0.04      2.3    0.092        15
4     11.2          0.28     0.56      1.9    0.075        17
5      7.4          0.70     0.00      1.9    0.076        11
6      7.4          0.66     0.00      1.8    0.075        13
total.sulfur.dioxide density pH sulphates alcohol quality date_recorded Actual_Date Year_Num
1      34  0.9978 3.51 0.56 9.4 5 2023-01-01 2023-01-01 2023
2      67  0.9968 3.20 0.68 9.8 5 2023-01-02 2023-01-02 2023
3      54  0.9970 3.26 0.65 9.8 5 2023-01-03 2023-01-03 2023
4      60  0.9980 3.16 0.58 9.8 6 2023-01-04 2023-01-04 2023
5      34  0.9978 3.51 0.56 9.4 5 2023-01-05 2023-01-05 2023
6      40  0.9978 3.51 0.56 9.4 5 2023-01-06 2023-01-06 2023
Month_Num Month_Name Day_Num Weekday_Num Weekday_Name Quarter Day_of_Year
1         1   Jan       1       1 Sunday      1       1
2         1   Jan       2       2 Monday      1       2
3         1   Jan       3       3 Tuesday     1       3
4         1   Jan       4       4 Wednesday   1       4
5         1   Jan       5       5 Thursday   1       5
6         1   Jan       6       6 Friday     1       6
>
>
> # 6. SYSTEM DATE & TIME
>
> current_time <- now()
>
> 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: 1"

```

R Global Envir

- shades_clean
- shades_df
- unique_qualit
- wide_car
- wine
- wine_clean
- wine_dates_pr
- wine_df
- winequality.r

Values

Files Plots Packa

New Folder +

Home

- .Name
- .Rhistory
- ~\$a 1 st prc.
- Bhumika Dul
- Custom Offic
- desktop.ini
- GIS DataBas
- IISExpress
- My Web Site
- NetBeansPrc
- Power BI De
- R
- shades.csv
- Virtual Mach
- Visual Stu
- win7
- WindowsPov

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Data Analysis with SAS / SPSS /R



R Script ◀

Console Terminal x Background Jobs x

R 4.1.2 - D:/S079_VIBHUTI/ADV PYTHON FOR DATA SCIENCE/ ↗

```

>
> print(head(wine_dates_processed))
fixed.acidity volatile.acidity citric.acid residual.sugar chlorides free.sulfur.dioxide
1      7.4          0.70     0.00       1.9    0.076           11
2      7.8          0.88     0.00       2.6    0.098           25
3      7.8          0.76     0.04       2.3    0.092           15
4     11.2          0.28     0.56       1.9    0.075           17
5      7.4          0.70     0.00       1.9    0.076           11
6      7.4          0.66     0.00       1.8    0.075           13
total.sulfur.dioxide density pH sulphates alcohol quality date_recorded Actual_Date Year_Num
1        34  0.9978 3.51   0.56    9.4      5 2023-01-01 2023-01-01      2023
2        67  0.9968 3.20   0.68    9.8      5 2023-01-02 2023-01-02      2023
3        54  0.9970 3.26   0.65    9.8      5 2023-01-03 2023-01-03      2023
4        60  0.9980 3.16   0.58    9.8      6 2023-01-04 2023-01-04      2023
5        34  0.9978 3.51   0.56    9.4      5 2023-01-05 2023-01-05      2023
6        40  0.9978 3.51   0.56    9.4      5 2023-01-06 2023-01-06      2023
Month_Num Month_Name Day_Num Weekday_Num Weekday_Name Quarter Day_of_Year
1         1      Jan      1          1    Sunday      1          1
2         1      Jan      2          2    Monday      1          2
3         1      Jan      3          3   Tuesday      1          3
4         1      Jan      4          4 Wednesday      1          4
5         1      Jan      5          5 Thursday      1          5
6         1      Jan      6          6   Friday      1          6
>
>
> # 6. SYSTEM DATE & TIME
>
> current_time <- now()
>
> 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: 16"
> |

```

R □ Global Environment □

- shades_clean
- shades_df
- unique_quality
- wide_car
- wine
- wine_clean
- wine_dates
- wine_df
- winequality

Values

Files Plots Projects

- New Folder
- Home
- ▲ Name
- .Rhistory
- ~\$a 1 st
- Bhumika
- Custom
- desktop.
- GIS Data
- IISExpress
- My Web
- NetBean
- Power BI
- R
- shades.c
- Virtual N
- Visual St
- win7
- Window: